AIR INTERDICTION

IN WORLD WAR II, KOREA, AND VIETNAM

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Richard H. Kohn and Joseph P. Harahan
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AIR INTERDICTION IN WORLD WAR II, KOREA, AND VIETNAM

An interview with Gen. Earle E. Partridge,
Gen. Jacob E. Smart,
and Gen. John W. Vogt, Jr.

Edited with an introduction
by Richard H. Kohn and
Joseph P. Harahan

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Foreword

The publication of *Air Interdiction in World War II, Korea, and Vietnam* is part of a continuing series of historical studies from the Office of Air Force History in support of Project Warrior.

Project Warrior seeks to create and maintain within the Air Force an environment where Air Force people at all levels can learn from the past and apply the warfighting experiences of past generations to the present. When General Lew Allen, Jr., initiated the project in 1982, he called for the "continuing study of military history, combat leadership, the principles of war and, particularly, the applications of air power." All of us in the Air Force community can benefit from such study and reflection. The challenges of today and the future demand no less.

CHARLES A. GABRIEL, General, USAF
Chief of Staff

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Introduction

This book is the second of a series of group oral interviews focused on major areas of U.S. Air Force operations in the past. Begun in 1981 at the suggestion of Lt. Gen. Hans H. Driessnack, the Assistant Vice Chief of Staff, these interviews attempt to capture the recollections and insights of those former air leaders who shaped the history of the Air Force. General Driessnack thought that if senior retired officers would participate in historical discussions in small groups they might together recall incidents and experiences that might otherwise go unrecorded. In the course of remembering they might elicit from each other information that would be of interest to the Air Force today. In June 1982, the Office of Air Force History interviewed four senior tactical air leaders: Gen. James Ferguson, Gen. Robert M. Lee, Gen. William W. Momyer, and Lt. Gen. Elwood R. "Pete" Quesada; that transcript was published as *Air Superiority in World War II and Korea* (Washington: Office of Air Force History, 1983).

A second interview was conducted on June 17, 1983. On that occasion the topic was air interdiction: how it had been defined, planned, and executed in World War II, Korea, and Vietnam. The participants—Gen. Earle E. "Pat" Partridge, Gen. Jacob E. Smart, and Gen. John W. Vogt—met at Bolling Air Force Base and for more than three hours related their war experiences, first as young pilots, then as mid-level staff officers, and later as air commanders. Together they reflected on the purposes and objectives of air interdiction. Their recollections and insights ranged from pre-World War II tactical air doctrine to air campaigns in North Africa, Sicily, Italy, Normandy, and Northern France in World War II, to air interdiction campaigns in Korea, and finally, to more recent examples in Vietnam. Throughout their discussions certain issues recurred: coordinating air with ground and sea forces; allocating aircraft to different air combat missions; collecting and interpreting intelligence; planning and targeting air interdiction missions; and applying air power within a framework of

political constraints. Each of these issues is discussed through the lens of personal recollection: a single individual remembering an air battle or campaign at a fixed moment in the past. Consequently, readers should treat this collective oral interview not as history, but as the source material upon which history rests. This book is a collective memoir, elicited by historians from air commanders who flew, fought, and commanded air forces in three wars.

Air interdiction was selected as the topic by the Office of Air Force History because it has been a critical element in so many past tactical air campaigns. In World War II, Korea, and Vietnam, American air forces mounted sustained air interdiction campaigns, using thousands of men and machines, in an effort to interrupt or disrupt the flow of men and materiel to the enemy armies fighting American forces. Interdiction has always been a controversial subject. Air forces have traditionally viewed it as a mission area that fell between close air support of ground forces and strategic attacks against an enemy nation's industrial capacity or moral will to wage war. Depending on the time and place, interdiction has included a multiplicity of different operations against various target systems using many different tactics and techniques. The common denominator has been the goal of denying enemy ground forces the resources to win the battle. The disputes have arisen from the difficulty of assessing fully just how the air attacks have effected the capability of the enemy's armies and therefore the outcome of the battle or campaign. Yet in spite of continuing controversy, there is a dearth of in-depth, analytical literature on the topic, especially when compared with many more substantive works concerning other air operations such as strategic bombing. We therefore believe that the thinking of these three men will contribute significant insights to an important and controversial aspect of warfare that has been little studied, but will likely engage substantially the forces of the United States in future military conflicts.

Gen. Earle E. Partridge was an Army enlisted man in World War I who rose to general officer as a combat air commander in World War II and

Korea. He loved to fly. During his long military career he amassed over 11,000 hours piloting aircraft as diverse as the "Jennys" of the World War I era and the F–86Fs of the Korean War. Throughout his career he earned air commands which made him responsible for leading larger and larger groups of air forces in war. Perhaps the culmination of General Partridge's combat experiences came during the Korean War when he led the USAF's Fifth Air Force from the first hours of the conflict to the end of its first year in combat. The Fifth was the major tactical air force in Korea supporting the American Eighth Army and Tenth (X) Corps.

Partridge was born in Winchendon, Massachusetts on July 7, 1900. In the summer of 1918 he enlisted in the U.S. Army and joined the American Expeditionary Forces in Europe for the final offensive drive of World War I. In France he fought with the Army's 79th Infantry Division in battles at St. Mihiel and the Argonne. Following his discharge in 1919, Partridge attended college briefly before entering the U.S. Military Academy in September 1920. Upon graduation he received a commission as a second lieutenant in the U.S.Army, and joined the Air Service. As virtually all young air officers did in the 1920s, he went off to Kelly Field, Texas for flying instruction, graduating with both honors and a three-year assignment as an instructor pilot at Kelly. Teaching in the advanced flying school, he began his long association with tactical air concepts and operations. For three consecutive years (1926–1928) he won the Distinguished Gunners Medal at annual matches held at Langley Field, Virginia. This record stood him well in subsequent assignments in observation (Seventh Observation Squadron, Panama Canal Zone) and pursuit (94th and 27th Pursuit Squadrons, Selfridge Field, Michigan). Like many of his contemporaries, Partridge attended the Air Corps Tactical School in the 1930s, graduating with the class of 1937. Following yet another year at professional school, the Army's Command and General Staff School at Fort Leavenworth, Kansas, he became an instructor in the pursuit section at the Air Corps Tactical School. This long preoccupation with the fundamentals of tactical air concepts prior to World War II paid dividends during the war.

When the war began, Partridge was a major; when it ended he was a major general. His war experience revealed how American air leaders organized, planned, and fought World War II. Training came first. In June 1940, Partridge was directed to organize the Army Air Corps' first ad-

vanced single-engine flying schools at Barksdale Field, Louisiana, and Napier Field, Alabama. These schools became models for subsequent training facilities. Next, Partridge was assigned to work on large-scale war plans. In March 1942, he joined the Army General Staff and worked on the Joint Strategic Committee, Joint Chiefs of Staff. There he helped prepare plans for the cross-channel invasion from England to the European mainland. Next, in the spring of 1943 he was sent to North Africa to lead combat air forces; this time bombers. Joining the Allied forces in Tunisia he went to work for Brig. Gen. James H. Doolittle as Chief of Staff, 12th Bomber Command. On November 1, 1943, Gen. Dwight D. Eisenhower, Commander in Chief, Allied Forces, announced the activation of Fifteenth Air Force which would operate in the Italian Theater. That same day, the Fifteenth's new commander, Maj. Gen. Doolittle, selected Partridge as his chief of staff. After flying with and helping direct this numbered air force in Italy for eight months, General Partridge went to England in June 1944 to command Third Bombardment Division, Eighth Air Force. He succeeded Brig. Gen. Curtis LeMay who went to the Pacific to lead the 20th, and later 21st Bomber Command. Partridge remained with the Eighth until Germany capitulated in May 1945; then, he worked to smooth this air force's transfer from the European to the Pacific theater. When the Japanese surrendered suddenly in August 1945, Partridge remained in that theater, and for a brief period, commanded Eighth Air Force. For his service in World War II, General Partridge received the Distinguished Service Medal, Distinguished Flying Cross, Legion of Merit, Bronze Star, and Air Medal with three oak leaf clusters. The British, French, Polish, and Belgian governments awarded him medals.

Notwithstanding his World War II experiences, General Partridge is perhaps best known for his leadership of USAF's Fifth Air Force during the Korean War. Prior to the war he had gone to the Far East and had served as commander of the Fifth for almost two years before the North Koreans invaded South Korea on June 25, 1950. With virtually no warning, American military forces were thrust into a large-scale conventional war. Partridge led the USAF's tactical air forces in the first year of the war, and they flew air superiority, close air support, and interdiction missions. He worked closely, though not without difficulty, with Army and Navy commanders in coordinating air power for combined operations. Those were minor

issues, however, when placed against the larger tapestry of leading air forces in modern wars. Partridge took the long view of the Korean conflict: "Bear in mind, it was only five years since the close of World War II. At the start of the war in Korea most of my people were combat ready, they had been exposed to enemy fire, and were veterans." (p 42)

He left Korea in July 1951, returning to the United States to direct the USAF's Air Research and Development Command. There, he made it a priority to improve the performance of the F–86E/F Sabrejets then locked in air-to-air combat with Russian-built MiG–15s. In April 1954 he went to the Far East again, assuming command of the Far East Air Forces, headquartered in Tokyo. In Japan he helped to reorganize all American air forces in the Far East and to airlift supplies and materiel to French forces in Indochina. Finally in July 1955, General Partridge was named Commander in Chief, Continental Air Defense Command, at Colorado Springs, Colorado. For four years he worked to establish the North American Air Defense Command (NORAD) as a multi-national, hemispheric air defense command. In 1959 Partridge retired after forty years of active military service to the nation.

Gen. Jacob E. Smart served as a bomb group commander under Lt. Gen. Ira C. Eaker in World War II, directed air planning and operations in the Korean War, and commanded all USAF air forces in the Pacific in an early phase of the Vietnam War. A decade younger than Partridge and older than Vogt, Smart was born in 1909 in Ridgeland, South Carolina. Educated at West Point, he became in World War II a leading strategic planner and bomb group commander. Immediately after the surrender of Japan, he began working with those air leaders who were establishing the modern, independent Air Force. During the Korean War he helped devise air strategy for that limited war. Throughout his long career, General Smart was a thoughtful, reflective exponent of American air power.

His thinking about the application of military force began at the United States Military Academy in 1927. Graduating in the depression year of 1931, he received a commission, entered the Army Air Corps, and

began flight training immediately. After completion of advanced flight training at Kelly Field, he served successively in pursuit, observation, and flight training units at Albrook Field, Canal Zone, and Randolph Field, Texas. At Randolph between 1935 and 1941, Smart rose from flight instructor to officer-in-charge to staff director of the Air Training Center. Just weeks after the Japanese struck at Pearl Harbor on December 7, 1941, Lt. Col. Smart was ordered to Washington and became the Chief of Flying Training. Drawing on his years at Randolph, Smart assisted in organizing, staffing, and coordinating the AAF's large and expanding flying training organization.

Barely six months later, Lt. Gen. Henry H. "Hap" Arnold, Commanding General, Army Air Forces, tapped him to work on special projects as a member of his personal advisory council. Customarily, General Arnold hand-picked four young officers for this council; they brought him new ideas, kept him informed, and served as a sounding board for the difficult problems descending on the air forces from the Joint Chiefs of Staff, the Secretary of War, the President, or the British Prime Minister. Like many officers holding high-level staff jobs, Smart found that the range and breadth of projects both tested and expanded his abilities. He worked, at one point, with Brig. Gen. Albert C. Wedemeyer, the U.S. Army's brilliant war planner, at the Casablanca Conference in January 1943. At that conference, attended by President Franklin D. Roosevelt, Prime Minister Winston S. Churchill, and the Combined British-American Chiefs of Staff, Wedemeyer and Smart served as special assistants to Generals Marshall and Arnold respectively.

At Casablanca, Roosevelt and Churchill made several pivotal decisions regarding the European Theater—approving the invasion of Sicily and Italy in 1943, setting the cross-channel invasion of France for June 1944, and authorizing a combined day and night air offensive against the Axis nations' warmaking capabilities. At the end of this conference, President Roosevelt announced the joint policy of seeking unconditional surrender of Germany.

Following Casablanca, Colonel Smart conceived a bold plan for striking at the Axis industrial infrastructure through a massive, long-range bomber attack on the oil refineries at Ploesti, Rumania. Approved by Marshall, Arnold, Eisenhower, and Eaker, the plan called for four groups of

B–24s (178 aircraft) to fly from North Africa across the Mediterranean Sea and strike at the Ploesti refineries in a series of low-level bombing runs. Smart assisted in planning, organizing. and preparing the bomb crews for the August 1, 1943, Ploesti raid. The results were definitely mixed: some damage to the refineries; heavy losses to the bombers. Evaluations of the plans and organization were, according to Smart, also mixed: he was both condemned and praised. Within months, however, Colonel Smart had been selected to command a veteran bomb group, the 97th of the Fifteenth Air Force, operating in the Mediterranean Theater. While flying on his 29th mission over Germany his B–17 received a direct hit and exploded. No survivors were seen. Concluding that Smart had died, Lt. Gen. Ira Eaker, Commander, Mediterranean Allied Air Forces, wrote Arnold: "No officer has come under my observation in this war who showed quite such promise. He had a vision and imagination well beyond the average. He was one of the little group whom I counted upon to carry the new Air Force after the war."

Smart had not died, however. Blown clear of the exploding aircraft and wounded badly, he survived by parachuting onto German territory. There he was seized, interrogated, and imprisoned until the end of the war. For his combat and non-combat duty in World War II he was awarded the Distinguished Flying Cross, Distinguished Service Cross, Distinguished Service Medal, and four Air Medals.

Returning to the United States in May 1945, Colonel Smart went to work in Washington initially as Secretary of the Air Staff, and then as executive assistant to Gen. Carl A. Spaatz, Commanding General, Army Air Forces. In these positions he helped shape the postwar Air Force, which became a separate, co-equal service on September 18, 1947. When the Korean War began on June 25, 1950, Smart was commanding an air division headquartered at Stewart AFB, New York. In June 1951 he went to Korea, becoming the Deputy Director, then Director of Operations for the USAF's Far East Air Forces. Then led by Lt. Gen. O. P. Weyland, this theater air force was responsible for the overall direction of the air war. After a few months of observation and reflection, Smart developed a new air strategy for Korea. In addition to using air power against the enemy's military forces in traditional tactical applications—air superiority, close air support, and air interdiction campaigns—he argued that air power should

be used to maintain pressure on the North Korean and Communist Chinese economic and military infrastructure in order to influence the armistice negotiations then underway. Accepted by General Weyland and approved by the Joint Chiefs of Staff, this new strategy led to selective destruction of North Korean productive capability (electric power generation and industry) as well as transportation, supplies, and military personnel and materiel. Smart believed that employment of available air forces in this manner would hasten a negotiated armistice.

In the interim between the wars in Korea and Vietnam, Smart held a variety of senior leadership positions: Assistant Vice Chief of Staff, Headquarters, USAF (1955–59), Commander, Twelfth Air Force (1959–60), Vice Commander, Tactical Air Command (1960–61), and Commander, U.S. Forces in Japan, including Fifth Air Force (1961–63). From 1963 to 1964 he led the Pacific Air Forces and worked directly for Adm. Harry D. Felt, Commander in Chief, Pacific. Admiral Felt exercised operational control, through his component commanders, of all American forces in the Pacific theater, including those forces in Southeast Asia. Smart's tenure as commander, though lasting but a year, coincided with the end of the advisory years and the growing Americanization of the war, including U.S. retaliatory air strikes against North Vietnam and a stepped up counterinsurgency campaign in South Vietnam. Smart and Air Force Chief of Staff Gen. Curtis E. LeMay argued that the expanded and reorganized Military Assistance Command, Vietnam (MACV) should include experienced airmen to plan and orchestrate tactical air power. Raising the issue in theater and in Washington, D.C., Smart and LeMay were rebuffed repeatedly by Secretary of Defense Robert McNamara, Chairman of the Joint Chiefs of Staff, Gen. Maxwell D. Taylor, and Army Gen. William C. Westmoreland, MACV Commander. Shortly thereafter, Smart left the Pacific and moved to Europe, becoming the Deputy Commander in Chief, U.S. European Command in July 1964. Two years later he retired, ending 35 years of active service.

Gen. John W. Vogt is a first generation military officer who holds the distinction of being the only individual to have commanded all USAF

forces in both the Pacific (1973–74) and European (1974–75) theaters. Two decades younger than Partridge and one younger than Smart, Vogt was born in 1920. Just three months prior to the Japanese attack on Pearl Harbor in December 1941, he joined the Army Air Corps and began pilot training in Texas. From the first he wanted to fly fighters. Commissioned in March 1942, he was assigned to fly P–38s in the 56th Fighter Group at Mitchel Field, New York. While in New York, Vogt had the good fortune of being in the first squadron selected to fly the new P–47 Thunderbolt fighters. During World War II these fighters became escorts for B-17 and B–24 strategic bombers striking Germany. In January 1943 Vogt accompanied the 56th to England and flew P–47s in combat for the next 27 months, until the war in Europe ended. During the conflict he rose to squadron commander and participated in all major tactical air campaigns in Northern Europe. Ending the war as a major, Vogt was credited with shooting down eight enemy aircraft.

Unlike Partridge and Smart, John Vogt left the Army Air Forces following World War II. He enrolled at Yale University and earned a bachelor's degree in industrial relations in June 1947. Just a few months prior the Army Air Forces had announced a program to recall 10,000 men into the regular service; Vogt chose to return, accepting a new commission and assignment as an intelligence officer at Mitchel Field. From this point forward, he possessed the special combination of extensive air combat experience and an excellent education. Coincidentally, leaders of the new, independent Air Force were searching in the late 1940s for young, well-educated officers with air combat experience to serve on key joint-staffs in the new Department of Defense. In September 1949 the Air Force sent Vogt to Columbia University for a master's degree in international relations. Immediately upon graduation he went to Washington as the Air Force's special assistant to Adm. Edmund T. Wooldridge, the Joint Chiefs of Staff Senior Staff Representative on the National Security Council. For four years Vogt researched, wrote, and coordinated national security policy papers. During the Truman and Eisenhower administrations, he attended virtually all the NSC's senior staff sessions and, on occasion, carried out special assignments. When the French forces in Indochina were forced to surrender at Dien Bien Phu in 1954, Vogt and a State Department official went to Paris and consulted with French military leaders about military support for the non-Communist elements in Vietnam. That trip and the

subsequent internal policy debate over military aid to South Vietnam began Vogt's long association with Southeast Asia.

In August 1955 he left Washington for the Far East, becoming the Assistant Deputy for Plans and Operations, Headquarters Far East Air Forces. He worked for Maj. Gen. Hunter Harris, Jr., who was engaged in a major reorganization of all USAF forces in the Pacific. This restructuring was one part of a much larger reorganization involving all United States military forces in the Pacific. Vogt became a part of that larger reorganization when he was transferred to Hawaii in 1956 and became the special assistant to Adm. George Anderson, Commander in Chief, Pacific Command. At that time Anderson was setting up the new command headquarters and simultaneously establishing the subordinate theater command structure which would remain intact throughout the American war in Southeast Asia.

Toward the end of this reorganization, Vogt had the good fortune of being selected as the Air Force's representative in the first group at Harvard University's Center for International Affairs. This experience in 1959 brought him into contact with Henry A. Kissinger, Zbigniew Brzezinski, and an elite group of national security scholars who influenced United States foreign and military policy decisively in the 1960s and 1970s. Immediately upon graduation from this one-year course Vogt went to Washington again, becoming Deputy Assistant Director for Plans, Headquarters USAF and the Air Force's principal planner to the Joint Chiefs of Staff. During the Cuban missile crisis of October–November 1962, usually considered a testing time for decisionmakers in the Kennedy administration, Brigadier General Vogt worked directly for Secretary of Defense Robert S. McNamara. A few months later, in February 1963, he was assigned to the Office of the Secretary of Defense, working for Paul Nitze, Assistant Secretary of Defense, International Security Affairs. During the Kennedy and Johnson administrations Nitze and his staff exercised extraordinary influence in shaping national security policy. Vogt continued to work for Secretary McNamara in the mid–1960s, planning and coordinating numerous policy initiatives. Gradually, however, the Vietnam War subsumed all else, and McNamara, who to an unusual degree managed all aspects of the war, began planning the air campaign over North Vietnam.

As the Vietnam conflict grew in intensity and size, the scope of the air war increased dramatically. In August 1965 Vogt went to the Far East,

becoming Deputy Chief of Staff for Plans and Operations, Pacific Air Forces. Again he was working for Gen. Hunter Harris, and he directed, within the guidelines set by policymakers in Washington, planning of the air campaign against North Vietnam. After three years with the Pacific Air Forces in Hawaii, General Vogt returned to Washington, going to the Joint Chiefs of Staff as the Director of Operations (J–3) and subsequently, Director of the Joint Staff. There he continued his daily involvement with the war in Vietnam.

In April 1972 Vogt went to Vietnam as the Commander, Seventh Air Force and Deputy Commander to Gen. Creighton Abrams, Commander, U.S. Military Assistance Command, Vietnam. There he helped carry out the policy of the Nixon Administration to "Vietnamize" the war. This meant that while peace negotiations were underway in Paris, the United States would gradually disengage its combat forces in Southeast Asia while the South Vietnamese modernized and reequipped their land and air forces for the eventual take over of all combat roles. By the end of 1972 this process was virtually complete. General Vogt commanded the last crucial American air campaigns of Linebacker I and II, when U.S. air power first averted a North Vietnamese victory and then coerced the North to sign the Paris Accords. When the Vietnam ceasefire went into effect in January 1973, Vogt was left with direction of all U.S. air activities in Thailand and Cambodia. On October 1, 1973, when U.S. combat activities ceased in those nations, he left Southeast Asia, becoming Commander in Chief, Pacific Air Forces. Ten months later he was selected to lead all U.S. Air Forces in Europe. There he worked to set up a tactical air control center similar to the command and control center he had established in Thailand. In September 1975, General Vogt retired after 33 years of military service.

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AIR INTERDICTION

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R.H.K.
J.P.H.

Air Interdiction

In the long evolution of American air power in the twentieth century the professional experiences and judgments of these senior air leaders are both representative and instructive. Over one hundred years of military service are contained in this oral history interview, almost all of it concerned with the application of a new kind of military force—air power—to the oldest of military questions: how to defeat enemy armies. In discussing their experiences in World War II, Korea, and Vietnam, these men focus on those air campaigns which have come to be considered classics of air interdiction: in World War II, Operation Strangle in Italy, March–May 1944, and operations in support of the Normandy Invasion, April–June 1944; in the Korean War, all campaigns, especially Operation Strangle, May-October 1951; in the Vietnam War, the air interdiction part of the Rolling Thunder air campaign, March 1965–November 1968, the air campaign in Southern Laos, 1965–1972, and especially the air interdiction portions of Linebacker I and II, May–October and December 1972. In addition, the discussion turns in the latter stages to the impact of electronics—laser guided weapons, electronic supression devices, drone airplanes, and immediate air intelligence—on air interdiction operations. Generals Partridge, Smart, and Vogt offer definitions, clarifications, examples, generalizations, and advice. Their purpose, and that of the Office of Air Force History, is to further the dialogue among military professionals so that the past can help us to meet the challenges of the future.

