

AIR POWER

WINTER 2017 - Volume 64, Number 4
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History

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The Air Force *Historical* Foundation

Founded on May 27, 1953 by Gen Carl A. “Tooeey” Spaatz and other air power pioneers, the Air Force Historical Foundation (AFHF) is a nonprofit tax exempt organization. It is dedicated to the preservation, perpetuation and appropriate publication of the history and traditions of American aviation, with emphasis on the U.S. Air Force, its predecessor organizations, and the men and women whose lives and dreams were devoted to flight. The Foundation serves all components of the United States Air Force—Active, Reserve and Air National Guard.

AFHF strives to make available to the public and today’s government planners and decision makers information that is relevant and informative about all aspects of air and space power. By doing so, the Foundation hopes to assure the nation profits from past experiences as it helps keep the U.S. Air Force the most modern and effective military force in the world.

The Foundation’s four primary activities include a quarterly journal *Air Power History*, a book program, a biennial symposium, and an awards program.

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Preserve the legacy, stay connected:

- Membership helps preserve the legacy of current and future US air force personnel.
- Provides reliable and accurate accounts of historical events.
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Air Force Historical Foundation

P.O. Box 790
Clinton, MD 20735-0790
(301) 736-1959

E-mail: angelabear@afhistory.org
On the Web at <http://www.afhistory.org>

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Address **LETTERS** and **manuscripts** to:

Air Power History
3043 Sunny Ridge Drive
Odenton, MD 21113
e-mail: airpowerhistory@yahoo.com

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Air Power History
P.O. Box 790
Clinton, MD 20735-0790
(301) 736-1959
e-mail: angelabear@afhistory.org

ADVERTISING

Jim Vertenten
P.O. Box 790
Clinton, MD 20735-0790
(301) 736-1959
e-mail: ed@afhistory.org

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In this issue, we cover a more narrowly-focused group of topics, with combat operations and planning predominating, and a shorter study on the education of airmen.

Our first article is an extended history of the Laotian portion of the conflict in Southeast Asia. Laos was the much less well-known war that the U.S. was involved in, but one which had a greater impact on the Vietnam conflict than was generally known. Dr. William P. Head, a previous contributor, has provided an excellent overview of a very scattered campaign.

The second article is by one of our former award winners, Dr. John T. Farquhar, who examines the events which surrounded the creation of the United States Air Force Academy as well as Air University, including the intellectual debt owed to the Air Corps Tactical School.

Our third article is a brief excerpt from a history of the Air Force Historical Foundation, written by John F. Kreis, a long-time supporter of the Foundation, and someone who often contributes his time and effort to making it a success.

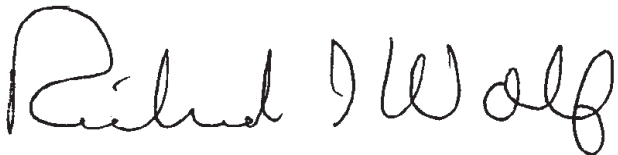
The fourth article is an extended look at Col. John Warden, USAF (Ret.), who played an integral and controversial role in the air campaign plan for Operation Desert Storm. The author, John Andreas Olsen, (a colonel and attache in the Norwegian Air Force) has contributed to our publication previously, and provides some deep insight into the process of translating ideas into action. It's very fascinating reading.

As always, we include the usual accompanying book reviews, of which we have a scant five this issue. The changes in publishing have reduced the available books to review, so if you have read a book that seems to fit our subject category, and would like to contribute a review, take a look at the contact information on page 59 to send it to our book review editor.

Finally, we include our lists of upcoming historical conferences and events, reunions, and an In Memoriam, all starting on page 60.

Our next issue will include our annual award event, as well as the proceedings surrounding the winners receiving their awards. If you plan to attend the award banquet and ceremonies, be sure and check our web site at www.afhistory.org to make reservations.

Don't miss the Message from the President on page 4. Hope you enjoy it all.



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Dear members and friends of the Foundation:

As the Air Force passes the seven-decade milestone in since its formation in 1947, and many Air Force squadrons celebrate a century since their creation during the First World War, it is time for our Foundation to redouble its efforts to be a strong and valuable voice within the air power community. We fill a special role by accurately and powerfully promoting the legacy of Airmen, and educating future generations to understand and be inspired by the stories of those who preceded them. As scholars, students and practitioners of airpower continue to tell our Air Force's story—the Airmen, the machines, and the conflicts—innovation and ingenuity must remain a special point of emphasis. These core characteristics link yesterday's Airmen in an important way to those serving today, and they remain just as vital to our nation's future.