Air Interdiction in World War II, Korea, and Vietnam

Participants	Active Duty Years
Gen. Earle E. Partridge, USAF, Retired	1918–59
Gen. Jacob E. Smart, USAF, Retired	1927–66
Gen. John W. Vogt, Jr., USAF, Retired	1941–75
Dr. Richard H. Kohn, Chief, Office of Air Force History	

Air Interdiction Defined

Kohn: First, let me welcome you and express our appreciation for taking time out of your busy schedules to share your experiences with us this morning. As you know, interdiction is one of the major elements of air warfare; it is an essential airpower mission that has contributed directly to victory in modern wars. But it is also tremendously controversial. The successes and failures of interdiction have been disputed heatedly since World War II and are likely to be the subject of great controversy for some time to come. Therefore your thinking and your perspective, based on forty or fifty or more years of experience and reflection, can help the Air Force today and in the future.

Let me begin by asking you a question of definition. Many people think interdiction means a total cutoff of men or materiel to a battlefield, to an army, or to an area. We know that is rarely if ever the case. Could I ask you what your concept of interdiction is; how you would define it and its purpose? General Partridge, perhaps you would like to start.

Partridge: This is a subject that was not discussed very much before World War II. I was at the Air Corps Tactical School in the prewar days. (I

have to say which war because I was in three wars.) We didn't make any point of discussing interdiction beyond the tactics of carrying it out. There was some discussion in the attack course run by Ralph Stearley and others.[1] The subject also came up in the fighter course because it included dive bombing, which we were not doing. I think that interdiction is a poor name for it, but I don't have a better one. And I haven't answered your question.

Smart: I'll take a shot at it. Interdiction, as I see it, is an effort on the part of air forces primarily, the Army to a lesser degree, and the Navy over the seas, to deny an enemy materiel and human resources that it needs to carry on the war. The purpose of interdiction is simply to isolate the battlefield, if there is a battlefield. The means employed are primarily that of attacking materiel and human resources at the source, if you can. If one cannot attack them at the source, then along the routes. Interdiction also entails the destruction of means of communication, particularly at bottlenecks along routes such as bridges, tunnels, or manmade devices which take a long time to repair. Defiles through mountainous regions are also areas to strike. Interdiction also entails attacks on forces and resources that are being moved along lines of communication, with the purpose of: (1) destroying as much as you can; (2) limiting the amount that arrives in the battle area; and (3) controlling the time at which the resources arrive so that the enemy is required to commit such reinforcements and as soon as they arrive. When he is required to commit his resources piecemeal instead of in force, or en masse, the defenders are much more capable of defending themselves. That's a long definition, but there it is.

Vogt: I like that definition. I think we must recognize that there is no such thing as a perfect interdiction, although I like to think that the one we had in

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[1]Maj Gen Ralph F. Stearley (1893–1973). From 1936 to 1940, Stearley was at the Air Corps Tactical School, located at Maxwell Field, Alabama. During the 1930s, the instructors and students at this school developed American military airpower doctrine that was later applied in the strategic bombing campaigns of World War II. Stearley, Claire Chennault, and a few others taught courses on attack and pursuit operations. See Robert T. Finney, *History of the Air Corps Tactical School, 1920–1940* (USAF Historical Study 100, Maxwell AFB, Ala., 1955); John F. Shiner, *Foulois and the U S. Army Air Corps, 1931–1935* (Washington, 1983); and Robert F. Futrell, *Ideas, Concepts, Doctrine:A History of Basic Thinking in the United States Air Force, 1907–1964* (Maxwell AFB, Ala., 1971).

Vietnam, at one point in time, was a near perfect bit of interdiction. It was a limited effort and in a limited area.[2] That job was relatively easy, but almost anywhere else in the world all you can hope to do is to have some impact on the factors that General Smart was describing.

In some cases interdiction will just upset time tables, so an enemy doesn't get his troops on line in the schedule that he had hoped for. In other cases, you may have a serious impact on his resupply effort or impede his movements into the forward area. There is no such thing as a perfect interdiction program, and I never envisioned that for Europe when I was there. The purpose is to affect the enemy's war plans.

Smart: I think for interdiction to be effective there must be a demand for the resources that interdiction attempts to deny. If our forces and the enemy forces face one another with little or no exchanges of artillery or fighting, interdiction is of less significance than when the enemy is required by our forces to use the assets that he has, especially to expend them quickly, therefore making resupply more critical.

Kohn: You all learned this, I suspect, over the course of the three wars you experienced. General Partridge said that in fact interdiction wasn't defined that much before World War II. Is that your memory also, General Smart? In the 1930s it was not much discussed.

Smart: Very little, in my experience. I was one of those uneducated airmen. I entered the war with only cooks and bakers' school as my professional education, so unlike General Partridge, who attended the Air Corps Tactical School, I wasn't prepared to cope with these major problems.

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[2]During Easter week 1972 in Vietnam, Gen Vo Nguyen Giap sent seven North Vietnamese army divisions into South Vietnam in a three-pronged invasion From April to June intense fighting raged, with South Vietnamese regular forces retreating slowly. U.S. Air Force and U.S Navy air interdiction operations, delayed initially for two to three weeks because of inclement weather, helped slow and then stop the North Vietnamese drive. See Vogt's remarks, below, pp 73–81, Gunter Lewy, *America in Vietnam* (New York, 1978), 196–210; and Ray L Bowers, *The United States Air Force in Southeast Asia. Tactical Airlift* (Washington, 1983), 539–580.

World War II

Kohn: When you then got into the war and we began to engage in air operations in North Africa, did these definitions then begin to occur to you?[3] Were there unexpected problems in North Africa in applying air power against the enemy that caused you to define the interdiction role more precisely? Or were you playing it more "by ear" in dealing with the Germans?

Smart: I got over to North Africa, I guess, in late April or early May 1943, after the invasion in November. I think you were there before, were you not?

Partridge: No, I arrived there in April 1943.

Smart: Then you arrived before I did. I got there in May.

Partridge: I only stayed until the end of 1943 and then moved to England.

If I may interject a little thought. When we speak of interdiction, most people think of a fighter or bomber diving, behind the lines, blowing up a bridge or trying to. Really, everything you do is interdiction when you operate against the back areas, areas away from the front. For example, we had a policy of attacking the ball bearing factories in Germany. A good

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[3]On November 8, 1942, the armies, air forces, and navies of the United States and Great Britain launched Operation Torch, the invasion of North Africa. Just two weeks before the Allied landings in Morocco and Algiers and 1,500 miles to the east, the British Eighth Army, led by Field Marshal Bernard Montgomery, engaged a combined German-Italian army, led by Field Marshal Erwin Rommel, at the Battle of El Alamein, Egypt. After weeks of intense fighting, Rommel fell back to Tunisia, there to face the advancing British and American armies. Several months of fighting ensued before the Germans evacuated North Africa for Sicily in May 1943. Seven months after Operation Torch began in North Africa, the Allies had forged a combined arms force that had achieved victory. For students of tactical air power the North African campaign is significant because virtually all aspects of modern American tactical air doctrine—air superiority, close air support, air interdiction—developed and were articulated there. Thus, the U.S. Army Air Forces' fundamental charter of tactical air operations, FM 100-20, "Command and Employment of Air Power," July 21, 1943, grew directly from the combat experiences in North Africa. For a copy of FM 100-20 as well as an extensive discussion of the North African air battle experiences, see Richard H. Kohn and Joseph P. Harahan, eds., *Air Superiority in World War II and Korea* (Washington, 1983), 29-36, and appendix. An excellent history of how the British Royal Air Force organized and created specialized tactical air units is Shelford Bidwell and Dominick Graham, *Fire Power: British Army Weapons and Theories of War, 1904-1945* (Boston, 1982), 131-149; and R. J. Overy, *The Air War 1939-1945* (London, 1980), 64-73.

idea, but it never worked.[4] We had much more success in attacking oil refineries. The Germans were very adept at redoing them, but we hit them anyway. And railroad yards—I don't know how many times we bombed the Hamm railroad yard. That effort, of course, depended on the fact that the Europeans have a different system of handling rail traffic. They use small cars. They marshal them in a yard for the next piece of the journey. We must have caused the Germans great trouble because we attacked railroad yards again and again and again.[5]

In the North African operation, we attacked ports with bombers, and that was just as much interdiction as anything else. We attacked Palermo, for example—just laid out a strip right along the waterfront and cleaned it out. The same was true of Naples. We took a section of the bay waterfront at Naples and demolished it in one attack. We hit another section and did some more damage using another line of flight. About then the Italians gave up, so we stopped the bombing.[6]

Smart: We also attacked the ferries and the ferry slips across the Messina Straits, between Sicily and the toe of Italy.[7] Apparently, the operation

[4]Almost two-thirds of all German ball bearings were manufactured in 5 factories clustered around a single railroad yard in Schweinfurt, Germany. U.S. Army Air Forces flying B–17s attacked the Schweinfurt complex in 2 massive raids on August 17 and October 14, 1943. Cumulatively, 411 B–17 bombers dropped 699 tons of bombs, while suffering 96 lost and 306 damaged aircraft. Thomas M. Coffey, *Decision Over Schweinfurt* (New York, 1977), and Martin Middlebrook, *The Schweinfurt-Regensburg Mission* (New York, 1983).

[5]In World War II American air leaders believed that destruction of the German transportation network, as exemplified by the railroad marshalling yards at Hamm, Germany, would hamper the enemy's warmaking capabilities. Air planners and operations analysts estimated that railroads carried 72 percent of the tonnage transported within Germany. Hamm, located near Munster in the province of Westphalia, was a railroad, electrical power, and supply center. It was bombed repeatedly from the air, especially in 1944 and 1945. See Haywood S Hansell, Jr., *The Air Plan That Defeated Hitler*, reprint edition (New York, 1980), and David MacIsaac, *Strategic Bombing in World War II: The Story of the United States Strategic Bombing Survey* (New York, 1976).

[6]Both Palermo and Naples were important Italian port and industrial cities which were bombed frequently during World War II. When the Allies invaded Sicily in July 1943, and then the Italian mainland in September 1943, Palermo and Naples were captured and occupied. Just prior to the latter invasion, Italy withdrew from the war, surrendering unconditionally on September 8, 1943. Armed resistance on the Italian peninsula continued, however, as German armies occupied central and northern Italy and waged a protracted campaign against Allied land and air forces in 1943–1944. A good, general account of the air war over Italy is Wesley F. Craven and James L. Cate, eds, *The Army Air Forces in World War II*, 7 vols, reprinted (Washington, 1984), II, *Europe Torch To Pointblank, August 1942 to December 1943*, 415–598.

[7]During the Allied invasion and conquest of Sicily in July and August 1943, strategic air forces pounded Sicilian cities, towns, and ports. Four groups of B–17s from the Twelfth Air Force and five groups of B–24s from the Ninth Air Force bombed Catania, a transport and industrial center, Reggio and San Giovanni, port and rail centers, and Messina, a ferrying and supply point for war materiel moving from the Italian mainland to the island of Sicily. Wesley F. Craven and Cate, eds, *The Army Air Forces in World War II*, II, 446–487.

Maj. Gen. Earle E. Partridge (left) and Col. Robert B. Landry beside the Boeing B–17 "Silver Queen," 493rd Bomb Group, England March 2, 1945 General Partridge was then Commander of Third Bombardment Division, Eighth Air Force, which flew interdiction missions over Germany.

effectively denied transportation to the Germans based in Sicily. We then believed that they had trouble getting reinforcements in and later, getting themselves out too.

Partridge: Of course the big shoot, just before I arrived over there, was when the Allied Air Forces in Africa—fighters—attacked the transports that were carrying supplies across the Mediterranean Sea. I wasn't there so I don't know just what happened, but the Allies shot down thousands of tons into the Mediterranean in a very short period of time.[8]

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[8]Allied air and naval forces in North Africa conducted a progressively successful interdiction campaign against German resupply efforts. The longer the Allied campaign went on in North Africa, the more successful the air and naval interdiction effort. In targeting German ships and air transports, the Allies used intelligence information revealed through Ultra. For an excellent discussion of how intelligence influenced tactical and strategic military operations in World War II, see F. H. Hinsley, *et al, British Intelligence in the Second World War,* 2 vols (London, 1979), II, 399–508, 573–614. For a guide to the recent literature on intelligence in the war, see David Syrett, "The Secret War and the Historians," *Armed Forces and Society,* Vol 9, No 2 (Winte.,1983), 293–328.

Kohn: How and why were these targets chosen? It sounds as if, in saying that interdiction is any air operation against men or materiel to effect a battlefront, that interdiction doesn't have its own specific characteristics of planning—or unity as a "campaign". Am I misreading this? If you chose the docks, if you chose the transports, there must have been intelligence that transports were coming or present. Why choose a particular target at a particular time?

Partridge: Very simple. The boss man says, "Do it." You get your policy from higher headquarters, and then almost always you go to a planning conference. In North Africa, the air commander, who happened to be Tedder,[9] told us what he wanted to do: which airfields we should attack, the Messina Straits, and so on. Higher headquarters sets up a policy, and the people in the field implement it as best they can.

Smart: The policy that is established, the direction that comes from higher headquarters that General Partridge spoke of, is based first upon the plan, the purposes that the allied forces are trying to achieve at the moment, and second, on the intelligence that is acquired on a continuing basis by all means.

If transports are seen concentrating within a port, that is the time to strike the port. If the operation is being planned against the coast of Sicily, for example, that is the time to reduce German traffic across the Messina Straits to an absolute minimum so that the Germans must fight with the resources in Sicily and not with reinforcements of men or materiel. So there is logic to all of this, though a person who is a group commander, such as I was, doesn't see the whole picture. He gets instructions, as General Partridge indicates, to "strike the airfield at Foggia," or "strike the ferry slips at Reggio," which happened to be the first bombardment mission I ever flew on.[10]

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[9]Sir Arthur William Tedder (1890–1967). Tedder was the air chief for the British Royal Air Force (RAF) in the Middle East in 1941–1943. In January 1943, Gen Dwight D. Eisenhower, Commander in Chief, Allied Expeditionary Forces, selected him as Air Commander in Chief, Mediterranean Air Command, responsible for integrating all British and American air operations in the North African, Sicilian, and Italian campaigns. See Lord Arthur Tedder, *With Prejudice: The War Memoirs of a Marshal of the Royal Air Force* (Boston, 1966).

[10]Foggia was a major commercial and transportation center in south-central Italy. In World War II Foggia was the site of an important German, and later, Allied air base. Reggio, or Reggio Calabria as it is better known, lies near the Straits of Messina at the extreme southern end of the Italian peninsula. A small industrial port city, Reggio was damaged heavily through aerial and naval bombing in World War II.

Left: A B–24 Liberator (upper left) on a mission over Messina, Italy, an important Axis port. Note the bomb bursts among the naval barracks and oil tanks at right

Below, Bomb damage to the railway yards at Naples.

Kohn: General Vogt, you were flying fighters in Europe at the time and, undoubtedly you engaged in interdiction missions. Was it your impression that the planning was specifically in terms of campaigns? Or did you think you were going out mostly on armed reconnaissance, or that you were to strike an area or target at a specific time or place?

Vogt: Let me talk about the isolation of the Normandy beachhead. I happened to be involved in that operation. I was a squadron commander of P–47 "Thunderbolts" at the time of the Normandy operation, which, as I recall, was June 6, 1944.[11]

We were briefed the night before on the general outline of the operation. We knew that the transports had already set sail and were on their way across the channel, that there would be early shore bombardment, and that we would try to put the troops ashore. We went out in squadron formations that day in order to get the total coverage that was required for the full period. My squadron was briefed along the following lines: "We don't know what the enemy air reaction is going to be to all of this. The Germans may be over the beachhead in great numbers. so our number one job is to insure that we have air superiority over the beach." I was given the altitude block of 5,000 to 15,000 feet, right over Omaha Beach at daybreak. We had to take off before daybreak to arrive over the beachhead on time.

There was one twist: if no air opposition appeared, then we had to be prepared to do the secondary mission, which was to interdict the area in which the total operation was taking place and to prevent the movement of

[11]On June 6, 1944, U.S. Army Air Forces sent 8,722 aircraft over France in support of the Normandy Invasion. The British launched another 4,115 aircraft that same day. Flying a variety of missions—reconnaissance, airlift, air superiority, close air support, interdiction, and area bombing, Allied air forces dominated the sky, losing but 127 aircraft to enemy fire. By the end of D-day more than 150,000 Allied troops were on French soil, preparing to move inland. German Field Marshal Erwin Rommel recorded his observations just 6 days after the Allies had landed. "Our operations in Normandy are tremendously hampered, and in some places even rendered impossible, by the following factors: the immensely powerful, at times overwhelming, superiority of the enemy air force. As I and the officers of my staff have repeatedly experienced . . the enemy has total command of the air over the battle area up to a point some 60 miles behind the front. During the day, practically our entire traffic—on roads, tracks, and in open country—is pinned down by powerful fighter-bombers and bomber formations, with the result that the movement of our troops on the battlefield is almost completely paralyzed, while the enemy can maneuver freely." B. H. Liddell Hart, ed, *The Rommel Papers* (New York, 1953), 476–477. For an account of air power at Normandy, see Craven and Cate, eds, *Army Air Forces in World War II*, III, 185–227; R. J. Overy, *The Air War 1939–1945* (London, 1980), 99–100; Williamson Murray, *Strategy For Defeat: The Luftwaffe 1933–1945* (Maxwell AFB, Ala., 1983), 280–281.

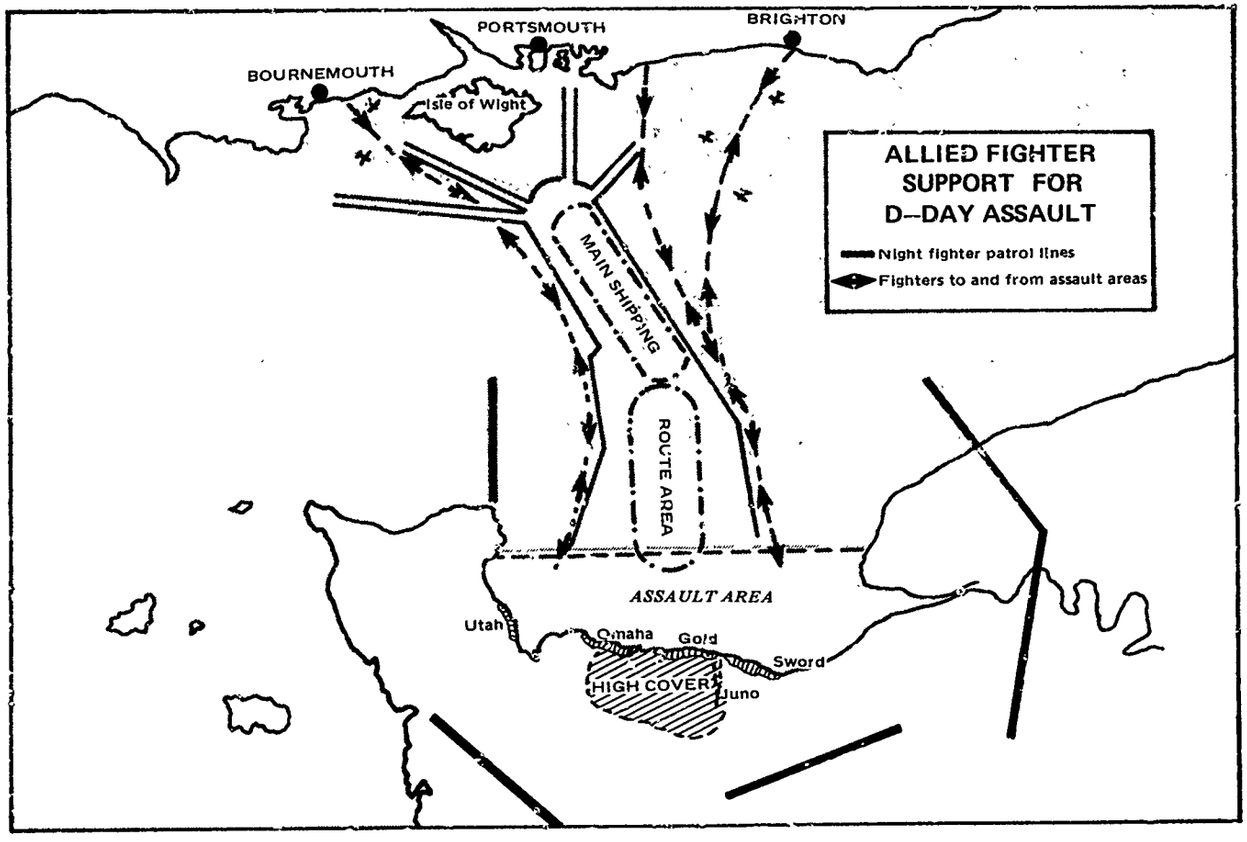
German reinforcements into the area. That meant we had to have the airplanes loaded with bombs, even while we were doing the first portion of the mission, which was the air superiority portion. The instructions of course were, "jettison your ordnance if you get into a battle with Focke-Wulf 190s." We orbited over the beach for about two hours, and no German air appeared. Then we went to the secondary portion of the mission, which was the interdiction.

Typical of all World War II operations—there were bomblines. These were lines drawn on charts indicating the maximum extent of friendly forward movement. Under no circumstances could you bomb the friendly side of those bomblines. So the bomblines had been drawn on our charts, and we were told that any German troops moving up should be hit, any bridges on their way destroyed, and any natural interdiction points in front of columns destroyed. We went to that mission after we were released from our air superiority role.

We found that there was virtually no movement that morning on the part of the Germans. When you look at the operation in perspective and review the history, you find that the Germans were caught completely by surprise as to the area of the operation. They had elected to keep their Panzer divisions in reserve, well back, and they were coming from fairly substantial distances to get into the battle areas. So there was nothing really to interdict, except the natural bridges that we could see on the other side of the bombline. So we spent that morning, the remainder of our mission time, methodically hitting the bridges over which we believed the Germans would ultimately have to come.

Smart: Excuse me one minute. Would you give us the time line for this mission? Was this on the day of the invasion?

Vogt: Yes, it was the morning of June 6. As I say, I arrived over the beachhead at slightly before daybreak. We just orbited there, watching the initial bombardment, the heavy cruisers laying the fire support in, and of course witnessed the movements of the small vessels bringing the troops ashore. No German air forces appeared. I think there was only sporadic air response. Once again the Germans were taken quite completely by surprise. It took them quite some time to find out what was happening to them.


PORTSMOUTH
BRIGHTON
BOURNEMOUTH
Isle of Wight
ALLIED FIGHTER SUPPORT FOR D--DAY ASSAULT
Night fighter patrol lines
Fighters to and from assault areas
MAIN SHIPPING
ROUTE AREA
ASSAULT AREA
Utah
Omaha
Gold
Sword
HIGH COVER
Juno

AIR INTERDICTION

Partridge: One of the reasons you didn't have too much trouble with the enemy was that the most extensive bombardment I ever heard of was on D-day. Ninth Air Force and the Eighth Air Force both used their bombers, and the RAF participated in the daytime bombing. The British crews had never flown in combat in the daytime, but they were superb. They came over to us and asked for advice on tactics, for example, "Why do you use three-plane formations?" They carried a big load, as you know.

Vogt: Indeed they did, with the old Lancaster bombers. You made a comment that there had been, prior to D-day, major strategic campaigns in which the Eighth Air Force, with escorting fighters, caused one hell of an attrition of the enemy. Every time German fighters came up to meet our bombers you were working them over, and the Germans gradually began to roll back their fighter bases deeper into Germany. So the enemy wasn't in the forward areas. The Germans had limited range on those birds: the 109s and 190s were limited-range airplanes. So the enemy didn't have those air forces to throw in when Normandy came along. It is important to recognize that the war of attrition that occurred prior to D-day played a big part in the success of the Normandy Invasion.

Smart: The point that I want to make is that the invasion was planned. It didn't just happen.

Vogt: Sure, but we had a lot of margin for error that we could play with, because we had the resources. Lose a bomb wing, and you reconstituted with a whole new bunch of airplanes. You start over.

Smart: Johnny, did you ever read a book by Paul Carell, *They're Coming?* It's the German version of what happened at the invasion.[12]

Vogt: No.

Smart: It is one of the most revealing books I have read by the Germans.

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[12]Paul Carell, *Invasion—They're Coming: The German Account of the Allied Landings and the 80 Days' Battle For France* (New York, 1963).

Vogt: One of the questions that always troubled me afterward was. "Why was there no apparent movement of any kind?" Certainly the Germans must have had some units relatively close to the invasion areas which didn't seem to move. I discovered later, reading about it, that there were secondary forces of interdiction at work, namely the French *maquis*,[13] which had been alerted and turned loose the night before through a series of clandestine broadcasts over BBC: "Get out there and disrupt the movement of all German forces in any direction."

The requirement to impose secrecy on the actual site of the operation necessitated that all *maquis* units, throughout all of France, be told to move—indeed those in Belgium and Holland too. So there was a general movement of some 20 to 30, perhaps 100,000 underground forces into the interdiction business behind-the-lines. These people were tossing bombs into railroad trains as they went by, setting up roadblocks, and doing everything humanly possible to slow down the movement. Some German forces that had the capability, for example, to move a whole division 50 miles in one day (because the forces were all mechanized) were taking 5 days to make that movement. So the movement into the area was drastically impeded by another element. the underground movement, which, as you know, had been carefully nurtured by the OSS.[14] There had been much effort to resupply the *maquis* at that time. We had been dropping behind the lines for some time. I went on a number of those missions. There was one

[13]Late in 1942 German Nazi leaders in France began drafting and deporting young French boys and men to Germany for compulsory work in war factories. As a consequence, some Frenchmen began leaving rural towns and cities and formed organized resistance bands, called *maquis*. A year and a half later, at the time of the June 6, 1944, Normandy Invasion, these *maquis* groups, led by French Resistance leaders, conducted behind-the-lines sabotage of enemy communications and transportation networks. The exact number and effectiveness of these *maquis* bands are very much in dispute. David Schoenbrun and Charles MacDonald stated that throughout France there were probably 100,000 men and women of the Resistance fighting against the Germans. Other scholars, John F. Sweets and Kenneth Macksey, place the number at just a few thousand and question their effectiveness. See David Schoenbrun, *Soldiers of the Night: The Story of French Resistance* (New York. 1980); Charles B. MacDonald, *The Mighty Endeavor. American Armed Forces in the European Theater in World War II*(New York, 1969), 243–245; John F. Sweets, *The Politics of Resistance in France, 1940–1944* (Dekalb, Illinois, 1976), 190-195; Kenneth Macksey, *The Partisans of Europe in the Second World War* (New York, 1975), 172–187.

[14]The OSS Office of Strategic Services, was the forerunner of the Central Intelligence Agency Led by William "Wild Bill" Donovan, the OSS sent agents into occupied France in early 1943 to assist in organizing the French Resistance movement. The OSS also arranged for war materiel to be air dropped to resistance forces prior to the Normandy Invasion. R. Harris Smith, *OSS: The Secret History of America's First Central Intelligence Agency* (Berkley. Calif., 1972), 172–187; Thomas F. Troy, *Donovan and the CIA: A History of the Central Intelligence Agency* (Washington, 1981)

very substantial resupply operation in June, when we devoted 176 B–17s to resupply the underground and to enhance its interdiction capability in connection with the Normandy operation.[15]

The element of surprise, I think, was the major factor here. The Germans simply didn't know they were going to be hit at that point and were unable to react and move. We didn't have very much to interdict the first morning.

Now the situation, of course, became more dramatic in subsequent days. We were committed. The enemy had us pinned initially, and a lot of work from that point on went into interdiction. The job became much more profitable as the Germans began to funnel forces in. You could see the forces; you could work on them.

I'll tell you an interesting story now, which I think left a vivid impression on me and has had a lot to do with my thinking on the necessity for good control of forces--command and control. And that was the fallacy of the bombline concept. This was driven home to me one day. I was taking my squadron out under ground control, that is, a controller was already on the beach and was directing air forces to what he knew to be sizeable enemy units coming up into the area. We had our bomblines drawn, as usual. I was directed to intercept an enemy column that was moving up into the battle area, in the vicinity of a certain French town, but moving in the general direction of the beachhead.

I went out to the coordinates indicated, found the bombline, and to my very great surprise, discovered that half the column was on one side of the bombline and the other half was on the other. I called back for instructions, and I said, "Now here's a situation that I don't know how to handle. What do I do?" The question, of course, was referred right back to me. The reply was "You're on the scene. You have to determine first whether they are enemy and then whether or not you want to engage." So I had one of the wingmen go down and take a high-speed pass. We discovered that this was a British unit that had gone forward and was on its way back across the

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[15]On June 22, 1944, the U.S. Army Air Forces flew Operation Zebra in which 176 B–17s dropped 2,077 containers of explosives, guns, grenades, rocket launchers, bazookas, and ammunition to French Resistance forces. Three weeks later General Partridge sent the forces of the 3d Air Division —320 B–17 bombers, accompanied by 524 P–51s and P–47s—on a mission over France, and they air-dropped another 3,700 containers to the resistance forces. Craven and Cate, eds, *Army Air Forces in World War II*, III, 504–505.

bombline. We could have wiped out two battalions of friendly forces if the loose instructions that were being given that day in support of the campaign had been followed.[16]

This has always troubled me. Later we got very sophisticated in the United States Air Force; we began to use mobile radars to control our tactical air offensively in the forward areas, a concept never accepted by our allies in Europe. The British, for example, and the Germans don't have forward air controllers today; they don't have the forward mobile radars; they don't like the idea. They like what they call "battlefield interdiction," namely the bombline concept and "you bomb beyond it." In a fast-moving situation as we would certainly have in Europe if war broke out today, with Soviet columns equipped to move twenty miles a day at least—probably forty or fifty—the bombline, when you take off, is no longer valid when you get there. We've got to have far better command and control of the air forces that are going to be interdicting and supporting. This is a doctrinal battle that is going on today in Europe with our NATO allies.

Kohn: Did we have trouble in World War II coordinating interdiction campaigns in Italy or France with our allies? Did we not go in with either Canadian air or British air at Normandy? Is coordination a common problem in interdiction?

Vogt: My experience in that campaign was that we used the sector procedure. American air was put in one sector, British air in another. Generally the British air was supporting British forces, and we were supporting our own. This was a concept we used, incidentally, in Vietnam when we had the route packs assigned to the Navy and to the Air Force separately. The idea is separation by geographic lines. In the air that doesn't always work because you run into other guys coming and going. I recall one time I thought I was going to be in a major dogfight around the Eiffel Tower. We happened to be going by, and I saw these airplanes that looked very much like Me-109s. I had never seen anything quite like them before. They had the look of a German airplane about them. It turned out later that they were a brand new type of British airplane, never briefed to us,

[16] A recent work on "friendly fire" is Charles R. Shrader, *Amicicide. The Problem of Friendly Fire in Modern War* [Combat Studies Institute Research Survey #1] (Fort Leavenworth, Kans., 1982).

Courtesy John W. Vogt, Jr.

As Commander of the 360th Fighter Squadron, Eighth Air Force, Maj. John W Vogt posed with his aircraft, the P–47 he flew during the Normandy Invasion.

known as the "Tempest II," which the British had introduced for the purpose of dealing with the buzz bombs. We ran into these guys quite by accident, and we almost had a real donnybrook because first, we didn't expect them there, and second, we couldn't identify the airplane.

The system of merely eyeballing something can sometimes get you into a lot of trouble. There has got to be more precise control of air in the next war. In Vietnam, when we were going up into the North into heavily defended areas, interdiction missions were very, very carefully orchestrated operations bearing no resemblance whatsoever to World War II tactical operations. Interdiction was a precision operation, in which jamming airplanes had to be precisely in position when the strike forces got there; otherwise the jamming is not effective. When "Wild Weasel" airplanes[17] were working on North Vietnamese SAM [Surface-to-Air Missile] sites, they had to be in position between the strike force and the SAM sites when the SAM radars came up, else the AGM–78 [Air-to-Ground Missile] or the Shrike missiles they had onboard were useless. Chaff-dispensing forces also had to be precisely on target at the right time. In fact, interdiction is an operation so precise and so carefully orchestrated that the planning can't be done by the human mind. It has to be done by computers, which is another problem that I discovered when I got to Europe.[18]

The idea of a computerized war, which we found absolutely essential to fight over Vietnam, was alien to our allies in Europe. People said, "Computers? What are you talking about? We don't need computers. We'll go out there and fight like we did in World War II." In heavy enemy defensive areas where defense suppression must be precisely done, where ECM [electronic countermeasures] support has got to be precise, and where air superiority tactics require your supporting combat air patrols in precisely the right position between the enemy incoming planes and the

[17]Wild Weasel was the term used in Vietnam for the Air Force's F–100F, F–4C, and F–105F/G fighters which flew defense suppression missions carrying electronic countermeasures (ECM), warning sensors, jamming pods, chaff dispensers, and antiradiation missiles. Once this electronic equipment had detected and "locked-on" to the signals from an antiaircraft radar, then it was possible to evade most hostile missiles and to detect and destroy the SAM launch sites using antiradiation missiles. In Vietnam, fighters, reconnaissance, and other aircraft could dispense thin, narrow metallic strips, called chaff, which created false and misleading images on the enemy's radar tracking equipment.

[18]General Vogt served successively in Southeast Asia (7th Air Force, Commander, 1972–1973), in the Pacific (Commander in Chief, Pacific Air Forces, [CINCPACAF], 1973–1974), and in Europe (Commander in Chief, United States Air Forces, Europe, [CINCUSAFE], 1974–1975).

strike planes, all of this must be done with a computer. You start calculating the takeoff—first, the start-engine times. Then all these diverse forces have to arrive at a certain point in the sky at a precise time—within a fraction of a minute to do any good—and that all goes back to start-engine times, taxi times, takeoff times, flight-from-the-air base, flight-to-get-to-altitude, time to get into the target area, time to position. The human mind can't do these calculations any more. So you crank all the data into a computer, and you put the program in, and when you run a frag order the next morning so that everybody is told when to take off and where to go—you can just punch it out.

Kohn: All of this sounds as though it was much more rudimentary in World War II, almost seat-of-the-pants operations. Once we were ashore in Normandy, the RAF Second Tactical Air Force and Ninth Air Force were separated in France; there was no integrated air campaign. General Vogt has stated that central control is needed for virtually any air operations. We didn't really have that in Europe in 1944, did we?

Smart: Let me speak to that. In doing so, I have to talk out of both sides of my mouth, and I'm telling the truth in both cases. There was a lack of coordination, often. There was every effort made to achieve coordination, but it was not always possible. Not only must activities between supporting air forces be coordinated but also the activities between air and ground. There were instances in which in the invasion of Sicily for example, large numbers of Allied airborne forces were shot down by the United States Navy because of inadequate communications and inadequate coordination of routes and passages, and also the failure to get the word down to the men aboard the ship who had their "finger on the trigger." In the case of the transports being shot down crossing into Sicily, I'm sure that the skipper of the ship knew that the C–47s were not German aircraft, but the gunners didn't. When one man fired his gun, everybody said, "This is it," and everybody fired. When this ship fired, others fired. So it got completely out of hand.[19]

[19]During the Allied invasion of Sicily (July–August 1943) Army Maj Gen George S. Patton, Jr, ordered the beachhead at Gela, Sicily reinforced by paratroopers On July 11, 1943, 2,000 Army airborne troops were flown to the drop site in 144 C-47 aircraft Good weather coupled with advanced notification to Allied naval and ground forces promised a relatively easy mission. Disaster struck, however, when a single machine gunner started firing at the C–47s in the second flight over the beach. Within minutes every Allied antiaircraft gun on shore and water was firing at the slow, vulnerable troop carriers. Gunners on the destroyer *USS Beatty* fired at one C 47 even after it had been ditched in the bay. Total losses included 81 dead, 132 wounded, and 12 missing paratroopers and 7 dead, 30 wounded, and 52 missing airlifters. Shrader, *Amicicide*, 67–68

Now to talk out the other side of my mouth: John Vogt pointed out that there were few, if any, Luftwaffe aircraft interfering with his air operations, the land invasion, and the sea forces that were moving into Normandy. That didn't just happen because of surprise. It happened as a result of planning done by people like General Partridge and others, over a period of time. The air bases in the vicinity of the beaches and a large area around the beaches were systematically attacked. They were almost made untenable so that the German air forces had to move far away. Then their distant bases were attacked, too. Not only were the distant bases attacked, but the bomber forces attacking deep in Germany attracted air forces that might otherwise have been defending the beaches, back there to defend Berlin or the ball bearing factories, or Frankfurt, or whatever. So what occurred was in part a result of careful planning and the execution of those plans.

Kohn: May I raise two campaigns of World War II? We have talked a bit about the Normandy campaign. I'd like to raise the operation in Italy in 1944 called Operation Strangle,[20] and ask all three of you to reflect on interdiction. Using this and World War II generally, what would be the factors that make for success and the factors that make for failure in interdiction? Numbers of airplanes? Air superiority? An opponent who was "high-tech," who used roads and large amounts of supplies?

Partridge: I wasn't in Italy in 1944. I was there in 1943, however, and we made many an attack on marshalling yards, railroad centers, the city of Rome, and so on. I left there about the first of 1944, so I don't have firsthand knowledge of Operation Strangle.

Smart: I was in Italy in the first part of 1944: February, March, April, and May, but I was in the bombing business. Operation Strangle was

[20]In January 1944, Allied forces conducted a successful, surprise amphibious landing at Anzio, Italy. When the American Fifth Army failed to move inland quickly, the Germans moved up, reinforced their positions and pinned down the American army. To alleviate some of this enemy pressure, Allied air forces began Operation Strangle on March 15th. This was a two-month air interdiction campaign conducted by tactical, strategic, and coastal air forces against the enemy's supply and transportation system in northern and central Italy. Flying more than 50,000 sorties and dropping some 26,000 tons of bombs, these air forces destroyed or damaged numerous Italian rail, road, and port facilities. Despite this pounding, German armies continued receiving sufficient supplies and war materials to keep pressing the U.S. Fifth Army on the beaches at Anzio. By mid-May, however, the Allied armies were sufficiently reinforced and resupplied to effect a breakout, led by the British Eighth Army and a French Expeditionary Corps pushing up from south of Rome. Craven and Cate, eds., *Army Air Forces in World War II*, III, 373–384.

Courtesy USAF Historical Research Center

Brig Gen. "Pat" Partridge served in two key positions in North Africa, as Operations Officer and Chief of Staff of 12th Bomber Command and then as Chief of Staff of Fifteenth Air Force

conducted for the most part by the tactical air forces with the bombardment forces helping when there were larger targets to hit. We employed whatever type of bombing we could.

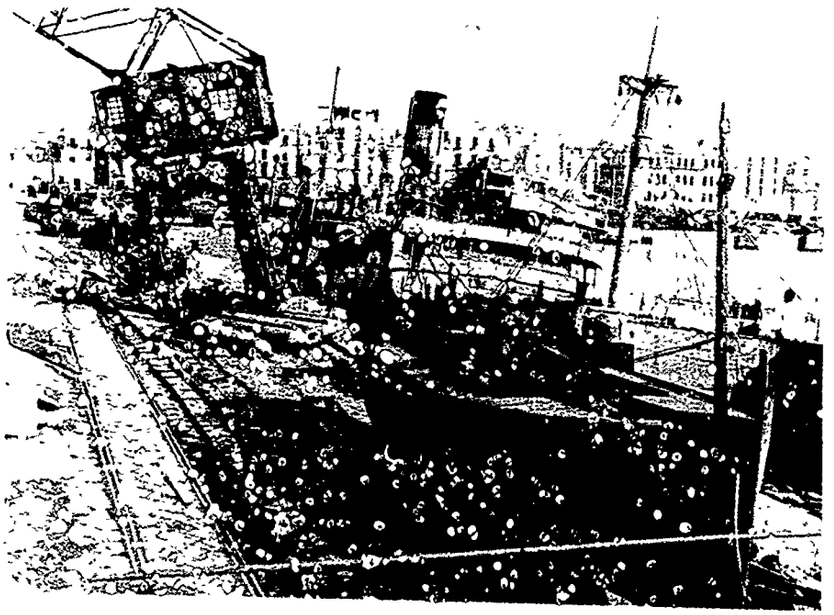
The factors that bore upon the success or failure of these endeavors were multiple. One major factor was weather. The Germans loved to move "when the birds were walking"—when we were grounded by weather—which is quite understandable. We had virtual control of the air over southern Italy, I would say, from the time we made the initial landings onward. Only occasionally would enemy aircraft come south and strike us. My base, for example, which was in the Foggia area, perhaps 90 miles behind the front lines, wasn't struck the entire time that I was there, which showed that we pretty much controlled the air. We were shot at, but by our own antiaircraft artillery. It couldn't hit us very well, so it didn't do a great deal of damage.

Another factor influencing the effect of interdiction strikes was the camouflage of resources by the enemy. Timing was another influence.

In Operation Strangle, Allied bombers pounded the Italian transportation system, attempting to cut the flow of supplies to the Italian front

Right: Railroad yards at Pisa, Italy were twisted and mangled by Allied bombs

Below: Ships and port facilities at Naples took direct hits from the Fifteenth Air Force.



Movement at night, as well as in bad weather, influenced success or failure. So did the skill of the pilots that were carrying out the program: how eager were they, how closely would they fly to the target before they expended their ammunition? The accuracy of German antiaircraft gunners and their willingness to stand up and fight instead of taking cover in the face of an attacking fighter—both were important. Almost any factor that enters into human interactions that you want to name affects the effectiveness of an interdiction campaign.

Kohn: Could I raise the question of intelligence? Gen. John W. Pauly[21] recently said to me that the present environment in Europe is so dangerous for strike aircraft that we will have to go in, go after what we want, hit it, and get out of there. In World War II, I think we had, because of air superiority, the ability to fly armed reconnaissance over transportation routes, marshalling yards, bridges, docks, or whatever. Is intelligence a critical factor: the selection of the target, the knowledge of how the destruction of that particular target will damage enemy forces? Is intelligence more critical than other factors?

Partridge: It's the most critical factor. Either you have intelligence or you stay home. If you don't know where you are going or why the target is important, and so on, how are you going to instruct your crews to go out and do something?

Vogt: I might add to that a little bit. I certainly agree with General Partridge that intelligence is vital. Let me tell you of one operation in which I was involved where intelligence was not good and a disaster resulted. This was the Arnhem-Nijmegen operation.[22] The Arnhem-Nijmegen operation

[21]Gen John W. Pauly, USAF, Retired (1923–), served as the Commander, Allied Air Forces Central Europe, and Commander in Chief, United States Air Forces in Europe, from 1978 to 1980.

[22]Given the code name Market Garden, this large Allied operation in Holland in mid-September 1944 combined massive American and British airborne operations, involving 20,000 men and thousands of gliders, with a direct frontal advance by a British army corps. The airborne forces were to jump from the air, seizing bridges at Eindhoven (Maas River), Nijmegen (Waal River), and Arnhem (Rhine River), while the British 30th Army Corps advanced overland some 60 miles into enemy territory. Although Market Garden was the largest Allied airborne operation in the European Theater in World War II, it failed because unknown to British intelligence, a German SS Panzer division was positioned perfectly to counterattack and blunt the British Army Corps' advance. The paratroopers and glider airmen were stranded at Arnhem— a town and river crossing often called "a bridge too far." Cornelius Ryan, *A Bridge Too Far* (New York, 1974); Russell F. Weigley, *Eisenhower's Lieutenants* (Bloomington, Ind., 1981), 305–320.

was, as you know, the largest airborne operation of World War II. I don't believe it has ever been equalled since, anywhere. Vast forces were dropped into an area which was, according to intelligence, sterile. My outfit was given the job of providing interdiction support to the operation. The drop area was defined for us. We were told that all forces would be generally within this area, and then we were told that we had to get there on the first day, 20 minutes before the arrival of the gliders and the C–47s that were dropping the paratroops, and prevent any movement into the drop area by enemy forces, or suppress any fire which might be coming up.

We were told by the same intelligence briefers, "You're not going to have much reaction because there simply aren't any enemy forces in there." It turned out that our divisions were dropped into an area which happened to be a rest area for a whole Panzer division. When we arrived, all hell broke loose. The Germans came out of the woods and very rapidly set up automatic weapons fire all around the drop area and moved very effectively with the armor into blocking positions. We had a real tiger by the tail for about four or five days, when our troops were pinned down in a drop area which was being constricted and when the routes for escape were rapidly collapsing under enemy pressure. You've probably read some of the stories about the bridges being blown just after the last man had come across, and so forth. We had to keep these troops alive in this area with an interdiction campaign largely performed by fighter-bombers, the main task being given, unfortunately, to the outfit that I belonged to at the time.

We found a couple of problems immediately. The enemy forces, of course, took advantage of cover. They were hastily digging foxholes, sandbagging them, and then crouching down and using weapons of 20–millimeter character to lay in a lot of fire. The resupply airplanes, as they came in—the C–47s—were really getting hit, and we were losing a lot of them. Resupply was now in jeopardy. More than that, we couldn't precision-bomb these isolated "pill boxes" from which the fire was coming. So we pressed into use—I think this was the first use anywhere in the world— the 4.2–inch rocket. My squadron, on an emergency basis, was equipped with the 4.2, and we worked all night long to get these rockets loaded so that we could get in there, poke our noses down into those holes, and blast them out.

The inevitable result of this whole operation, because of bad intelligence, was that the objective was never achieved, and the losses were staggering.[23] In my own outfit, I lost fifty percent of the squadron in a period of fourteen days. I certainly agree with General Partridge that intelligence is absolutely vital. If you mount an operation into an area where enemy forces have not been properly calculated, then you have a disaster.[24] We've seen this repeated a number of times. We certainly saw it in Vietnam many times.