It is a pleasure to announce that our major award winners for this year have been chosen and have confirmed their acceptance. They will be honored at our Awards Banquet on Tuesday, January 30, 2018 at Army Navy Country Club. In Arlington, Virginia. I warmly invite any member or friend of the Foundation who is interested to attend for a memorable night of air power camaraderie and celebration. The 2017 award recipients are:

For the Best *Air Power History* Article: “They Called Defeat Victory: Lam Son 719 and the Case for Airpower” by **Dr. William P. Head**

For the Best Book Reviewed in *Air Power History: The Other Space Race*, by **Dr. Nicholas Sambaluk**

The Major General I. B. Holley Award for a lifetime of documenting Air Force history: **Mr. Keith Ferris**

The General Carl A. “Tooey” Spaatz Award for a lifetime contribution to the making of Air Force history: **General Richard B. Myers**

The James H. Doolittle Award for a unit with an exceptional contribution to Air Force history: the **432nd Wing**, Creech AFB, Nevada

Happily, our AFHF staff has returned to their regular office space at Andrews AFB after some much-needed environmental system modernization. We'll have a "functional check flight" once the Andrews AFB heating season begins—but regardless, your Foundation's staff will press on in true "virtual office" style whenever necessary.

The Foundation's growing presence in social and other media is noteworthy, and we believe it has helped generate a small but significant uptick in membership growth. Our messages are sent out Monday through Friday via email, Facebook, and Twitter to literally thousands of recipients, and then passed on to thousands more. In the fast-moving virtual world, we balance information with advocacy while always striving to set and attain high standards. If you ever see something you feel misses that mark—or areas we can fix or improve, please let us know.

A parting thought on a theme you've heard before: In a world where too few take the time to record or reflect on the drumbeat of events, the Air Force Historical Foundation occupies a special place in recording the history of American Airmen and air power. Whether you are an expert historian, a reader of history, a serving or former maker of airpower history, or simply one who values the lessons and humanity that history transmits through generations – our role in capturing some of the most audacious and difficult endeavors in human history is not trivial. This is a worthy cause and one we must value, support and sustain. Your generous contributions to the Foundation—whether in time, wisdom, advocacy, or funds—matter. Without them we could not accomplish our mission, and we are deeply grateful. Come up on frequency (**president@afhhistory.org**) and "check in" any time.

Respectfully,

Christopher D. Miller, Lt Gen, USAF (Ret)
President and Chairman of the Board



Air Force Historical Foundation

Know the Past....Shape the Future

Save the Date!!

2017 Awards Banquet

The Air Force Historical Foundation will present its annual awards at a banquet to be held at 6:00 PM on Tuesday, January 30, 2018, at the Army Navy Country Club in Arlington, VA. Those being honored are:

For the Best Air Power History Article: "They Called Defeat Victory: Lam Son 719 and the Case for Airpower" by **Dr. William P. Head**

For the Best Book Reviewed in Air Power History:
The Other Space Race, by **Dr. Nicholas Sambaluk**