Kohn: Perhaps we could finish discussing World War II by asking you whether, coming out of that war in 1945 and 1946, you or the Air Force thought specifically about interdiction? We had practiced it in the 1930s, but we didn't have much of a concept when we entered the war. After a variety of experiences in North Africa, Italy, Normandy—interdiction against transportation nets, lines of communication, over water, and on land—what did you learn about interdiction?

Partridge: I don't remember any concerted effort to analyze what was done except by the strategic—what do you call it?

Vogt: The Bombing Survey.

Partridge: The Strategic Bombing Survey.[25] That was a very in-depth

[23]Approximately 16,500 paratroopers and 3,500 glidermen landed during the first day of Market Garden. Ten days later when the operation was called off, Allied casualties stood at 11,850. A portion of these casualties were suffered by the advancing British Army 30th Corps In addition, the Germans captured 5,000 Allied soldiers. Craven and Cate, eds, *Army Air Forces in World War II*, III, 609–610

[24]Gen Henry H Arnold, Commanding General, U.S. Army Air Forces, sent a special group of officers to Europe in the fall of 1944 to conduct a comprehensive review of Market Garden air operations. Led by Maj Gen Laurence S Kuter, USAAF, this group concluded that first and foremost among the reasons for the failure were overly optimistic intelligence estimates forecasting a German collapse following the British Army Corps advance. Memo for Gen H H. Arnold, CG/AAF, by Maj Gen L. S. Kuter, AC/AS Plans, November 3, 1944, Subj. Briefing of Attached Report on Airborne Operations in ETO, 145.81-69, USAF Historical Research Center, Maxwell AFB, Alabama

[25]Army Air Forces leaders persuaded President Franklin D. Roosevelt in 1944 to establish a comprehensive survey of the strategic bombing campaign in the European Theater of Operations. By measuring the effects of precision aerial bombing against specific targets, airpower theory and particularly target selection could be judged by the test of war. In May 1945, when the strategic bombing survey effort began in Europe, the war against Japan was still being fought After the Japanese surrender in September 1945, the survey teams went to Japan and evaluated American strategic bombing efforts there In all, the survey produced 321 detailed reports covering virtually every aspect of the strategic bombing campaigns American tactical air efforts were not evaluated by this survey. See MacIsaac, *Strategic Bombing In World War Two*, 1–50, 75–137.

operation. After finishing in Europe, the survey went over to the Pacific.

Smart: The survey was aimed primarily at assessing the effectiveness of strategic bombing, as opposed to tactical support forces.

Partridge: It concentrated on the strategic effort which, as you say, merges into interdiction and in some ways, close support of ground forces.

Smart: I think you might put that question that you just put to us to someone who was involved at the Air University at the time, with the formation of the elements of the Air University, and who actually participated in development of curricula. I wasn't involved, so I can't answer that question.

Vogt: Probably unconsciously over the years, I have learned certain lessons and gained certain understandings as a result of the World War II experience and subsequent events. The war that I participated in in Europe was not a very finely tuned operation. We did things, I think, correctly. The major campaigns, like Overlord,[26] were planned well and executed well, but the fine tuning wasn't there, and the errors that occurred were covered, or compensated for, by the vast resources we had available to us. Numbers. You stop to think, for example, that the production of planes in 1944 approached 100,000 a year. We were turning out airplanes in tremendous quantities; 10,000 airplanes were involved in the Normandy operation alone. These are vast numbers. Bombing precision wasn't all that great. You know, if you got a 450-foot CEP,[27] you thought you were doing very well. You had to put in a lot of bombs to destroy the targets. The losses we accepted were much greater than we would accept today. For instance, the famous 100th Bomb Group was almost wiped out to a man on one mission.[28] Remnants would come back, reform, shrug their shoulders, and

[26]Code name for the Allied invasion, June 6, 1944, of Normandy, France

[27]Circular Error Probable. A term for measuring the accuracy of aerial bombing: a 450-foot CEP means that half of all bombs dropped will fall within 450 feet of the target.

[28]In World War II, the 100th Bomb Group flew B-17s in the European Theater from June 1943 to May 1945. The group's four squadrons—349th, 350th, 351st, and 418th— participated in virtually all of the U.S. Army Air Forces' major strategic bombing campaigns: Schweinfurt-Regensberg, Big Week, Berlin Raids, Normandy Invasion, Northern France, Rhineland, Ardennes-Alsace, and Central Europe. Called the "Bloody Hundredth," the group lost 180 bombers and 1,751 airmen in these campaigns. The normal complement of aircraft and personnel assigned to a four-squadron group in World War II was 48 B-17s or B-24s and 1,708 men. See John R. Nilsson, *The Story of the Century* (Beverly Hills, Calif., 1946); Roger A Freeman, *The Mighty Eighth: A History of the U S. 8th Army Air Force* (New York, 1970), 68-71, 75-79, 113-116, 204-208.

say. "Well, we've got to press on." New airplanes would appear, and you would start over.

My experience in Vietnam was entirely different. People in Washington were watching the loss rates—if they began to creep up, the headquarters people were on your back immediately. Exceeding a one percent loss rate in any individual type of air operation brought you on the carpet. The questions of civilian casualties or collateral damage in World War II were never asked. Then, we deliberately bombed, as part of our policy, population centers. Much of the RAF bombing effort was a night-bombing campaign to spread destruction on whole areas: Bremen, Hamburg, and others. When we conducted raids, for example, on the ball bearing plants in Schweinfurt, the bomb patterns would extend out over the populated areas, and you would kill thousands of people. If I, in Vietnam, was accused of killing 400 people on a single mission, I was in trouble. There is, today, a total difference in the way we view wars, and how the restraints are to be applied. So the lessons of World War II cannot be applied, certainly not in the limited wars of today. If we get into a World War III, it might be different. No holds might be barred, as I suspect. But certainly in Korea great restraint was placed on us, and in Vietnam, unbelievable restraints. Targets that we would have considered absolutely valid and vital in World War II were now off limits. Dams and dikes and structures of that sort were off limits; if I breached a dike I had to explain to the Secretary of Defense why I had done it.

Smart: I'd like to make one point before you leave Europe, and that's to emphasize the point that General Vogt made earlier: the importance of support of indigenous forces, of friendly forces behind enemy lines. As you recall, the Yugoslavs, and to a lesser extent the Greeks, fought quite hard against the German occupying forces.[29] The Mediterranean Air Command undertook to support these people, both with supplies and with equipment, but in a coordinated way so that our offensive operations didn't

[29]Yugoslav resistance, led by Marshal Tito and carried out by a large, 250,000-man partisan army, was so effective that the Germans had to commit 15 army divisions throughout the war to holding a nation they had won easily in the spring of 1941. Greek resistance, concentrated in armed guerrilla bands, was less effective. See Macksey, *Partisans of Europe*, (New York, 1975), 137–172, and Fitzroy MacLean, *Eastern Approaches*, (London, 1949), 388–400.

harm their local activities, also so that their local activities could support our operations. Among the ways that was most lucrative from a bomb group commander's point of view was rescuing our downed airmen, protecting them from the Germans, and eventually shipping them back across the Adriatic Sea into Italy. That happened again and again and again.

So while we may, of necessity, use more sophisticated weapons and weapon control systems, we must never forget the human factor. Remember that the people against whom we are fighting will, hopefully, one day become friends again. It is important that we carry on a war sensibly, in a way that doesn't alienate them from us forever. On the other hand, I certainly do not favor sacrificing American forces in engagements against an enemy. An enemy, whether innocent or not, has to pay a price for being an enemy, and being killed by inadvertent bombs is just part of that price.

Kohn: I sense, then, that you all feel that the lack of restraint imposed on U.S. forces and allied air forces in World War II, in effect, gave air power the opportunity to . . .

Smart: Exploit its capabilities—to a greater degree than was done in Vietnam, with all of the political constraints on its employment.

The Korean War

Kohn: Korea was a different set of challenges. Did our understanding of interdiction, our concept of operations, require modification to deal with the Korean situation?

Partridge: I didn't think so. I was in charge of the Fifth Air Force at the time,[30] with operational control of the other efforts by the Marines and by

[30]The Korean War began on June 25, 1950. Lt General George E. Stratemeyer, USAF, was in command of the Air Force's Far East Air Forces (FEAF), an air force consisting of the Fifth Air Force, Twentieth Air Force, Thirteenth Air Force, and the Far East Air Materiel Command. Major General Partridge was both General Stratemeyer's deputy at FEAF and Commander of Fifth Air Force. Three weeks after the North Korean invasion, Stratemeyer released Partridge from his duties as deputy commander and sent him to command exclusively the forces of Fifth Air Force, headquartered at Itazuke Air Base, Japan. In the midst of a general retreat down the Korean peninsula, Partridge's Fifth Air Force became the tactical air force supporting the U.S. Eighth Army and the Republic of Korea forces. It remained the USAF's principal tactical air force throughout the Korean War. Robert F. Futrell, *The United States Air Force in Korea, 1950–1953*, rev ed [Washington, 1983], 3–7, 45

the South Africans. Most people don't even know that the South Africans had a fine squadron over there—just a squadron, but superb nonetheless. The Navy was operating from the carriers. I tried to suggest that the Navy come ashore and be friendly and work from shore bases, but "uh-uh." I talked to the Admiral[31] about that and he just chuckled. He said, "We have to keep the carriers in the act." Of course the Navy had to protect the carriers too, and nearly drove itself crazy operating twenty-four hours a day. You can't sleep much when you're operating night and day.

As far as interdiction is concerned, we just adopted the same plan, ideas that we had in World War II. Bear in mind, it was only five years since the close of World War II. At the start of the war in Korea most of my people were combat ready. They had been exposed to enemy fire, and they were veterans. As a matter of fact, we had airplanes, P–51s, that still had the D-day markings on them: diagonal stripes. The remnants of those stripes were still on the airplanes we were using in Korea early in the war.

Kohn: General Partridge, during the first few weeks of the Korean War the North Korean forces were flooding down, driving South Korean forces backwards. They were also pushing the American forces, which had been injected onto the peninsula, down into Pusan. In the time between the initial invasion and the solidification of the Pusan perimeter, how did Fifth Air Force determine what targets to hit? Did close air support and interdiction merge? How did you deal with the Army in that situation, and how did you, in fact, choose to use your airplanes?

Partridge: It was very simple, really. Every day there was a briefing outlining the next day's operation. Usually the Army commander and some of his staff came and sometimes even the President of Korea. Everybody listened to the plan for the next day. So many airplanes were set aside for close support; so many were sent on interdiction missions; so many were to

[31]Vice Admiral C. Turner Joy, was Commander of the U.S. Navy, Far East (NavFE) when the Korean War began in June 1950. A few days after the war's start, Gen Douglas MacArthur, Commander in Chief, Far East, gave Admiral Joy and the Navy's carrier task forces "exclusive use" of a large sector of airspace over northwestern Korea. The division of enemy airspace caused several problems between the Air Force and Navy and is a persistent issue running throughout the military histories of the Korean War. See Futrell, *Air Force in Korea*, 9, 24–25, 45, 48–50, 492–493; and James A. Field, Jr., *History of United States Naval Operations. Korea* (Washington, 1962), 11–113, 116, 138–144, 265, 322, 354–355, 385–394, 453, 455–456.

operate at night. There was no question about where we were going with the majority of our force: close air support was most important at that particular time, and it was a successful operation.

General Walker[32], in an interview with some people who came over from the United States to find out what was going on, said to my amazement, two or three times, "If it hadn't been for the Fifth Air Force, we'd have been pushed off this peninsula." Plain as that. My relations with General Walker were close, and he often used to fly with me on reconnaissance missions over the battle area. Sometimes I could hear him swearing in the backseat, distressed by his observations of ground activities.

Kohn: Was he swearing about the enemy or over flying, General?

Partridge: Oh, he was the best passenger I ever had. Really, he didn't give a damn where he went. We just toured about. After one flight around that Pusan perimeter, you knew more about what was going on in the battle area, on the ground, than you would have known from hundreds of written or telephone reports. So we didn't have any trouble between the Army and Air Force in figuring out how we should use our meager air force on a day-to-day basis, how much effort should be put in close support, and how much should be applied on other missions such as interdiction. In the early days of the war it was mandatory to give close support top priority.

Kohn: That determination was really made for you by the battle situation. Were your aircraft suitable? We had a mixed force: F–51s and F–80s, propellers and jets.

Partridge: That's a long story, but essentially the Fifth Air Force had just completed a transition in fighter units from the F–51s to F–80s. The F–80s didn't have the legs, didn't have the range. To correct the deficiency, some of the maintenance people altered the wing tanks, which held 165 gallons,

[32]Lt Gen Walton H. Walker, U.S. Army (1889–1950). In the first six weeks of the Korean War, the U.S. Eighth Army, led by General Walker, was pressed hard by North Korean armies, forcing a general retreat down the Korean peninsula toward the Sea of Japan. In that crucial period, Maj Gen Partridge led the Fifth Air Force and provided close air support and battlefield interdiction for the Eighth Army. In late July and early August, Fifth Air Force's close air support averaged 175 sorties a day, helping blunt the enemy's advance. Futrell, *Air Force in Korea*, 111–114, 138–139.

Courtesy USAF Historical Research Center

Major General Partridge, FEAF Commander, and his deputy, Maj Gen. Laurence C. Craigie, pose for photographers beside a wing-tip fuel tank, especially developed for the F–80.

by putting two 50-gallon center sections in them making a 265–gallon tank for each wing. "Kelly" Johnson[33], chief engineer at Lockheed and designer of the F-80, came over and watched the aircraft take off from Taegu with two-wing tanks full and a 500–pound bomb in addition. He turned away and said, "I can't watch it."

Well, sometimes after the airplanes were loaded, they would settle a little bit. Ground crews would have to go out and bang up the bottom of the tanks (which extended too far in the rear) so the aircraft could get off the pierced steel-plank runways. We also had F–51s. To my amazement, before the war, an order came to turn them in for destruction. The logistics people took on the chore and destroyed all but about sixty of them, plus I think, a dozen others that we were using for towing targets and that sort of thing.

First of all, we manufactured tanks, big tanks, so we could go and stay awhile—not long enough, but we could stay awhile in the battle area flying from bases in Japan. Then we started reconverting to the F–51s. More F–51s were brought over from the states. So we got rid of most of the F–80s and went back to F–51s again. As I said, these were airplanes that had been in World War II and in the Normandy Invasion.

The Third Attack Group had B–26s, and we had some F–82s. Nobody, probably not one man in a hundred in the Air Force today, can remember that there was an F–82. It was an airplane with twin P–51 fuselages. The pilot sat in one side and the radar operator in the other. Off they went to war. We used them for night operations, not very successfully, but they were useful in the first days of the war. Also, we had troop carriers and a lot of planes of various sorts.

Kohn: Did the Korean War present a different targeting or intelligence challenge for interdiction than World War II? Did the concept of interdiction require modification? There were a number of factors, it seems to me, in Korea that we didn't face in World War II. It was almost a transition to what General Vogt would face in Vietnam.

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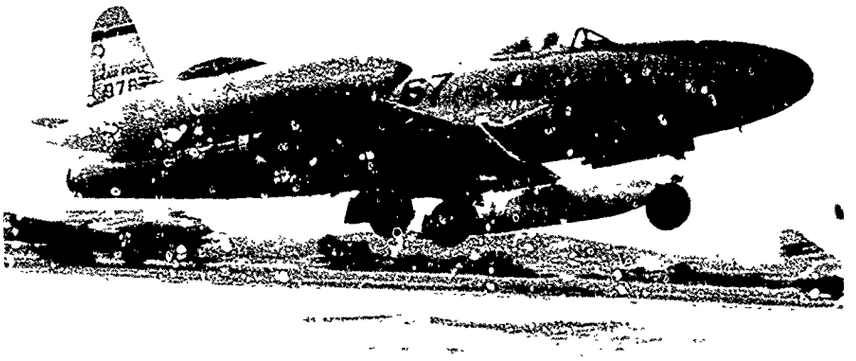
[33]Clarence L. "Kelly" Johnson (1910–) Kelly Johnson has designed or supervised the design and development of forty-four separate military and commercial airplanes, including the P–38, F–80, T–33, C–130, F–104, U–2, and SR–71. As the chief aeronautical engineer for the Lockheed Aircraft Corporation from 1933 to 1975, Johnson has received numerous scientific and professional awards for his contributions to aeronautics.



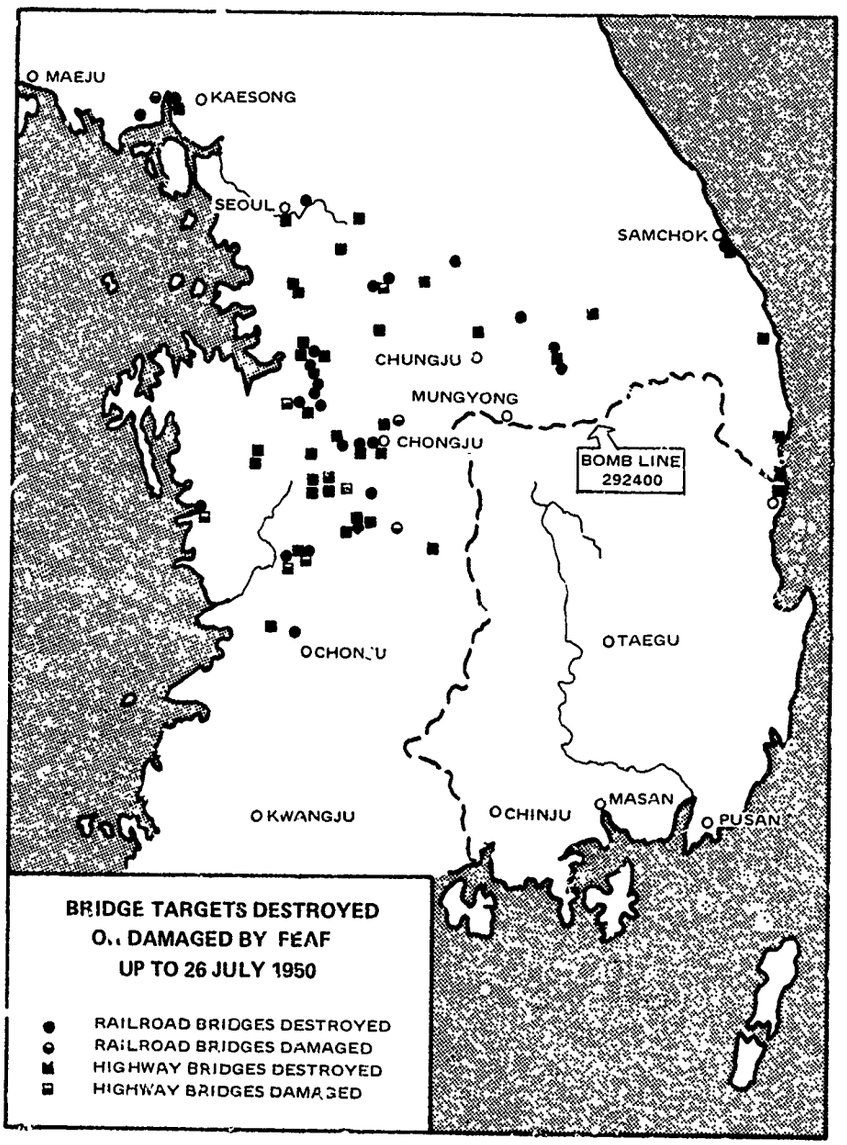
An F-80 Shooting Star takes off for a mission over Korea, December 1950. The enlarged fuel tanks on the wings give the aircraft additional combat range.

Partridge: We more or less continued what we did in Europe. We did reasonably well in the daytime, then the enemy started operating on roads, bridges, and so on at night. Our equipment for night reconnaissance and night attacks was very limited. The B-26, for example, had its forward guns fixed. You fire off a blast, and you lost your night vision for quite awhile. We finally worked out a system by which we used C-47s to drop flares, and the B-26s would make attacks under the flares, which wasn't quite so bad.

Smart: But you still suffered from the blindness of the blast of the guns to a degree.

Partridge: Yes, to a degree.

Smart: I arrived in Korea after the war had been going on for seventeen or eighteen months. The lines had more or less stabilized, and we were trying to talk the North Koreans into an armistice. There was confrontation across the battle zone, across "No Man's Land," but the confrontations were of short duration and of varying intensity. The North Koreans and Chinese would pull themselves together and make an attack for a short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SEOUL
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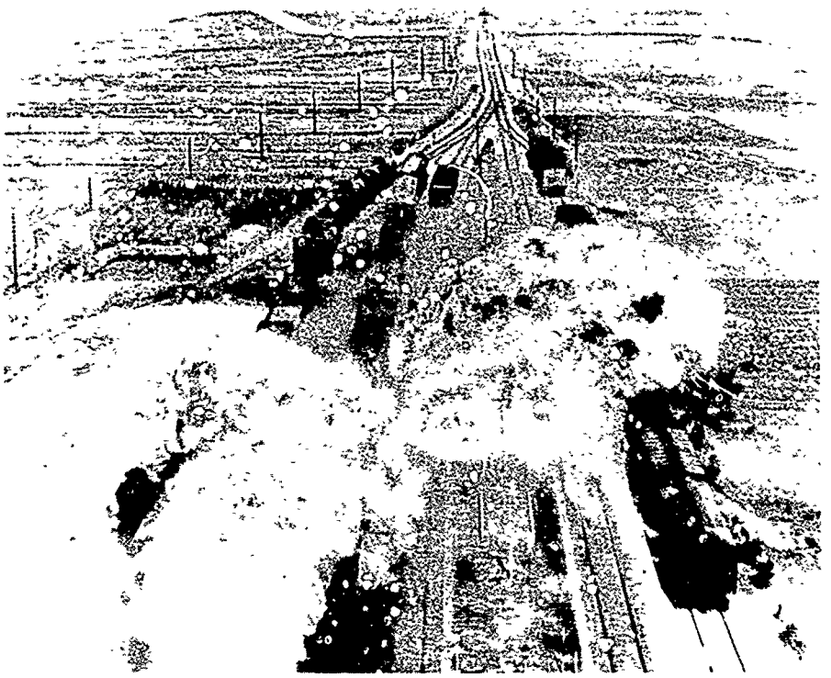
MASAN
PUSAN
BRIDGE TARGETS DESTROYED
OR DAMAGED BY FEAF
UP TO 26 JULY 1950
RAILROAD BRIDGES DESTROYED
RAILROAD BRIDGES DAMAGED
HIGHWAY BRIDGES DESTROYED
HIGHWAY BRIDGES DAMAGED



Two napalm bomb explosions halt rail traffic through a North Korean marshalling yard, located on the main rail line leading south from the port city of Wonsan.

period of time in a limited area, in which case there was a concentration of air forces to counter them. We think we made the North Koreans and the Chinese pay a very high price for their offensive actions.

Interdiction at that time was prosecuted intensely, with results that were difficult to measure. Let me say that differently: the results were measurable because we had good intelligence, but the significance of the effort was the difficult thing to determine. The North Koreans and the Chinese could fire 50 shells a day or 500, depending on what they had. There was little or no difference in results between their firing 50 and their firing 500 because neither side was moving significantly.

Kohn: So Korea, after the stablization of the Main Line of Resistance, was a case where interdiction, in fact, depended on the demands and the needs of the armies. Where armies are locked in combat, interdiction can be more effective.

Smart: Well, yes. The critical issue is how urgently did the enemy need the supplies that you were destroying, or delaying in distribution. The answer for Korea is that they weren't very urgent at that particular period, except for short periods of time. Now the Army would tell us that if we had been more effective in our interdiction, the North Koreans and the Chinese would not have had the opportunity to mass the forces that enabled them to make these offensive strikes, even though the objectives were limited. And of course the Army was right. That degree of perfection we were incapable of.

Partridge: Let me say a word or two about the control of close air support. We couldn't operate under a bombline concept because the bombline was very far forward and the troops were back. So, I had to issue orders *exactly,* precisely, that no one would attack enemy troops inside the bombline, unless they were completely under the control of the forward air controllers. Initially we had a total of only four air control parties, and we built other ones as fast as we could go. We cobbled them up from whatever pieces and parts we could lay our hands on. It got to the point where the Army was using the forward air controller radios to get in touch with their own headquarters.

I pointed this out to General Collins[34] one day when he visited Korea, and soon after that the Army began to get some good radio equipment and communications troops. Unlike the Normandy operation, the troops in Korea were moving all over the place. We finally had to assign a tactical air control party to each regiment. We had numbers of these parties built, staffed, trained, and so on, so that after awhile we had them at regimental level. We had them at the division level, corps level, and regimental level. Almost all of our close support work was inside the bombline.

Kohn: Do you feel, General Partridge, that close air support was more significant in Korea than interdiction, because of the stabilized nature of the front after the first year of the fighting? Are you saying that interdiction, in a sense, failed in Korea because the enemy, as General Smart pointed out, could adjust the intensity of combat to the availability of his supplies and

[34]Gen Joseph Lawton Collins, U.S. Army (1896–) At the time of the Korean War, General Collins was the Chief of Staff, U.S. Army

manpower? The Chinese after mid–1951 had a very deep main line of resistance; perhaps they could have held out indefinitely. Or, am I misreading the situation?

Partridge: I was only there for ten months, at the start of the war. During that time, the Eighth Army and the X Corps, actually, were so hard-pressed that we had to give priority to the close air support mission whenever they wanted it. What was left over we could use for what we called armed reconnaissance. We had a control point at Taegu, which was in the south-central part of the country. We did our dispatching on armed reconnaissance missions by radio.

The airplanes came over in a steady stream from Japan or from the air bases in Korea. They were directed by the Fifth Air Force control center to go close support or go out after interdiction targets. They roamed all over North Korea on their own when they had a chance.

At the start of the war, the North Koreans had airplanes, and within a few days we had chased them out of North Korea.[35] We pushed them back to the Yalu River and finally across the river. We destroyed some of them on the ground. Later we found 215 of them. When we had a chance to investigate north of our battle area and north of what was first the battle area, I had an intelligence unit headed by an American major—a crazy man. He had about sixty or eighty Koreans. He was funded by the Far East Air Forces headquarters, and he was a one-man intelligence section, I'll tell you.

We wanted to find out how many airplanes the North Koreans possessed. I told him what the mission was, and he came back in about a week or two with one of the most beautifully hand drawn maps you ever saw, pinpointing where the airplanes had been found in North Korea. We, at that time, were up by the Yalu. Anyhow, there were 215 of them. In addition to that, when we took Wonsan, which is on the east coast and just above the 38th parallel, I went to examine the enemy air base. The North Koreans had an underground hangar there, and it was full of attack airplanes, just as close as they could be stacked, all of them burned out. The North Koreans

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[35]For an account of how the United States Air Force achieved and maintained air superiority in Korea, see Futrell, *Air Force in Korea*, 77–112; Kohn and Harahan eds, *Air Superiority in World War II and Korea*, 66–85.

had put a thermite grenade in each cockpit and burned the aircraft out. So we didn't get any whole airplanes, but we had a hell of a lot of parts. How many were in that hangar I don't know. Maybe fifteen or twenty—I didn't count them.

Smart: Dick, you used a term that I would like to object to. Following my statement on the significance of interdiction operations, I heard you say that our interdiction failed. I think it's mistaken to say that it failed. Whenever you destroy enemy resources to the degree and with the frequency with which we destroyed them, you must say we had a degree of success. The interdiction operations were not decisive. There is a big difference between decisiveness and failure. We didn't fail, but we didn't make the enemy surrender on the front line, because we didn't cut off all of his resources.

Kohn: General Smart, that seems to me to be a very important point. Are the terms "failure" and "success" really relevant to interdiction? Perhaps interdiction is a process in modern war that lacks a discernible beginning or end. Success or failure may be absolutely irrelevant concepts— inapplicable, inappropriate.

Smart: I think that we ought to measure the significance of our air operations in relation to what did not happen, as well as in relation to what did happen. One of the things that didn't happen was that our forces were never subjected to air attack by the enemy Koreans. I don't think we ever had a ground soldier hurt by a North Korean or a Chinese air strike. We had a few airmen killed, of course, by engaging the enemy, but remember that the enemy air forces were out of the country. They were in a sanctuary across the Yalu River. They didn't move there for political reasons; they moved there because our air forces drove them there. The Fifth Air Force drove them out of Korea into Manchuria, China, with the help of the FEAF Bomber Command.[36]

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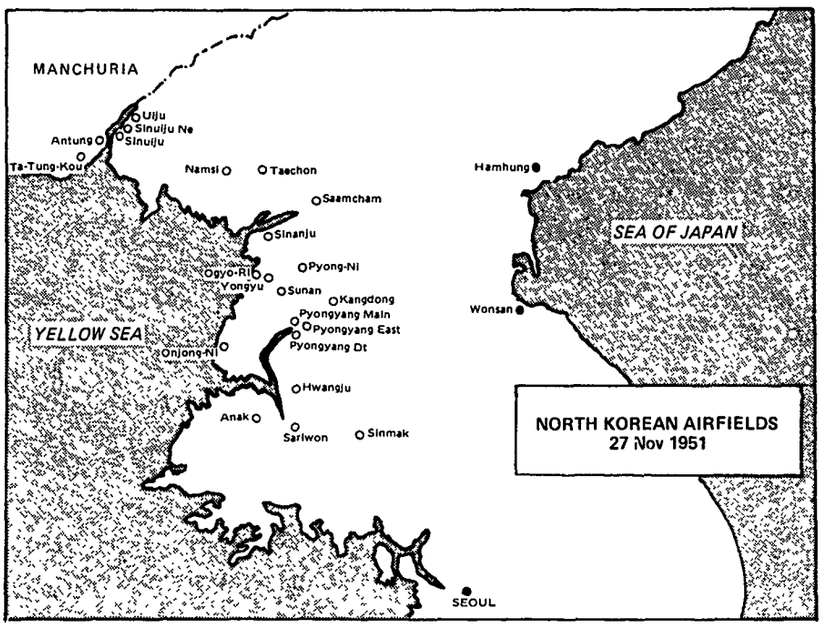
[36]Two weeks into the Korean War, Gen Hoyt C. Vandenberg, USAF Chief of Staff, sent two SAC B-29 Groups, the 22d and 92d, to Japan to join B-29 units already in the Far East. Lt Gen Stratemeyer, Commander, Far East Air Forces, organized these long-range strategic bombers into a separate command—Far East Air Forces Bomber Command (Provisional). Known as the FEAF Bomber Command, this unit flew bombing raids against North Korean cities, industrial targets, enemy lines of communications, and troop concentrations. Futrell, *Air Force in Korea*, 177–186.



Communist-controlled airfields were struck repeatedly during the Korean War. With the exception of Sinuij (on the Yalu River), all North Korean airfields were kept unusable by FEAF interdiction missions.

Courtesy Jacob Smart

Brigadier General Smart went to Korea in 1951, serving as Deputy Director, then Director of Operations, Far East Air Forces.

Also, the Chinese and North Koreans did not concentrate their resources, which were in very small packages all over the place so as to present a minimum target. The North Koreans and the Chinese paid an enormous price for every bit of ground they gained and every American or allied soldier that they killed, primarily because of the offensive striking power of the Fifth Air Force and of the FEAF Bomber Command, and of course the Navy carriers. We also had a Marine air wing on the ground which operated under the control of Fifth Air Force.

Partridge: May I say a word, somewhat off the subject, but to point out one of the situations that happened in Korea that should not have. After the invasion of Inchon, the X Corps, headed by General Almond (who by the way retained his title as Chief of Staff at the Far East Command) was given a number-one priority to go back on board ships, steam around to the east coast of North Korea, and land at Hamhung.[37] The troops were going to make a combat landing near Wonsan; I talked them out of that because they were going to tear up the airfield first and I needed it.

When General Almond established himself over there around Hamhung, with the Marine division, the Seventh U.S. Army Division, and the Third ROK Army Division, he had no contact—I mean literally no contact—with General Walker, Eighth Army Commander. I still had Fifth Air Force, which had operational control of all of the airplanes, including the Marine wing airplanes. Our two major ground commands were separated by seventy-five or one hundred miles, cornerways across the peninsula. Then X Corps got in a hell of a battle up on what was called the . . .

Kohn: Chosin Reservoir.[38]

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[37]Lt Gen Edward M Almond, U.S. Army, (1892–1979) In the Korean War, Almond was both General Douglas MacArthur's Chief of Staff at the Far East Command and Commander of the X Corps, a composite force consisting of the 1st Marine Division, and the U.S. Army's 7th Infantry Division. Almond led the X Corps in a successful amphibious landing at Inchon in September 1950, and shortly thereafter his Army Corps linked up with General Walker's U S Eighth Army and trapped some 120,000 North Korean forces In October, MacArthur sent Almond and the X Corps, consisting of 50,000 men, around the tip of the Korean peninsula to Wonsan, on the east coast of North Korea, for another amphibious operation. Landing unopposed, Almond collected up his forces quickly and began a sustained drive northward, almost reaching North Korea's northernmost border, the Yalu River, in late November 1950.

[38]The Chosin Reservoir Battle in November- December 1950 was but one battle in a massive Chinese Communist counteroffensive in North Korea against all United Nations forces U N. forces

Partridge: Yes. The troops just got into full-scale battle out there because the Chinese came and drove them back, drove the X Corps back. Finally those people had to be evacuated. During that time, the Marine air wing moved over to Wonsan to that airfield that I didn't want to have destroyed. That left me in the middle. I was supporting two separate armies with a meager force of air units, and the commanders didn't talk to each other. This I never did understand.

Kohn: How did this cause problems for you, General Partridge?

Partridge: Well, how should I distribute the effort? The X Corps never came to my headquarters for the evening briefing, so Almond didn't know what I was going to give him for support. And I shuttled back and forth across this area, time and again, acting as a liaison officer.

Kohn: To each headquarters separately?

Partridge: Yes, I had to talk to each one separately. The Marine air wing was given a mission, a directive, "Go and support them. If you can't support them, let me know, and we'll send over some aircraft to help you." Those are the sort of words which you will find in the Marine history of the Korean operation.[39]

Kohn: Let me ask one more question about Korea. How were relations with the Navy and the Marines? Did carving up the air war into separate

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had advanced successfully in the fall of 1950 through North Korean territory and were approaching the Yalu river, the river separating Manchuria, China from North Korea. At the Chosin Reservoir, two U.S. Marine regiments were attacked by seven Communist Chinese divisions and, in some of the bitterest fighting of the war, the Marines fought their way 14 miles down a treacherous, icy mountain road to an airstrip at Hagaru. There, 4,312 wounded and severely frostbitten soldiers were airlifted to safety. The remaining soldiers of the U.N. Forces' X Corps fought their way south to the port city of Hungnam, there to be transported by naval evacuation to South Korea. See Lynn Montrose and Captain Nicholas A. Canzona, USMC, *U.S. Marine Operations in Korea, 1950–1953*, 5 vols (Washington, 1954–72), III, *The Chosin Reservoir Campaign*, 151–360, Matthew B. Ridgeway, *The Korean War* (New York, 1967), 69–74, Eric M. Hammel, *Chosin* (New York, 1981).

[39]See Montross and Canzona, *Marine Operations in Korea*, III, 249–333. Fighters from the 1st Marine Air Wing and aircraft from the U.S. Navy's Task Force 77, supplemented by fighters and fighter-bombers from the USAF's Fifth Air Force, provided close air support for the X Corps' fighting retreat from Chosin to Hungnam.

operations, or areas, lessen at all the effectiveness of your command, of air power, and air power's impact on the Korean War?

Partridge: Good question, and I wish I could answer it well. The Navy came along in the early days of the war, and our major problem was communications. We had, as I told you, the airplanes that were used for the invasion in Europe five years before that. We had 4–channel VHF radios. The Navy had 12–channel or 20–channel VHF equipment, with a guard channel on it. This meant that with their new type radio you could call up anybody and get an answer. I used to have a T–6 with two VHF sets, so I had eight channels. I could tune around and listen to what was going on. It was pitiful sometimes, just pitiful. The Navy airmen were there, way down in the south tip of Korea. They were anxious to do something useful. They called and called and called and they couldn't get the ground controller. There probably wasn't one available anyway at the moment. Later the naval airplanes were operating from their carriers off the east coast. As I said before, carrier air operations were difficult to keep going, day in and day out. The crews are not used to that sort of thing.

I don't know what arrangements were made at the Far East Air Forces headquarters between the Air Force and the Navy. Finally, the Navy was given a sector in the northern part of Korea, where its people could operate freely. I only operated in close control with the Navy one time. We discovered that there were some enemy airplanes on the field at Sinuiju, which was next to the Yalu River.[40] I said, "Well, let's do it right this time. Let's take everything we have up there and bomb the airfield and get rid of it. Make them move back across the river." This was done successfully. Everything was just great, but there weren't any airplanes on the flying field. The enemy forces had moved out. I don't know whether they had a spy in my headquarters or not, but it was a great operation. Everybody said

[40]In the fall of 1950, United Nations forces drove farther and farther northward through North Korea. Air reconnaissance pilots spotted enemy fighter aircraft massing at several airfields, including one at Sinuiju, a major industrial city lying on the southern shore of the Yalu River. From November 8 to 12, the USAF's FEAF Bomber Command and the U.S. Navy's Task Force 77 flew maximum strength bomber raids, accompanied by Fifth Air Force F–80s and F–51 fighters, against Sinuiju and other key cities on the Yalu. These attacks, directed primarily against railroads, highway bridges, and urban industrial sectors, did not accomplish the primary objective of interdicting Communist Chinese supply routes from Manchuria, China into North Korea, for in late November 1950, the Communist Chinese were able to launch a massive counteroffensive against all United Nations forces. See Futrell, *Air Force in Korea*, 220–230.

we were going to lose airplane after airplane. We didn't lose one, not one. The Navy people carried a big bomb load up there and dumped it off just as they had planned. Aside from that one day, the Navy, to all intents and purposes, operated on its own.

Kohn: And in fact, that was the only arrangement that would work in the interservice arena: separating into geographical areas?

Partridge: Yes, separate the areas. There was a liaison officer from the Navy in the operational control center at Taegu. The Army's X Corps finally sent an officer, after I absolutely insisted on it. I knew General Almond very well, and he was a very unusual man. He'd get mad, he'd get blue in the face, you'd think he was going to have a heart attack within a couple of minutes, and then he'd calm down, and he was back to normal again. A very nice man.

Smart: When I went to the Far East Command, the arrangements with the Navy that General Partridge just described were still intact. Far East Air Forces and Naval Air Forces, Pacific had an agreement which more or less delineated the areas in which the Navy was free to operate. The Navy wanted it that way, because of the inherent difficulties of planning carrier operations in advance. Carrier forces were so dependent upon weather—at the launch site as well as in the strike area—upon refueling, and upon their protecting force, that they did not have the freedom of action that land-based forces had, in my judgment.

With those limitations, I think that the coordination was quite good. Seventh Fleet Task Force was the name of the forward operating unit of the Seventh Fleet. And at that time, it was commanded by a very fine Navy Vice Admiral named "Jocko" Clark. Jocko Clark and the current commander of Fifth Air Force, Glenn Barcus, were good friends.[41] Jocko Clark would come to see Barcus frequently—not quite daily, but frequently. Barcus would visit Clark aboard ship from time to time. Jocko Clark was a "can-do" type of naval officer. Others might wait and see, but not Jocko.

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[41]Vice Adm Joseph J. Clark (1893–1971) commanded the U.S. Navy's Seventh Fleet in Korea from May 1952 to December 1953. Earlier in the war he had led the Seventh Fleet's operational strike force, Carrier Task Force 77. Lt Gen Glenn O Barcus (1903–1977) took command of Fifth Air Force in June 1952. He led that air force for approximately one year, returning to the United States in May 1953 as the Vice Commander of Air Training Command.

An American staff officer in Korea points out a field position to Major General Partridge (left), Commanding General of Fifth Air Force, and Col John D Howe, Deputy Commander of Fifth Air Force Advance Headquarters, July 1950. General Partridge was Fifth Air Force Commander for two years before the North Korean invasion, and he led the USAF's tactical air forces during the first year of the war.

For example, I happened to be in Fifth Air Force headquarters one day when word came that one of our reconnaissance aircraft had been shot down off the Russian coast near Vladivostok. Fighters were launched to investigate because we had received a report that the aircraft was under surveillance, and the pilot was expecting an attack. Our fighters sighted one of the crew members in a rubber boat a very short distance off shore—twenty or thirty miles. Word came to Fifth Air Force just as Clark walked in. He had no sooner said, "Good Morning," when Barcus pointed out what had happened. Barcus said, "Jocko, can you go get this airman?" Clark replied, "You're goddamn right." He issued an order from the Air Force headquarters, and those surface ships were on the way within five or ten minutes. That's a good example of how the services can coordinate.[42]

[42]Early in October 1952, an RB-29 assigned to the USAF's 91st Strategic Reconnaissance Squadron was flying a surveillance mission over the northern tip of Hokkaido Island, Japan, when it was

Kohn: So personal relationships often are important.

Smart: It was more than personal. Jocko was that sort of a man, in my judgment.

The Vietnam War

Kohn: Let us turn to Vietnam. Did the United States really intend to wage an interdiction campaign or to use air power in large measure for interdiction in the Southeast Asian war?

Vogt: I spent a number of years in Washington, both on the Joint Staff and on the Air Staff, during the formative years of our strategy for Southeast Asia. I think it can best be described as a policy of piecemeal commitment: doing what you had to do to stay in the game, hopefully to get slightly ahead, but never to decide the issue. All the way back to the days of Dien Bien Phu[43] you could see that our involvement was limited.

The amount of involvement was determined almost daily. The discussion over in the White House, at the National Security Council, based on the latest intelligence reports, was: "What do we have to do now to offset what these guys have just done? They have committed some more forces, or they've made a fairly large-scale operation here. What are we going to do to

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shot down by an unidentified aircraft. The Russian government claimed the RB–29 had flown over its territorial waters, a claim the United States government denied. Although air and sea rescue teams were dispatched quickly, none of the eight crew members was found. (History of the 91st Strategic Reconnaissance Squadron, Medium, Photo, Yakota Air Force Base, Japan, October 1, 1952 through October 31, 1952, USAF Historical Research Center, Maxwell AFB, Alabama.)

[43]Dien Bien Phu was a French military post in Vietnam, then part of French Indochina. Between 1946 and 1954, French Army troops fought to subdue Viet Minh revolutionaries in the French Indochina War. The war ended with a French defeat at Dien Bien Phu, where 13,000 men surrendered after a 56-day siege. In the United States, President Dwight D. Eisenhower, Secretary of State John Foster Dulles, and the Joint Chiefs of Staff considered military and diplomatic options for intervening in Indochina on the side of the French. The United States did not act, in part because British Prime Minister Winston Churchill refused to join in a united action against the Viet Minh in Indochina. See Bernard B. Fall, *Hell in a Very Small Place: The Siege of Dien Bien Phu* (New York, 1966); Leslie H. Gelb with Richard K. Betts, *The Irony of Vietnam: The System Worked* (Washington, 1979), 53–61; David Halberstam, *The Best and the Brightest* (New York, 1972), 136–145; Robert F. Futrell, with Martin Blumenson, *The United States Air Force in Southeast Asia: The Advisory Years to 1965* (Washington, 1981), 3–49.

respond to this?" The answer always was: "Just a little something more than we are doing right now." There was no real strategy to decide the war.

The Joint Chiefs had done a number of studies, some of them involving very extensive bombing campaigns in the North, along the lines of what we ultimately did in Linebacker II. In my judgment, implementing these campaigns would have brought the war to an end many, many years sooner. There were a lot of issues that had to be considered by the policymakers in Washington. I might say that the most critical of those issues, surprisingly, was not whether or not the Soviets or Chinese were going to get involved and expand the war—although that was a major issue. The most critical issue under consideration was, "What will the press do to us if we make an additional commitment of this or that nature?" The policymakers' concern for public reaction, as expressed by the editorial writers of the American newspapers, was a dramatic restraint on our planning a sensible campaign for Vietnam.

I sat in on many meetings of the organization known as WSAG, Washington Special Actions Group, which was conducting the so-called strategic direction of the war in Vietnam. This was a group of selected elements of the National Security Council, the key players being the President's Security Adviser, Dr. Kissinger, who served as chairman, and the Deputy Secretary of Defense, the Deputy Secretary of State, and the Chairman of the Joint Chiefs. I happened to be along on a number of occasions as the Director of the Joint Staff, or the J–3, when I had that job.[44]

The topic under consideration was always the next stage of piecemeal participation, involvement, or escalation. Never once did the group sit down and decide what a total campaign ought to look like. So we never really planned anything, and the reason was the fear that the liberal press would go to work on anything that sounded too hawkish, or that in any way suggested that we were going to be militant in our approach. I sincerely believe that this inhibiting factor led to the ultimate end in Vietnam. Just

[44]The Washington Special Actions Group was formed in the White House in May 1969, at the direction of Dr. Henry A. Kissinger, National Security Adviser to President Richard M. Nixon. This group became a small, top-level crisis committee that operated outside of the normal channels of either the President's Cabinet or the National Security Council. Membership consisted of Dr. Kissinger, National Security Advisor; U. Alexis Johnson, Under Secretary of State; David Packard, Deputy Secretary of Defense; and Gen Earle G. Wheeler, U.S. Army, Chairman, Joint Chiefs of Staff. See Marvin Kalb and Bernard Kalb, *Kissinger* (Boston, 1974), 93–94, 85–86.

trying to commit ourselves no more than necessary to keep ahead of the game. There certainly wasn't a dramatic planning of an air campaign.

Kohn: Does this square with your experience in 1963 and 1964 out there, General Smart?

Smart: Very much so. I'd like to go back and point out that we, the United States, became involved in this war initially when the French were in Indochina, by committing ourselves to logistical support of the French. When I worked for General Partridge and also when I worked for General Weyland[45] before him, I had occasion to go to Vietnam and get some feel for what was going on there. The French were in charge and losing gradually—losing control. They were asking for logistic help and eventually when the situation got tough, for military help. Our people were responsive to the French just enough to keep a seat at the poker table, but they were playing only with table stakes. We never committed ourselves to help the French win, anymore (in my judgment) than we did to win when we replaced the French. It was the strangest behavior for a nation of our size and character I think I've ever seen.

Kohn: Could we focus now on interdiction, specifically, on the campaigns in Southeast Asia and how those campaigns may have differed from previous efforts?

Southeast Asia was a jungle environment, a different terrain, and we operated under different rules of engagement than in Korea. We again gave the enemy sanctuaries. But we were also dealing with a different kind of war, an insurgency rather than a conventional war on the ground. I'm wondering if these factors posed different problems for interdiction?

To give one example, General Smart noted the importance of timing to an interdiction effort:whether the enemy needs particular materiel at specific times. In an insurgency, the guerrillas can choose when to fight. They can wait for a long time to build up supplies. Could you comment on this?

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[45]Gen Otto P. Weyland, USAF, (1902–1979) was Deputy Commandant of the National War College when the Korean War broke out in June 1950. Within a few weeks he was assigned to the Far East Air Forces, the principal USAF theater command waging the air war in Korea. Initially, he was Vice Commander for Operations, Far East Air Forces, but within a year he had become Commander, leading that air force through many campaigns in the war. After the war, Weyland stayed in the Far East and assisted the Japanese in reorganizing and reequipping their air forces. See Futrell, *Air Force in Korea*, 116–17, 199–201, 255, 441–447, 500–501.

Courtesy Walter Reed

Lt. Gen. Jacob Smart as Commander, U.S. Forces in Japan, ca 1962. General Smart's extensive service in the Far East led to his appointment as Pacific Air Forces Commander in August 1963, just as the U.S. was intensifying its involvement in the Vietnam conflict.

Smart: I think General Vogt ought to address this rather than I because I was moved out of the theater a few months before we actually admitted that we were in the war.

Kohn: General Vogt, you were Director of Operations for Pacific Air Forces during 1965–68.

Vogt: Yes, I was there during the Rolling Thunder days as the operations director in PACAF.[46] I think we have to distinguish between two periods of

[46]Rolling Thunder was an air campaign against North Vietnam that lasted intermittently, due to several bombing "pauses," from March 1965 to November 1968. The six phases of Rolling Thunder were: Phase I, March 2–May 11, 1965; Phase II, May 18–December 24, 1965; Phase III, January 31–March 31, 1966; Phase IV, April 1–December 24, 1966; Phase V, February 14–December 24, 1967; and Phase VI, January 3–November 1, 1968. Authorized by President Lyndon Johnson and managed by Secretary of Defense Robert McNamara, this campaign had a threefold objective: application of graduated military pressure on North Vietnam in order to effect a war settlement on American terms; reduction of the men and supplies infiltrating from the North into the South; and boosting the morale of South Vietnam's forces. By November 1968, the U.S. Air Force, Navy, and Marine Corps had flown more than a half a million sorties and dropped more than 500,000 tons of bombs. See Guenter Lewy, *America in Vietnam* (New York, 1978), 374–406; William W. Momyer, *Air Power in Three Wars: WWII, Korea, Vietnam* (Washington, 1978), 18–19, 23, 53, 89–90, 236–251; Wallace J. Thies, *When Governments Collide: Coercion and Diplomacy in the Vietnam Conflict, 1964–1968* (Berkeley, Calif., 1980), 80–82, 84–105, 178–185.

the war in Vietnam. One was the insurgency period that you've just described that went right up to the Easter invasion in the spring of 1972. At that point, the character of the war changed very dramatically, and we were not dealing with insurgency and the kinds of situations that you are talking about. Trying to interdict something that's a trickle at a time, over a long period of time, under the cover of dense jungle is a job of one kind, as opposed to working against large-scale forces, mechanized units, and so forth, which is considerably easier.

The operations over the Ho Chi Minh Trail, I think, were complex and most difficult for airmen to work with. That trail had multiple paths under very heavy foliage. As quickly as you blew the foliage away, it regrew. If you interdicted one area—one known element of that trail—the enemy would be a mile away bypassing and coming down again. You really couldn't look under the foliage and see what the devil was going on.

As you remember, Robert S. McNamara,[47] then Secretary of Defense, took a dramatic new approach to the problem, and he created Igloo White, the system of sensors which we dropped in the jungle to tell us precisely where the enemy was moving.[48] Igloo White turned out to be a farce. The enemy very quickly overcame the system. Later on, when I was in the theater and became familiar with the workings of the system, I had a chance to see what had happened to it.

As you recall, we established a big computer center with feed-in from these sensors dropped along the trail, with the ability to determine on a large chart where the detected movements were. This Igloo White facility was built on a base called Nakhon Phanom in Thailand: the system was highly complex, incorporating all of McNamara's greatest imaginative,

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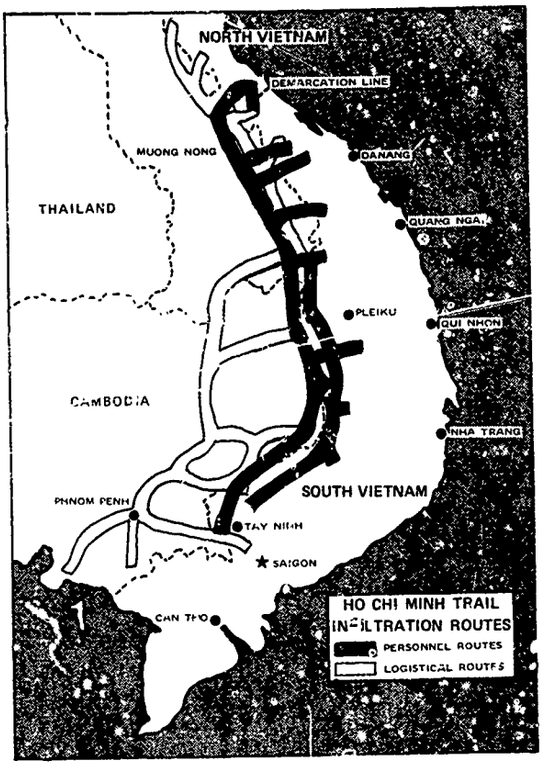
[47]Robert S. McNamara (1916–) was Secretary of Defense from 1961 to 1968. These years coincided with the escalation of American involvement in the Vietnam War, and Secretary McNamara not only approved the increase in American forces from 700 advisors in 1961 to 500,000 Army, Air Force, Marine Corps, and Navy personnel in 1967, but he advocated and won presidential approval for initiating the Rolling Thunder air campaign in February–March 1965. A strong-willed corporate executive, McNamara extended his control over virtually every aspect of the American military's conduct of the war. See Henry L. Trewhitt, *McNamara: His Ordeal in the Pentagon* (New York, 1972).

[48]Igloo White was the code name for an air droppable, remote detection surveillance system used in Southeast Asia to detect enemy truck movement. Once activated either by acoustic or seismic sensors, the system transmitted electronic signals identifying truck traffic location and density to a circling aircraft and then to an infiltration surveillance center for processing. This information was used to direct strike aircraft against the ground traffic, either immediately, if moving in convoys, or delayed, if a concentration dictated area bombing. Igloo White became operational in Laos in November 1967.



technological thinking. Its cost was on the order of two and a half billion dollars.

We discovered the enemy very quickly determined the kinds of sensors that were being used. They were either movement vibration sensors which detected the movement of a truck going by, or they were acoustic sensors, actual microphone types which picked up the sound of the engines, the talking of the troops, or their marching. We found out later, by analysis, that the enemy, once he knew the nature of the sensors, was able to play with them and send the kind of message he wanted.

The enemy forces were on the ground when these sensors were being dropped, coming down with chutes and easily seen. Knowing the general area of the drop, the enemy located the sensors and played with them. One favorite trick, in the case of an acoustic sensor, was to take a truck and run it up and down in front of that sensor for several hours. The analyst at the computer center reads all of these passes and said, "My God, there's a

major movement going on there." Aircraft would be sent out. How do you find one truck? Or the enemy would take a wicker basket and put it over the top of a microphone type sensor, and we wouldn't hear anything for a long time. A whole army could march by it. So the sensor program became sort of a joke, but McNamara clung to this to the bitter end as the hope, the technological solution, for the interdiction problem on the Ho Chi Minh Trail.

We never did fully solve the problem of detecting enemy movement. At the very end of the war, we made big inroads. We began to employ new sensors that were useful in finding the trucks under the cover. The infrared systems came in. We could see through the foliage. We began to have better ways of getting a handle on it. The gunships that we put up there, the AC-130s, did a remarkable job with the sensors we had onboard in finding enemy materiel and destroying it. We even had 105-millimeter guns mounted on the AC-130s banging away, with quite dramatic results.[49] But we never stopped the flow of troops and materiel. There was never total interdiction. We were trying to get complete results from an operation that was not susceptible to that kind of interdiction.

This was the phase of the war that I described as occurring prior to the spring of 1972. The war changed dramatically then.

Kohn: Let's go back to the long period of interdiction from 1965 through 1972. If our ground strategy was to search out and destroy the enemy, to get him to commit himself to fight, might it not have been better not to have attempted any interdiction at all in Southeast Asia so that the enemy could build up his logistic base and come out and fight? Or, perhaps, was it necessary politically to make every effort to hurt the enemy, to bolster South Vietnam, and to sway public opinion here in the United States?

Vogt: The enemy didn't intend to come out and fight in the way that you describe. He intended to hit us by surprise: when he had the element of surprise and where he thought we weren't ready. On his part, the typical campaign would be—to reduce operations, lull the defenses into a false sense of security, and zap them. Remember that the enemy forces had the

[49] See Jack S. Ballard, *United States Air Force in Southeast Asia: Development and Employment of Fixed-Wing Gunships 1962-1972* (Washington, 1982) for a history of these combat aircraft in Vietnam.

Above: One of the strike aircraft in the Igloo White system was the Air Force AC–130. This gunship received information on possible truck locations while in flight over the Ho Chi Minh Trail. The aircraft commander then attempted to interdict the suspected truck convoys.

Left: A camouflaged acoustical sensor hangs from a tree in the Southeast Asian jungle. Noise was picked up by the microphone and transmitted to the Igloo White surveillance center.

initiative; they were the ones that were on the attack all the time. We were defending population areas and outposts, fixed positions. They were roaming around in the jungle, and always they could decide where to hit us and when to attack. So if we had hoped to let them build up to the point where they could start main force operations, we would never have seen a change in strategy, I think, because they were doing too well with what they were doing. Their strategy was working very well. We were losing the support of the population because at night the Viet Cong would come in, take over, terrorize the population, and say, "If you don't support us, and cease support of the central government, we'll be in tomorrow night, and you'll all have your throats cut." This was a campaign of terror, totally misinterpreted by the American press. The South Vietnamese were depicted to the American public as being in favor of the Viet Cong, which was never true. The Viet Cong gained support by terrorist activities and that alone. I know this because I wandered around all over South Vietnam later when I was the Deputy Commander of MACV [Military Assistance Command, Vietnam] as well as the Seventh Air Force Commander. I had ground commander responsibilities as well and talked to many South Vietnamese people, and always this view came out: If you can't guarantee security, then we've got to provide for ourselves and make a deal with the devil. Overwhelmingly, their sentiments were with the central government.

The situation changed in 1972. We had stopped the Rolling Thunder operations in 1968, which had had limited success for one simple reason (not because of the way the airmen conducted the war—Momyer[50] was one of the best professionals in the world, and he did a superb job of running that war). But how do you fight a war as a commander on the scene when your high-value targets were picked back in the White House a couple of days before? This is what was happening in Rolling Thunder. The Secretary of Defense and the Secretary of State would sit down with the President,

[50]Gen William W. Momyer, USAF Retired (1916–), was a tactical air expert who became in July 1966, Gen William C. Westmoreland's deputy commander for air operations and simultaneously, Commander of Seventh Air Force. In the Vietnam War Momyer was involved in a nearly continuous stream of close air support and air interdiction operations. When he returned to the United States, he served as Commander of the Tactical Air Command from 1968 to 1973. As one of the Air Force's leading thinkers about tactical air operations, Momyer influenced the development of the F–15 and F–16 fighters. He is the author of two books: *The Vietnamese Air Force, 1951–1975, An Analysis of Its Role in Combat*, Vol 3, *USAF Southeast Asia Monograph Series* edited by A. J. C. Lavelle (Washington, 1975); and *Airpower in Three Wars* (Washington, 1978).

usually at a breakfast meeting, and go over what targets they were going to destroy for the coming week, and regardless of the weather, the commanders could strike only those targets in the vital areas.

The air commander could work in-country (South Vietnam) and respond to requests for assistance and support, but the campaign against the North was a precisely controlled campaign, in which the targets were selected and put on a schedule, and that's all the commander could play with, whether it made military sense or not.

Now, how were these targets selected? Well, I happen to know because at the time I was head of what was known as the Policy Planning Staff[51] in Washington and had seen this selection process develop. It grew out of the same concern that I expressed earlier: "God, if we turned these airmen loose in a mad bombing campaign, all the world will turn against us, and the editorial opinion will drive us out of office. So we have to control carefully what they do." Every single target was weighed for the impact on the press, public opinion, collateral damage, number of civilian casualties, and not on whether the mission would help us win the war. Rolling Thunder evolved into a campaign of trying to "send signals," a favorite expression then. The President would say, "Next week I'm going to send them a signal. Boy, we're really going to warn them next week, so I want these targets hit." Then the next selection might be made on the basis of: "Well, we want to ease off on them for awhile because we're going to step up negotiations. We want to demonstrate to them that we're nice guys." The "carrot and stick" approach. So we'd be limited to targets well out of the Hanoi area and to missions that weren't very meaningful, but which required the pilots to meet the enemy and take the same risks. This was not a campaign being conducted to achieve a decisive result. The policymakers were asking: "How do you get the enemy into a state of mind where he is willing to negotiate an end to the war on terms that you can live with?" You have to understand this.

What happened? We stopped all the Rolling Thunder operations in 1968 because the President, under great pressure from the press and the Congress, started a negotiating track in Paris aimed at a political settle-

[51]For approximately two and a half years (1963–1965), General Vogt was the Director, Policy Planning Staff, Office of the Assistant Secretary of Defense for International Security Affairs.

ment. We wanted to send the signal to the North Vietnamese that we were not going to escalate, we were not going to put undue pressure on them, that we were going to be reasonable guys so they could deal with reasonable people and respond in a reasonable way. So Rolling Thunder was stopped, even though it was beginning to seriously impact on the enemy's will and ability to pursue the war in the South.

This, incidentally, led to the debacle later in which, as you know, we had to send pilots out on armed reconnaissance to see whether the enemy was taking advantage of this bombing lull and sneaking up on us and in which "Jack" Lavelle found that he was sending airmen out under rules of engagement that guaranteed the loss of airplanes since they couldn't fire until fired on first. If the enemy fires on you from the jungle as you go flying by, by the time you turn around to find out where he is, you've been shot down. Lavelle assumed that in some areas the firing was going to

The Thai Nguyen steel plant in North Vietnam was struck by Air Force F-105s on April 18, 1967. These Rolling Thunder missions were intended to put pressure on the North Vietnamese to accept American terms at the negotiation table.

Air Force reconnaissance photography reveals an anti-aircraft site located near an important bridge about 50 miles south of Hanoi, March 1966. The 57 mm cannon and Soviet-built radar unit were employed to counter American air interdiction strikes.

occur, and therefore, by God, he was going to be shooting at least as early as the enemy was.[52]

Taking the pressure off did not induce the North Vietnamese to be more reasonable at the negotiating table. In fact, it gave them hope that they could diddle us into a situation where eventually we would get tired of the war and quit. That bombing respite, from 1968 on, gave them time. Now what did they do in this period? They began the most dramatic rejuvenation

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[52]Gen John D Lavelle, USAF (1916–1979) commanded the Seventh Air Force in Southeast Asia from August 1971 to April 1972, when he was recalled to the United States and charged with having authorized certain "protective reaction" strikes beyond those permitted by the rules of engagement policies These charges were investigated by the Air Force and Congress The result was that the Air Force complied with recommendations of the Senate Armed Services Committee and reduced Lavelle in rank and retired him as a permanent major general. See Hearings Before the Committee on Armed Services, U S. Senate, *On John D. Lavelle for Appointment as Lieutenant General on the Retired List of U.S. Air Force and Matters Relating to the Authority for Certain Bombing Missions in North Vietnam between November 1971 and March 1972*, 92nd Cong, 2d Sess (Washington, 1972). *New York Times*, July 25, 1974.

of the air defense system of the North that we had ever seen. The Soviets came in numbers, with Soviet advisors, just as they are doing in Syria today. The Soviets gave the North Vietnamese the latest technology as well as the instructors to teach them how to use the systems. In fact, the Soviets helped man the command centers. There were Soviets running the central nervous system of the air defense system of Hanoi. The most dramatic buildup, of course, was in the number of SAMs.

Mind you, before Rolling Thunder nobody had ever had to operate in the modern SAM environment. Air defense wasn't a problem in Korea; we didn't have SAMs in World War II. What you had to deal with in World War II was relatively inaccurate fire from guns.

Kohn: Did this change the way in which one could wage an interdiction campaign?

Vogt: Absolutely—a tremendous impact—because now you had to structure an attack taking into consideration electronic countermeasures (ECM), which we never had to deal with before. The enemy spent this interim period building up these defenses. He wound up with thirty-five to forty SA–2 sites[53] right in the Hanoi area, a dense concentration, none heavier anywhere in the world. These were the latest Soviet systems, the finest long-range acquisition radars, short-range radars, threat radars of various kinds, all netted together. The North Vietnamese had a precise picture at all times of the air situation above them.

On the other hand, we were denied any real knowledge of what was going on after our pilots left friendly territory. We didn't have the capability to get radar coverage over enemy territory, with the exception of the Navy standing off the coast with its radar-equipped ships. Even that coverage was limited, and in effect, it defined the area of the major combat operations of the Navy. If you go back into the record, you will find that eighty-five percent of all Navy sorties were conducted within thirty miles of the coastline, roughly their operational radar coverage. The Navy was given the route packs right adjacent to the coast, the Haiphong complex, and on

[53]The SA–2, Guideline, was a Soviet, medium-range, surface-to-air antiaircraft missile that was used extensively in Vietnam against American aircraft. With a speed of 3.5 mach, a range of 30 miles, and a guidance system based on radio signals, the SA–2 was an effective antiaircraft weapon.

down the coast to South Vietnam.[54] In these areas, the naval aircraft had radar coverage almost as good as the coverage that the North Vietnamese were giving their own air force and SAMs. But a Seventh Air Force pilot taking off from Thailand, as soon as he got beyond our radar range, entered this dense coverage of the enemy with no radar, except for his own limited radar on board, to help him.

Incidentally, you will hear people say, "Well, the Navy had a far more successful combat record against MiGs [than the Air Force] in the war in Vietnam." The Navy pilots were highly trained professionals, but it was not a question of pilot or equipment capability, but largely, in my mind, of how much radar support and coverage Navy forces had versus ours.

Kohn: How did you remedy this?

Vogt: I'm getting ahead of my story, and we are beyond interdiction, but I think this is important. By July 1972, in the middle of the Linebacker operations, for the first time in the history of the United States Air Force, the loss-to-victory ratio swung in favor of the enemy. We were losing more airplanes than we were shooting down. This had never happened before anywhere in the world. Our losses were due, as I said, to our going blind into a heavily netted threat radar environment, confronting the best MiGs that the Soviets had available for export, flown by highly trained North Vietnamese pilots, who were good, and with Soviet instructors who were, many times, also in the air. The Soviets never engaged in combat, but they were airborne in their own MiGs, directing the air battle.

We finally developed a system which I can't discuss here because of classification, but it's a system which has led to what we now call "fusion." Have you ever heard of the establishment of a fusion center? I built one in Europe as soon as I became CINCUSAFE. The first use of fusion was in that environment in Southeast Asia, and in essence it involved being able to

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[54] At the onset of Rolling Thunder in March 1965, Adm U. S. G. Sharp, Commander in Chief, Pacific Command, set up a joint service coordinating committee to plan certain aspects of the air campaign against North Vietnam. This committee divided North Vietnam into six geographical areas called route packages. After a year of coordinating each service's air strikes into specific "route packs," the Navy was assigned the route packages in North Vietnam adjacent to the Gulf of Tonkin (Routes II, III, IV, VIB), and the Air Force was given two routes in the interior (Routes V, VIA) and one (Route I) along the coast just north of the demilitarized zone. See Momyer, *Air Power in Three Wars*, 91–95.

have up-to-the-minute intelligence coupled to your operational command and control so that you could react. That system went into effect the first of August, 1972. In July, as I say, we were less than one to one, (our loss-to-victory ratio); in the month of August, the ratio shifted four to one in our favor and stayed that way right up to the end of the Linebacker operations.

Once again, as General Partridge said earlier, the intelligence factor is absolutely essential in the conduct of any of these operations. This kind of intelligence is going to be critical to any campaign in Europe. Critical.

Kohn: Do you mean intelligence to deal with enemy air forces, or intelligence for the selection of targets?

Vogt: I'm dealing now with enemy air forces—just winning the air battle alone—but intelligence has application to target selection also. Fusion addresses the whole question of finding the enemy, transmitting his location immediately, and having your forces there at precisely the right time. It's all done with sensors, with real-time intelligence, with sophisticated

Courtesy John W. Vogt, Jr.

General Vogt, Commander of Seventh Air Force (right), visited Udorn Air Base, Thailand in the summer of 1973. Here, he posed with Brig. Gen James R Hildreth, Commander of Thirteenth Air Force Advanced Echelon, (left) and Col. Robert W. Clement

technology. In Germany, I started a fusion center which will hopefully give us some capabilities in a European air battle.

Let's return to our discussion of interdiction. In the spring of 1972, the war changed dramatically. The negotiating track in Paris was getting nowhere. Our "good guy" attitude had no results. The enemy had taken the bombing respite, with the termination of the RollingThunder operations in 1968, as an opportunity to build up his capabilities in preparation for a major attack in the South. At this time, we were being used, and our politicians were being used and deceived into thinking that the enemy was going to play the game. We were being led down the garden path.

In spring 1972, the United States was in the last phases of the total withdrawal of U.S. ground forces from Vietnam. This was called the "Vietnamization" of the war, a major platform issue for the President. He had taken office saying, "I'm going to pull us out of the ground war," and he did. The enemy took advantage of this promise, and knowing that we were going to withdraw, prepared an offensive for approximately the time the U.S. ground forces would be gone, essentially March 1972. We were, for all intents and purposes, out of the ground war at that point.

Picture the situation. The enemy has been building up, getting ready for an offensive, for a whole year or more. We've been drawing down, pulling ground troops out of a war that has not been decided. You have a situation that could lead to total disaster. The enemy saw this. While the talks were going on in Paris, the North Vietnamese were getting ready to jump us. Bang! Late in March 1972, under the cover of the northeast monsoon (when tactical air forces can't fly), they let us have it.[55] They began a seven division offensive across several fronts, but essentially and initially, up in the northeast, in the I Corps area.

The forces that came in were not the irregular forces that had descended on Hue in the Tet offensive of 1968. These were highly trained,

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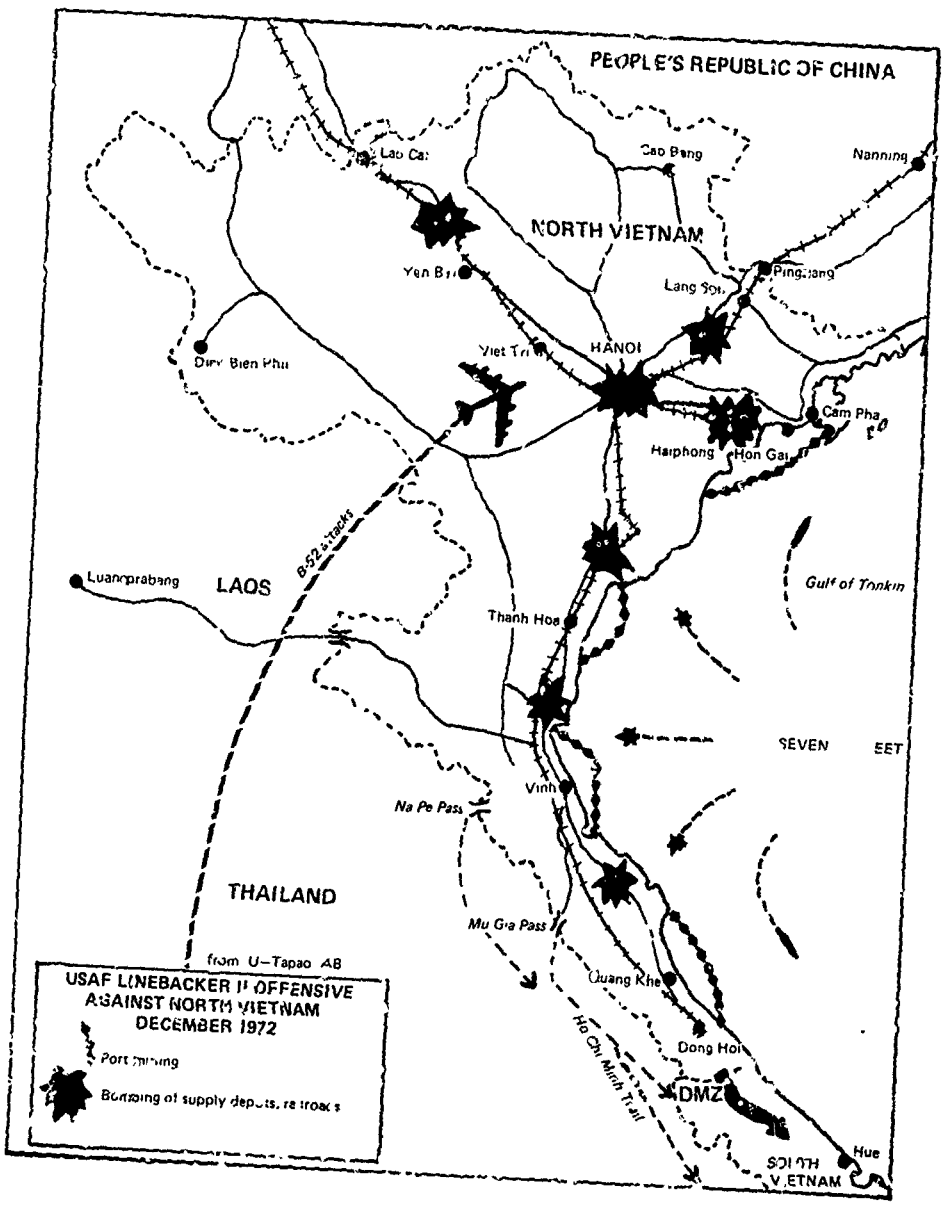
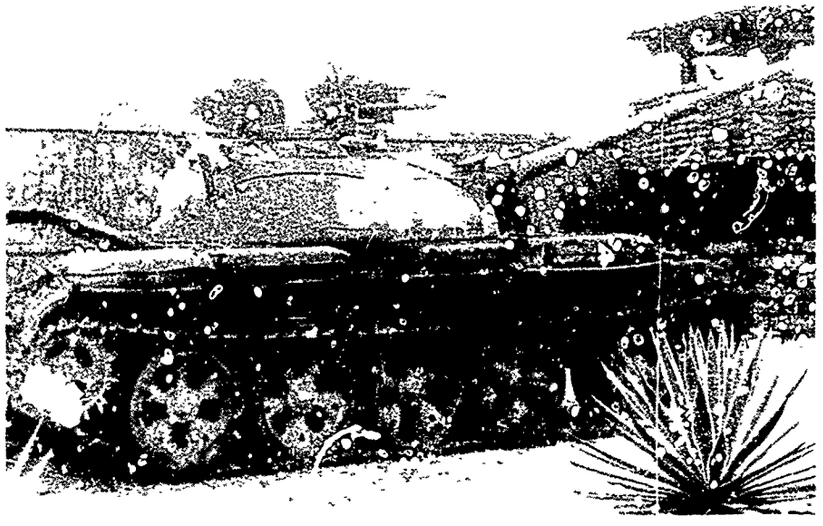
[55]The 1972 Easter Invasion began on March 30, when seven North Vietnamese army divisions drove southward across the demilitarized zone and eastward from Laos and Cambodia into South Vietnam. Equipped with Russian T–54 tanks and 130–mm artillery weapons, the North Vietnamese Army moved forward steadily, taking territory and prisoners in several South Vietnamese provinces. The South Vietnamese Army, unable to maintain a defensive line, fell back in disarray. Early in May, Gen Ngo Quang Truong was placed in charge of all South Vietnamese forces on the northern front. Truong stabilized the army, constructed a new defense line, and worked to coordinate the full resources of U.S. air and sea power against the enemy's advance. By June the attack had been blunted due in great measure to tactical air power. A sustained counteroffensive, lasting until mid-September, was initiated. See Lewy *America in Vietnam*, 196–201.


PEOPLE'S REPUBLIC OF CHINA
Lao Cai
Cao Bang
Nanning
NORTH VIETNAM
Yen Bai
Lang Son
Pingxiang
Dien Bien Phu
Viet Tri
HANOI
Cam Pha
Haiphong
Hon Gai
B-52 tracks
Luangprabang
LAOS
Thanh Hoa
Gulf of Tonkin
SEVEN
FLEET
Vinh
Na Pe Pass
THAILAND
Mu Gia Pass
from U-Tapao AB
Quang Khe
Ho Chi Minh Trail
Dong Hoi
DMZ
Hue
SOUTH VIETNAM
USAF LINEBACKER II OFFENSIVE AGAINST NORTH VIETNAM DECEMBER 1972
Port mining
Bombing of supply depots, rail tracks



A Soviet-built T–54/55 tank captured during the fighting at Quang Tri, 1972. According to General Vogt, the gradual withdrawal of U.S. forces from Vietnam gave the Communists an opportunity to rearm with sophisticated Soviet weapons

regular elements, equipped with the finest equipment that the Soviets believed could be access to the use of the North Vietnamese, including T–54 tanks and 130–millimeter guns, which outranged everything that we had in the theater at the time— far more accurate and with a far higher rate of fire. I'll give you an example. A U.S. 105–millimeter gun fired approximately 14 kilometers, at a rate of three rounds per minute. The Soviet 130–millimeter gun fired up to 27 kilometers and 6 rounds a minute, with extreme accuracy.

The North Vietnamese used weapons, introduced early on, which we had never seen before. For example, they used the SA–7 Strela, a handheld, infrared surface-to-air missile which completely wiped out the capability of the South Vietnamese Air Force to operate in the I Corps area.[56] Within several days, seven A–1s went down. The forward air controllers were driven out of the altitudes where they could operate most effectively. We had to elevate them to 12,000 feet, above the range of this weapon.

[56]The Soviet SA–7 Strela antiaircraft missile was deployed in Southeast Asia in the early 1970s. Carried by a single soldier, it employed an infrared homing light and was particularly effective against low-flying aircraft, such as observation planes or helicopters.

It was a new war, one with main-line equipment. The effect was devastating. When the enemy hit just north of Quang Tri, the South Vietnamese forces were shattered. The Americans weren't there anymore; our army had gone. The South Vietnamese were there alone. When the enemy's offensive hit, it utterly shattered the Third ARVN [Army of the Republic of Vietnam] Division The troops deserted; they just abandoned the lines and left. When I got there, Gen. Ngo Quang Truong, the corps commander, was still trying to round up the deserters who had fled into the many cities of the South. A whole division had evaporated, and he sat there with a Marine division, which fortunately didn't break and run, and one more ARVN division which was fully occupied with a second enemy division coming in from the flank. The I Corps front was now wide open.

Kohn: May I interrupt to ask one question? At this point, were you faced with the question of how "deep" to use your air power, that is, how far behind the enemy attackers to strike, as opposed to ordering close air support missions? In this case close air support and interdiction merged. Was that an issue?

Vogt: Let me explain the sequence of events. First, remember that I said this offensive began under the cover of the northeast monsoon. If you haven't seen the monsoon season or conditions in Vietnam, you won't understand what I'm talking about: very low clouds, extremely poor visibility, almost like trying to fly an airplane in a Turkish bath. Monsoons affected theater operations from the beginning of the conflict and were never understood back here. I remember I was in Washington, going to these WSAG [Washington Special Actions Group] meetings, and I remember the President saying, "I cannot understand why the tactical air forces of the United States, in an era in which we're sending people to the moon, can't fight when the weather is bad."

And I might say, gentlemen, that the tactical air forces of the United States still can't fight, with a few exceptions, when the weather is that bad. We are buying airplanes like F–16s that have limited ability to fight when the weather is bad. We have been working hard since 1975 to correct this, but the solutions are still several years away. The F–16, the only airplane we're producing in numbers, is still a fair-weather airplane. It has an IR

[infrared homing] missile; it doesn't have a radar missile. If the weather is bad in Europe, as it is much of the time, the airplane has difficulty firing its missiles. The F–16 doesn't have the radar suitable for precise ground attack either, under those conditions. We have not solved the problem of foul weather operations, and the results are slow in coming. We come closest with the F–111s, which are superb, around-the-clock, all-weather airplanes that I used to great advantage in Southeast Asia. Yet they are out of production and going out of the inventory at the rate of two to ten a year as we lose them through attrition! I might add the Soviets are procuring their own F–111 type, the Fencer,[57] in substantial numbers.

Kohn: An interesting parallel: in the Battle of the Bulge in 1944 the Germans attacked under weather, and here the North Vietnamese were attacking under weather also.

Vogt: In the initial phase, the President's reaction to limitations on tactical air power was violent. The Navy, whose own air power suffered similar limitations, turned to naval gunfire support. When the Navy was moving in to give gunfire support (5–inch guns from destroyers), I was on my way to Vietnam, and I arrived about the time the destroyers were beginning to operate. I discovered immediately that naval gunfire support is not effective unless you have spotters who can direct the fire on the target. The Navy had no spotters. It had to turn to the Air Force: "You spot for us." Yet we were faced with the situation I just described: terrible weather and a new missile called the SA–7 that could zap you if you flew low enough to see what was happening.

Then the enemy tried one more tactic: he turned his 130–millimeter guns on the destroyers and compelled them to move farther out to sea. The 130's greater range and accuracy threatened the destroyers. The Navy sent an urgent request for what was known as the rocket-assisted round to give extra range against the 130. When that round came in, we discovered its accuracy was less than that of the regular round, and the destroyers had

[57] The Fencer is a Soviet multi-role all-weather, swept-wing fighter-bomber designed to fly interdiction and close air support missions. It first became operational in 1974 and closely resembles the American F–111 and FB–111. By December 1982 the Soviets had 400 Fencers, known officially as SU–24s, operational in the European Theater.

difficulty hitting a target even with the spotter. So the Navy fire support effort was inadequate to stop the enemy advance by itself.

Now we had a critical situation. The enemy was moving south; he engaged the remnants of the South Vietnamese forces in a major tank battle in the Quang Tri area. The North Vietnamese subjected the South Vietnamese M–48 tanks to 130–millimeter fire in a devastating artillery attack which crippled a good many and forced the abandonment of the rest. Many South Vietnamese fled leaving their tanks intact.

Let me tell you a story at this point because it demonstrates something that all of us have experienced: the fallacy of trying to run a war from somewhere else. National intelligence resources, in this case primarily in the guise of the SR–71[58]—not controlled by the air commander on the scene but controlled from Washington, D.C., and run by the strategic air forces—were flying missions down in the Quang Tri area. The SR–71s came back with pictures of a formation of some 50 tanks "descending on Quang Tri." An urgent message came all the way from the Joint Chiefs of Staff to the Commander in Chief, Pacific, directing that the Seventh Air Force "take under attack these tanks, which constitute a major threat," at coordinates so-and-so. These were, in fact, the friendly M–48s that our allies had just abandoned. I could have told the Joint Chiefs that before they wrote the message, but nobody asked. This is the kind of situation you run into when somebody tries to direct a war from 14,000 miles away and doesn't understand what's happening on the ground.

Another story illustrates the difficulties of this war. When the South Vietnamese armor was wiped out, General Abrams[59] immediately sent in urgent requests for replacement armor. He wanted M–48s, from his nearest source, the 25th Infantry Division, back in Hawaii. He asked me to arrange immediate airlift with C–5s to get them to the scene.

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[58]The SR–71 is the United States' fastest, high-altitude reconnaissance aircraft. Designed by C. L. "Kelly" Johnson of Lockheed Corporation in the early 1960s, it can fly over 2,000 mph at altitudes in excess of 80,000 feet and photograph the terrain continuously.

[59]Gen Creighton W. Abrams, U.S. Army, (1914–1974) became in 1968 commander of the U.S. Military Assistance Command, Vietnam (MACV), the command directly responsible for all U.S. forces in South Vietnam. Remaining in Vietnam until June 1972, Abrams carried out President Richard M. Nixon's policy of "Vietnamization." This meant the gradual withdrawal of U.S. military forces from South Vietnam in return for strengthening, through armament and war supplies, the army and air force of the Republic of Vietnam. During the transition years General Abrams reoriented American army strategy away from enemy attrition as measured by "body count," and towards area security and territorial objectives. American air and sea power played an important role in the new strategy.

Of course Military Airlift Command agreed to do this, and the JCS directed it. But where were the tanks going to be delivered? That is important, because they were needed at the front. Would they be delivered in the combat zone? No, because you do not jeopardize strategic airlift airplanes by taking them into tactical areas. So the airplanes flew into Da Nang. The tanks had to be transported along a torturous route, around the side of a mountain, which was interdicted and under fire by the enemy, and on a coastal road, which was mined and under mortar fire all the way. When people say, "Hey, we are increasing our capability to really move stuff around the world, because we're getting more C–5s," I say, "Gentlemen, from airport to airport, great! But to fly troops or equipment into the forward combat area where you need them in a hell of a hurry, we are unlikely to risk C–5s—too valuable an asset." This is why we need the C–17.[ω]

To return to interdiction and the situation in May 1972: delays in getting armor up there and shattered defenses. General Truong sent an urgent request for air support. He had no way of forming a line and stopping this enemy movement. Two North Vietnamese divisions, equipped with T–54s, were moving down under intense artillery barrage support of 130–millimeter guns. Fortunately the weather began to clear at this point. The monsoon season was waning, and we, for the first time, began to throw air power in. We conducted, at that point, a classical campaign that demonstrates what interdiction can do if the situation is right. In this case it had a vital effect on the outcome of the campaign.

Kohn: When you say the situation is "right," what specifically do you mean?

Vogt: The tactical situation. The weather was right. The enemy was now advancing south between the ocean and the mountain chain, down a series

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[ω] The C–5 is one of the largest military airlift aircraft in the world. The USAF has 77 C–5s, each of which can fly over 3,000 miles at speeds over 500 mph and deliver up to 220,000 lbs of materiel. The C–5s became operational in MAC in 1969. In 1981 the Air Force selected McDonnell Douglas as the prime contractor for the C–17, a new long-range, heavy-lift, air-refuelable air transport which is projected to be used for inter- and intra-theater airlift operations. Designed to operate from runways as short as 3,000 feet, it would transport U. S. Army units and equipment into airstrips close to the battle front.

of roads along the coast. His objective, clearly, was the city of Hue. General Truong, the I Corps Commander, established a very thin line, 15 miles north of the city of Hue, but with limited artillery. The 130 fire had been withering, and it chewed up most of his fire support bases. It was at that point that I mounted a major interdiction effort. We constructed a model of the battle area, a mosaic the size of a large room. We used large scale photography, aerial photography, which we had obtained with RF–4s. We marked every single point that looked interdictable, where we could stop heavy traffic like the T–54 tanks.

Kohn: So you were going to attack places rather than materiel or vehicles?

Vogt: Yes, every single point over which this traffic must come, which could be destroyed. We then brought the FACs, the forward air controllers, in and stood them around the map. We assigned each of them a certain number of places and said, "You're responsible for seeing that the enemy is kept out at all times—first destroy him if you see him and then keep him out by destroying vital points. The FACs went back, positioned themselves over these targets, and we earmarked for their use a certain number of F–4s on a daily basis, with laser-guided bombs. We began the destruction of these points.

It was done virtually overnight, such is the accuracy of a laser bomb. We were getting 5–foot CEPs [circular error probables] with 2,000–pound bombs. Every bridge went out. Every culvert went out. The enemy troops just stopped right there. We saw them in desperate frustration one day, in broad daylight, trying to construct a bridge over a river. We had destroyed the regular bridge. They were doing this in daylight. I said, "Don't hit it yet. Wait until they get everything committed and the bridge almost done." The North Vietnamese brought in some more trucks and cranes. They had two giant cranes placing these spans in. About the time they had the bridge ready, in came a laser bomb and blew them all to hell.

Our air power stopped the forward progress of the enemy offensive dead. The North Vietnamese never moved, they never challenged the line in the south. They made one effort to resume the offensive by using their PT–76 amphibious tanks under cover of darkness, swimming a river, and

starting down. We caught them thirty miles north of the defense lines in daylight the next day, and we began the first laser bomb attack against armor in history. When the smoke had cleared at the end of the day, we had thirty-five burned out PT-76 tanks and no losses to ourselves.

The enemy forces never recovered from that. They never challenged that line, and eventually we stabilized the situation. Truong rebuilt his forces and began the campaign back up to Quang Tri, which by October 1972 resulted in the recapture of the city. The enemy was defeated in that area and was on his way out.

Kohn: In effect, you stopped the ground attack.

Vogt: Stopped them dead, and the major factor was the use of air in an effective interdiction campaign. I don't want to underestimate the part General Truong played in pulling his forces together in the face of defeat. He was an outstanding commander. But air power certainly was the dominant factor that resulted in the favorable outcome.

Kohn: I think the spring offensive in 1972 raises a general question about interdiction. Perhaps interdiction is more effective in conventional warfare, against mechanized armies, or technologically sophisticated armies, dependent on large amounts of supplies with definite objectives moving on definable lines of communication, under complicated time schedules. A shifting or kaleidoscopic front, or an uncertain combat situation, or when forces are not engaged for specific objectives perhaps are not situations conducive to interdiction.

Smart: Let me make a point here. I think when we discuss topics such as we are, and events as they occurred, we should recognize that the majority of enemy supplies, sophisticated and unsophisticated as they were in Southeast Asia, came into the theater primarily through one, two, or three ports. Our political decisionmakers did not enable us to interdict these supplies while they were at sea or in the ports through which they entered the area. Had we been able to do so, the enemy would have been required to rely upon routes through China which would have put him in an entirely different ball game. The point I am making is that by our own policy we

General Smart, Commander of Pacific Air Forces with Maj Gen Joseph H Moore, Commander of the 2d Air Division, during ceremonies welcoming General Smart to Saigon in 1954

created some of the problems, which then had to be dealt with by the combat people.

Vogt: This point is well illustrated by what happened later. The President made the decision in May 1972 to resume the bombing in the North.[61] First, as I mentioned before, the enemy defenses had been built up after the cessation of the bombing and Rolling Thunder. Now the North Vietnamese were far more prepared for resumption of that bombing. More than that, this decision was made in complete isolation—without any advance discussion with those of us in the field. We were told one day to start this campaign again, essentially the next day. That's how much warning we had on the resumption of that bombing. It was all decided on a very closely held basis. I might say, very few people in Washington knew this decision had been made. Vast elements of the State Department didn't know the bombing was about to happen—a lot of people in the Defense Department, also. Just a handful knew that the President had now decided to take the war back up into the North. In trying to keep this move secret, so the press would not find out, even the commanders in the field weren't told that it was about to happen. So I did no prior planning. I had to start a campaign on virtually one day's notice.

Here's what the President said. "First we're going to mine," as General Smart just said, "we're going to mine the main port, Haiphong. Stop the traffic through there. Then, knowing that the enemy will shift to the China route, we're going to interdict two rail lines; the northeast and the northwest rail lines." (These were the only rail lines connecting China with Hanoi.) "We're going to interdict those." Ponder this problem for a minute. Those rail lines are north of Hanoi, a couple of hundred miles from our bases in Thailand. They are up in the heart of the defenses of the enemy. They are up in MiG country. They are now protected by this vast SAM

[61]On May 8, 1972, President Nixon ordered extensive air operations conducted throughout North Vietnam, except along a buffer zone adjacent to the Chinese border and the two restricted areas in the centers of Haiphong and Hanoi. Simultaneously, the President directed the aerial mining of North Vietnamese harbors and an American naval blockade of the coastline. These presidential orders triggered the massive new bombing campaign, later called Linebacker I, which ran from May to October 1972 and damaged or destroyed ten MiG air bases, six major thermal power plants, numerous fixed petroleum, oil, and lubricants storage facilities, and many tunnels and railroad bridges in North Vietnam. In all, American F-4s, F-105s, F-111s, B-52s, and other aircraft flew 41,653 sorties and dropped 155,548 tons of bombs during Linebacker I. See Lewy, *America in Vietnam*, 410–411.

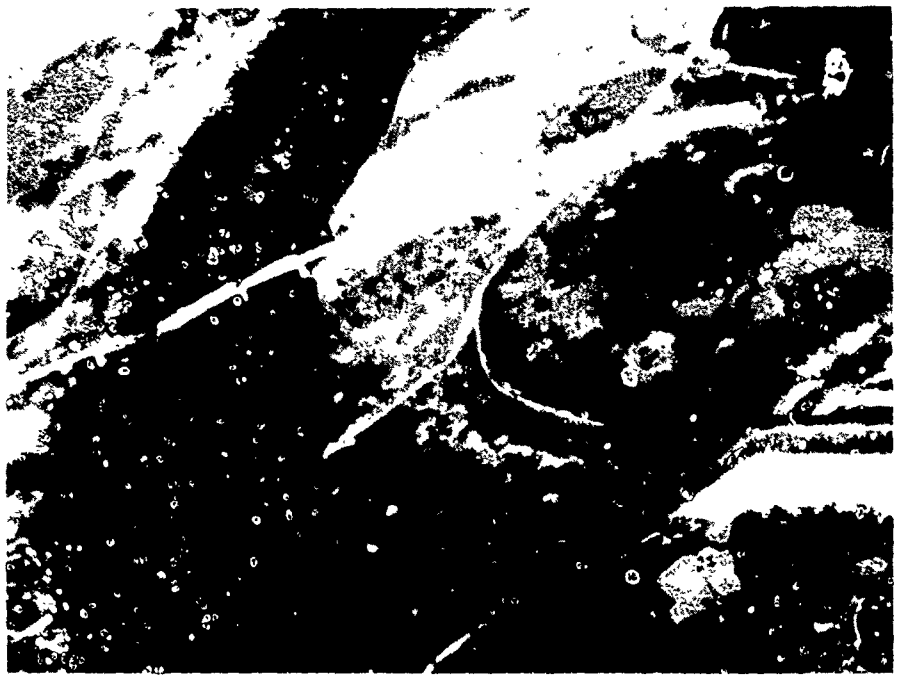
system. We are to fly through all of this, and on a daily basis, and keep the bridges out on these rail lines. This is interdiction of the most demanding type.

Kohn: Would this be similar to what we might face in Europe, in the future?

Vogt: This is what we will face in Europe, precisely. I knew that on the basis of free-fall bombing, with combat CEPs of 250 to 350 feet, we would never be able to bomb and keep out those bridges. The bridges were typically eight feet wide, steel trestles, one hundred feet long, and they spanned many, many rivers and streams. You had to have precision and accuracy, and to guarantee that they would be destroyed by normal free-fall bombing would have required far more sorties than were available in all of the air forces of Southeast Asia, if they did nothing else. Also, the enemy had a capability to rebuild those bridges quickly.

We had a weapon, as I say, the laser-guided bomb, which was very useful in the April–May 1972 campaign in South Vietnam that I just described, because there was no enemy threat. There were no SA–2s in I Corps, and I could put laser directors up there with impunity—airplanes orbiting with lasers on the side of the canopy providing the beam down which the bomb was riding. No MiGs, no SAMs, very little fire from the ground. The laser directors were operating at 20 000 feet above the SA–7s' range. It was a "duck soup" operation.

Now we were going to go up into the North, into the heart of this nest of defenses, in a radar limited situation, to interdict two rail lines. I was told by the Commander in Chief, Pacific that it was desirable to have fifteen bridges out at any given time on each railroad. The first thing I said was, "All right, we'll divide the effort. I'll take the one in deep, the northwest rail line. We'll do that with USAF air. And the Navy will take the one nearer the coast." This was beyond that thirty-mile limit that I just described, and the Navy had no desire to do this. So the Seventh Air Force had to interdict both rail lines. The Navy did run some A–6 night sorties on the northeast railroad, but it could not achieve the necessary CEPs [accuracy] to destroy the bridges.



Tactical air strikes on April 27, 1972, dropped one span of the Dong Phong Thuon Bridge, located twelve miles north of Thanh Hoa in North Vietnam. The mission was designed to counter the spring offensive by North Vietnamese forces.

Well, we couldn't send airplanes up with canopy lasers because as soon as you set up an orbit and held a beam on the target, an enemy missile would get you or a MiG would get you. We had to resort to using the Pave Knife pod, which was an experimental system brought into Vietnam. It was a research and development project, not an operational system, and only six pods existed.[62] We had to fight that whole war with these R&D pods, a total of six. It was a pod, as you know, that permitted the airplane to fly in formation with the bomb droppers. We lost a couple of pods. We wound up with four of them, and the war was being run with four pods that I held together with bailing wire. I gave orders to the pilots, "Don't come back if you don't have that pod with you when you return." The Pave Knive pod enabled us, with the great precision of the laser weapon, to operate in the

[62]Pave Knife was the name applied to USAF F-4D fighters equipped with laser-guided bombing systems. Capable of operating at night against small targets, the system had a range of 12–15 km. Introduced in Vietnam in early 1971, Pave Knife's first combat test occurred on February 3, 1971, as two F–4D Phantom jets escorting AC–130 gunships destroyed a 37-mm enemy gun with laser-directed bombs. See Ballard, *Development of Fixed Wing Gunships 1962–1972*, 167.

high risk environment. We did, in fact, keep an average of fifteen bridges out at any given time The air operation virtually stopped the rail traffic on those two rail lines.

The General Problem of Air Interdiction

Kohn: This raises the issue of quantity versus quality of aircraft. In World War II the Allies possessed vast numbers of airplanes and were able to interdict by means of armed reconnaissance. Today we have limited numbers of tactical aircraft but great capability in their systems. It strikes me as a trade-off. Let me ask you as air commanders: do you, with your airplanes, do what you must do in order to affect the battlefield, or do you do with your airplanes in interdiction what you're capable, technologically, of doing? What is the relationship between loss and need? It must be excruciating for air commanders to make that choice. All of you have, I am sure, at some time in your careers "managed attrition," as it is sometimes called.

Vogt: We are very slow in learning lessons. I commanded in Europe two years after the U.S. left Southeast Asia. When I arrived in Europe I discovered that first, there wasn't a single laser bomb in all of the theater. Two years had elapsed since the war had ended in Vietnam. There was not a single laser-delivery capable airplane in all of Europe, not a single pod, and not one laser bomb. When I said, "My God, this weapon that has revolutionized our war in Vietnam and enabled us to beat those guys into the ground—we haven't even brought it over here. Why?"

"Well, we've got a different war, General. We're going to fight a different way over here."

And what was that way? That planned war in 1974, when I arrived in Europe, was the war of nuclear weapons, war where nobody was doing conventional targeting. Nobody was looking at bridges to be interdicted with conventional bombs. We were going to go nuclear very early on. NATO strategy called for relatively early use of nuclear weapons. All the strategists thought about was that we had bigger weapons that were very

useful. The Germans, for example, in those days would buy only small amounts of conventional ordnance for their airplanes. They were more interested in getting the nuclear weapons.

Kohn: General Vogt, you have in the past discussed a gap between procurement on the one hand and doctrine or strategy on the other, a disconnect that the field commander cannot really deal with. I want to go back a moment to this choice, because we may face it in some future interdiction campaign. Future air commanders may have to put at risk immense numbers of their aircraft in order to affect the ground battle.

Smart: Let me speak to that and I hope not in oversimplified terms. It is simply this: a commander cannot expend his forces faster than they can be replaced, or very soon he is out of business and completely ineffective. The rate of resupply of resources, to include pilots, aircraft, munitions, and fuel, controls the rate of his operations. Other elements control it, too: the ability of the team to maintain aircraft, to keep them operational. That, in turn, is affected by the degree of damage done by enemy defenses. In the Korean War, for example, toward the end of the period that I was involved there, we learned that we could operate an F-86 for about 25 or 26 missions per month, and that was all. A number of factors influenced that.

Vogt: I would like to make another point which has certainly emerged from my experience in Vietnam. The ratio of attack airplanes to support airplanes has changed dramatically in the new environment I described. We were typically running missions up in this high-risk environment over North Vietnam in which the total strike capability for that afternoon would be sixteen airplanes, but the force of airplanes providing the necessary technical support for them numbered 250. Jamming, anti-SAM, the Wild Weasel stuff, the chaff dispensing, the MiG CAP—ate up tremendous quantities of air operations just trying to keep a small strike force alive.[63] You see, the premium is on the precision of those few airplanes that are going to drop. They have to kill the target with certainty. The commander

[63]For a description of these countermeasures, see footnote 17. MiG CAP was simply an Air Force term for a tactic of providing a combat air patrol over a specified territory or air space in order to engage and defeat any hostile fighters in the area

must insure that they get in and out alive. That was the name of the game for me in 1972: a small number of highly accurate airplanes, with the enemy kept off their backs by whatever means required, so that they could destroy the target.

It was not the old system, as in Europe in World War II, when fighters escorted bombers and interdicted at the same time. Or, you went out on armed reconnaissance and bombed on your own. You ranged wide, then. You didn't worry about the enemy defenses; you went around them. By the 1970s, thirty years later, interdiction had become highly structured and precisely timed, with the ratio of support forces to attack forces extremely high. I suspect that is the situation that we will run into in Europe in the future. In dealing with Soviet defenses, defense suppression is going to be one hell of a big job and is going to occupy a lot of the commander's essential force.

Smart: Tell me, is it feasible, in your judgment, to do some of these support functions—for example, the illumination by lasers of the target that you propose to strike— with drones?[64]

Vogt: That is interesting, General Smart, because I am a great believer in drones. I used drones in a reconnaissance role very effectively. Drones went into areas where conventional airplanes wouldn't live. You could not take an RF–4 and fly it, by itself, up in to the heavily defended areas and expect to get out alive. It would come back shot up, or it wouldn't come back. So the drones would go in under the weather and come back with the photography. They were the main source of my battle damage assessment.

I decided that the drone would be extremely useful in Europe, so the first thing I did when I arrived over there was to say, "I want the drones I had earmarked for my use in Vietnam. Let's bring them over, and we'll base them in England."

"We're not going to do this."

Why? Because the Air Force has not bought the concept of drones. We had one drone unit. I don't know whether we still have it. Do we still have it out in the desert somewhere?

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[64]Drones are a category of unmanned aircraft that are remotely or automatically controlled. In Vietnam drones were used for target reconnaissance and attack assessment. See Momyer, *Air Power in Three Wars*, 231–236

Col. C. R. Krieger [Air Staff from the audience]: Out at Davis-Monthan Air Force Base, Arizona.

Vogt: Davis-Monthan, that's where the drones sit, not in the theater where they might be needed. But you are absolutely right, General Smart. We could do all kinds of operations with drones, imaginatively and effectively, if we had them. The Israelis have used them very effectively in attacking SAMs in the Bekaa Valley.[65] But we don't use drones, and I suspect it's the old issue of driving the pilot out of the cockpit that's at stake here. I don't know, but the technology has not been exploited the way it should be.

Smart: Can you tell us a little bit more about what we are expecting our drones to do? For example, are the drones going to illuminate targets that would eventually be struck from helicopters or from . . .

Vogt: I am familiar with some planning the Army is doing for the use of drones. I sit on the Army Science Board, and there is an Army drone under consideration that acts as a laser designator, but it is not going to be in the inventory for a number of years. There are a lot of problems with it, command and control for one. It would go out with its optics on board, identify the target, and lase it. Then artillery could fire their laser warhead artillery shells into its basket. The Army has a family of missiles and artillery shells under development that are laser guided. Their problem is . . .

Smart: Laser guided or laser seeking?

Vogt: If you fire them into a basket, they will acquire the laser beam and fly down the beam into the target. But you must designate with the beam.

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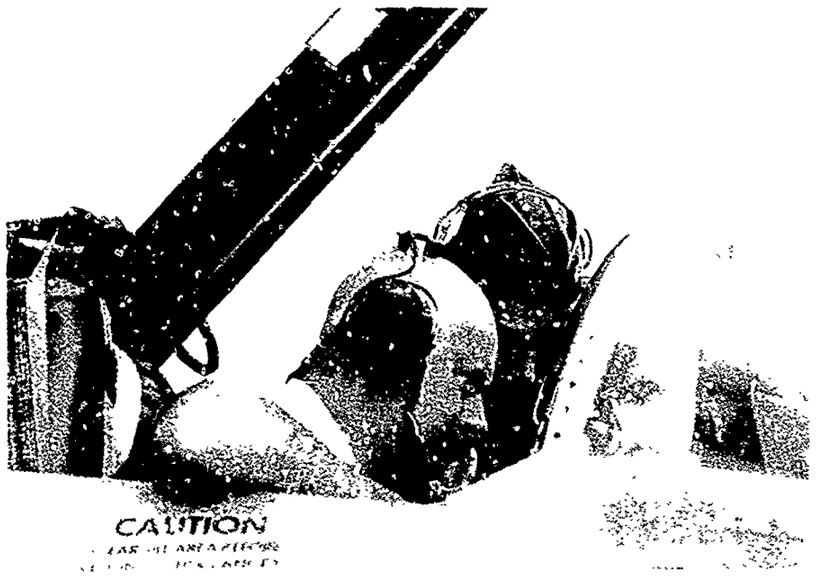
[65]Israel launched an invasion of southern Lebanon using land, sea, and air forces on June 6, 1982. Initially, the Israeli objective was to sweep the forces of the Palestine Liberation Organization (PLO) out of a forty-kilometer zone north of the Israeli border. Within a week, however, Israeli forces had won such a shattering victory that Israel expanded the war northward to the edges of Lebanon's capital city of Beirut. Syria, the PLO ally, suffered a humiliating defeat in the air as the Israeli Air Force, using modern telemetry, drone aircraft, and superior pilots and fighters, destroyed 79 Syrian MiG-21s and MiG-23s and 19 surface-to-air missile sites in three days of aerial combat. The Israeli Air Force lost one aircraft. See *Strategic Survey* 1982-1983 (London, 1983), 67-79.

Courtesy John W. Vogt, Jr.



USAFE Commander General John W Vogt prepares for a demonstration ride in the F-16 before the aircraft was deployed to Europe As a senior commander in both Europe and the Pacific, General Vogt advocated strengthening the Air Force's manned tactical forces

Now how do you do this? Well, you can infiltrate a soldier back there, give him a hand-held laser, and hope he lives. That is risky, and he probably wouldn't last very long. The other alternative is imaginative: send in a drone and lase. Have the basket established, and fire your artillery into it. But there are problems with both of these solutions. The whole laser program for the Army is under scrutiny right now, both in the Secretary of Defense's Office and on Capitol Hill, because of the mounting costs. The program is very expensive.

Smart: I would think that we would be in the drone business up to our ears. One of the down-to-earth considerations is the size of a drone, and its susceptibility to detection by radar, infrared sensors, or any other sensors. We certainly want our drones to be effective, and that means they must be small, fast, and as nearly undetectable as possible. I think that takes a tremendous amount of research.

Vogt: I'm sure that's why it's in a "black" [secretly funded] program. Let me tell you of some thinking that I did when I was over in Europe. I have

been pursuing it now, in several guises, since returning to Washington. We started to calculate carefully the high payoff targets that could be taken out with lasers very quickly. We discovered, for example, that forty-some-odd bridges in key areas, if destroyed immediately, would cause major problems for the Soviet armor that would move up as second echelon forces. Now, we know the Soviets have bridging equipment, but repair work slows them down and upsets the time table, and you can hit the target again if they get that bridge up. So the targeting is being done. The laser weapons are there now, and we're ready to do that kind of a job.

If you analyze the Soviet war gaming and see how they actually plan to fight a war and understand their new operational-maneuver group concept, you find that there are going to be a lot of difficulties by the very nature of the Soviet attack plan. The operational-maneuver group concept is an attempt to get behind our lines very quickly with a lot of highly talented troops, many of them airborne, to attack rear areas. I have argued that in the real world where the enemy is behind our lines, we will have difficulty mounting interdiction operations. Some of our people are talking about procurement of very large ballistic missile systems, like the Minuteman type, with huge conventional warheads to fire into the Soviet second echelon, onto his airfields, and so forth. But all of these systems must be defended and protected. They are highly vulnerable. You don't move them around because they aren't that mobile. This enemy, who has a concept already clearly defined, (we've seen it exercised), is going to be jumping in behind your lines, and he has troops that will take these missiles under attack.

Well, the Soviet method or intended method of operation, as we know it, drives the kinds of solutions that might work. My own answer is that the Air Force has not yet succeeded in making the kind of case for the use of manned aircraft, for the interdiction job in Europe, that can and should be made. I know the Air Force Chief of Staff is working hard on making the case in the Office of the Secretary of Defense [OSD], but my reading is he has not yet succeeded. OSD had done meaningless attrition studies involving tactical air operations which are not based on combat experience and which don't consider the things that a present day Air Force commander can do to make an airplane penetrate enemy defenses. If we made our case properly, we would go to the OSD people and say, "Look. I can take an

F–111 today, add some electronic capability, and make one hell of a fine jammer that will be in there jamming all the enemy's radars and his threat radars and his guidance systems and so forth. His chances of shooting an EF–111 down are minimal. However, when that F–111 gets there it's going to have to be able to do something." Here's where the Air Force, in my judgment, has really dropped the ball. The F–111 gets there and drops 500–pound bombs. You take a system like an F–111 with all that high technology capability, penetration ability, terrain following technology, a highly trained crew, and excellent radar—it could do this mission day and night around the clock. The weather doesn't matter. When you get it there, you drop some 500–pound bombs which are worthless against enemy armor. I have seen, with my own eyes, in Vietnam, a 500–pound bomb dropped within 10 feet of a tank, and the tank kept going. Yet that's what we're going to be doing.

The emphasis which I have asked for and which new technology can give you is on fragmentation type weapons. They will cover a large area with lethal kill. Our efforts to date have been inadequate. The Germans are moving out in this area in the Strebo program, and the munitions that they are building for the Tornado are more advanced than ours.[66] You have to be able to get in there with an airplane like an F–111 that delivers a tremendous payload with great accuracy, and then kill a target. It ought not to be just one weapon, like putting one Maverick on one tank. When that airplane comes in and dumps, it ought to wipe out a whole tank company. You can't tell me that industry today can't give you ordnance of that kind. That's what we ought to be striving for. We should be going to OSD and others and saying, "You don't need these monstrous missile systems that won't live when the enemy drops behind your lines or air forces attack them." You have an airplane that could make repeated, safe penetrations with ordnance that will kill the enemy, ordnance that will rip runways and penetrate hardened shelters, ordnance that will kill deployed armor and stop a whole resupply effort of POL [Petroleum, Oil, and Lubricants] vehicles. But we aren't putting the priorities into the effort, in my judgment.

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[66]The Strebo is an airborne munitions dispenser which was developed by the West German Air Force for the Tornado fighter aircraft. Designed to blunt any anticipated Soviet tank assault, these special dispensers disgorge 10,000 pounds of cluster munitions

People are advocating that very exotic warheads be put in the noses of big missiles to do the interdiction job—but at fantastic cost! I hope the people that are planning the interdiction strategy for Europe will take note of what I just said, because I think a tremendous case can be made for the manned airplane. We can't write it off. The whole area of ECM [electronic countermeasures] is crucial to this. In the closing months of the war we flew to a target in the heart of Hanoi—16 F–4s in close bombing formation right over the heart of the North Vietnamese defenses—and not a single airplane was lost. We bombed out a small target with great precision using LORAN [Long Range Electronic Navigation System], and not a single enemy missile of the forty-eight fired at our formation was guided because the ECM state-of-the-art was so good at that point. With American technology, computer technology, the chip capability and so forth, we ought to remain at least two years ahead of the Soviets at any point in time in the ECM war, if we put the money and effort into it. That's got to be weighed in planning interdiction. You can get airplanes in and out with this kind of capability, and they can make repeated attacks.

One final statement: everybody says we can buy large surface-to-surface missiles, cruise missiles, and so forth, and interdict that way. But the United States will go broke if we try to destroy enemy tank columns in the give and take of a battle with two and a half million dollar missiles. Using a missile with a thousand pounds of payload in the nose is like sending an airplane out with one GBU-MARK 84[67] bomb on a one-way two and half million-dollar flight. That is what these people are talking about, and since the enemy armor is moving, they may never hit it. The Air Force is not making the case that "we'll get an airplane in and out, and we'll destroy these targets. We'll have effective ordnance and we'll do it without bankrupting the nation." I hate to make a speech on the subject, but the issue is crucial.

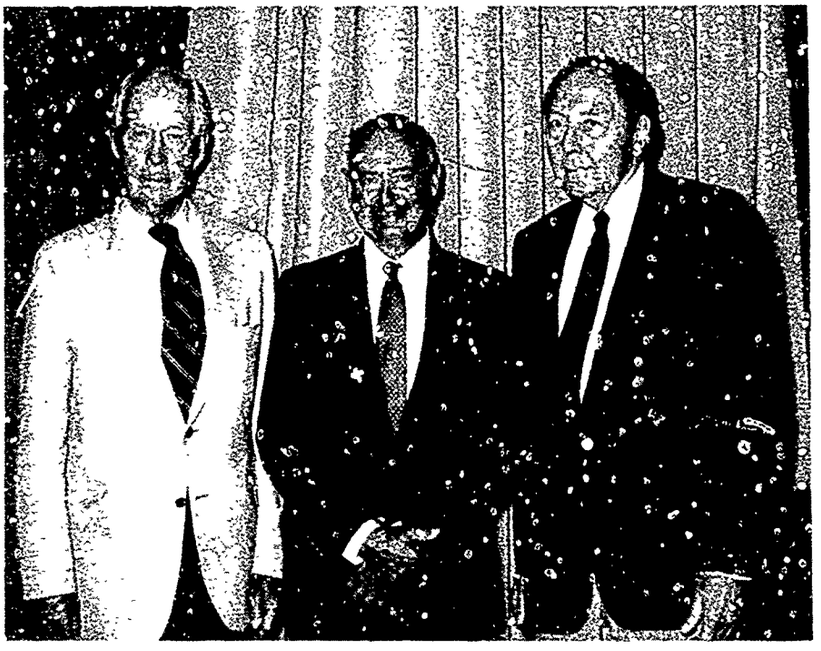
Smart: The experiences of the three of us in three wars, as recounted here this morning, point up that the Air Force efforts to deny, deter, or delay the

[67]During the Vietnam War, the Air Force developed requirements for "smart" bombs which could, using laser or some other form of electronic guidance, home in and destroy enemy targets. The objectives were threefold: accuracy (a 25-foot CEP), reliability (80 percent of the bombs hitting fixed targets), and low cost (under $5000). The GBU-MARK 84, a 2,000–pound precision-guided bomb met these objectives, and after initial tests in Vietnam in 1968, it was used extensively and successfully in the 1972 air interdiction campaign, Linebacker I.

enemies' capabilities to bring their military strength to bear on our own forces and resources have, on a number of occasions, produced highly significant results. Logic suggests that air interdiction can have significant and possibly decisive effect in battles and campaigns in future conflicts. However, as General Partridge and General Vogt brought out, successful interdiction in future wars will almost certainly require: (1) better intelligence and more complete and timely surveillance; (2) more sophisticated strike and strike-support systems along with on-going research, development, and production programs that will ensure that these systems remain adequate in spite of rapid technological change; and, (3) equally important, command and control arrangements which enable the commander in the field to carry on tactical operations without interference by political elements in government.

Bringing about these conditions will require a much better informed public than we now have. Hopefully, you historians can help achieve public understanding of what past experiences have taught us by making your histories more interesting and readable.

Kohn: Let me thank the three of you for being so generous with your time, your candor, and your ideas. I think it will be of great benefit to the Air Force. We can't thank you enough.



Interview participants (left to right) Retired Air Force Generals Earle E. Partridge, John W. Vogt, Jr., and Jacob Smart.

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