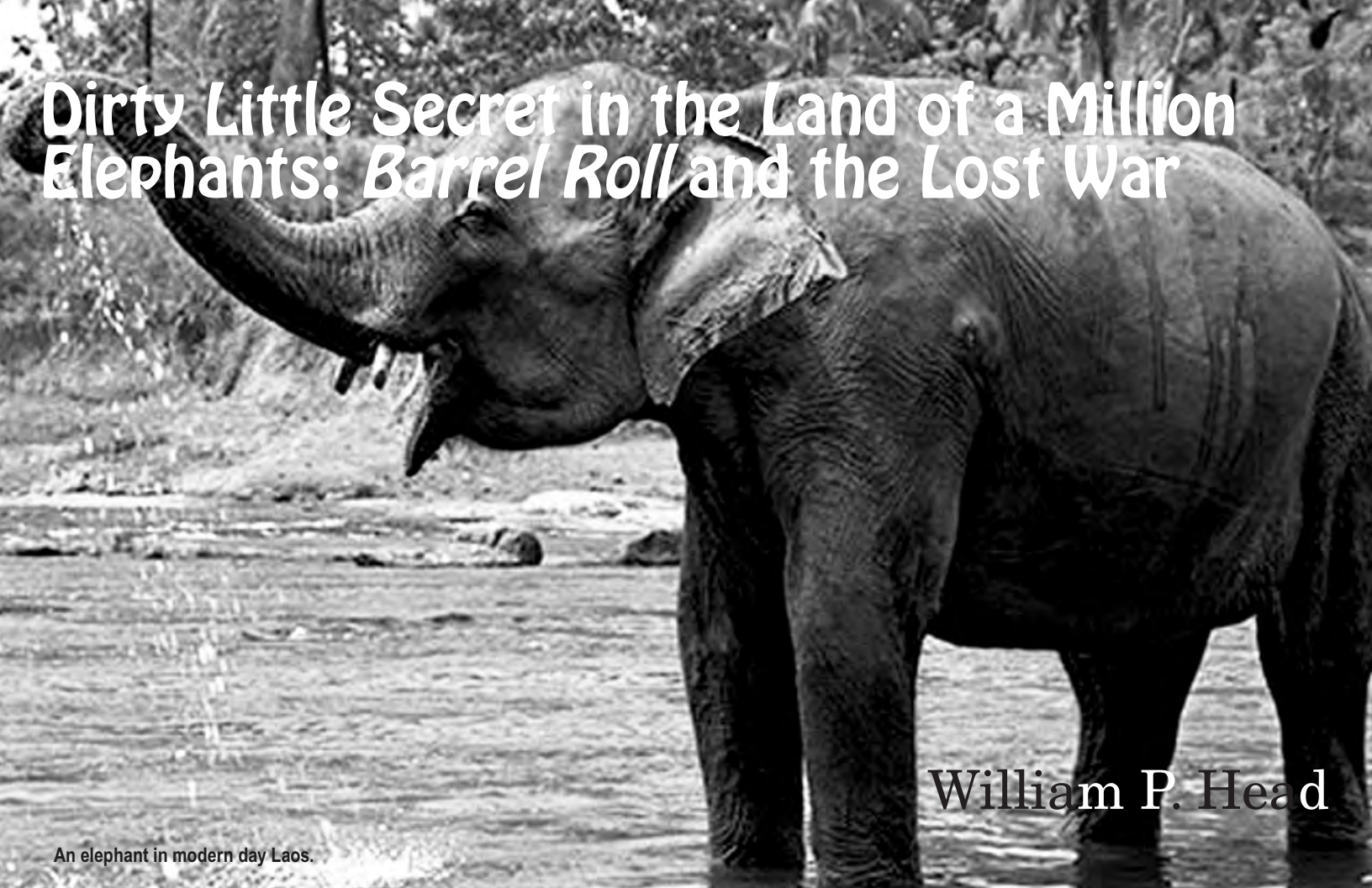
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The James H. Doolittle Award for a unit with an exceptional contribution to Air Force history: the **432nd Wing**, Creech AFB, Nevada

Please save the date. Reservations may be made at the Foundation's website: **www.afhistory.org**. We hope to see you all there!

Dirty Little Secret in the Land of a Million Elephants: *Barrel Roll* and the Lost War



An elephant in modern day Laos.

William P. Head

In 1354, King Fa Ngum and the people of Laos began calling their kingdom “Lane Xang” which translated as “Land of a Million elephants.” During these years, the capital was Luang Prabang which was surrounded by large grazing pastures, and home to hundreds of wild herds of elephants which were revered by the people. The great beasts lived peacefully off the thick and abundant forest vegetation and felt no pressure from the human population. For 600 years, the elephants and humans in Laos flourished. Things changed with the advent of French colonial rule, and grew worse during the second half of the 20th Century when elephant numbers dwindled due to growing human populations, technological pressures, and modern wars which caused the defoliation of their forests homes. As of 2016, there remained only 700 elephants in the wild and roughly 400 domesticated elephants.

The ruin of this once idyllic land began in World War II during the Japanese occupation and continued during the struggle to expel the French, climaxing with the “secret war” in Laos. Americans arrived in what the Central Intelligence Agency (CIA) designated the “Land of Oz,” in the 1950s to attempt to keep Laos from falling to the Viet Minh forces that had recently seized North Vietnam from the French. During the Cold War the U.S., with her allies, were confronted by the Soviet Union and hers. U.S. leaders embraced the “Domino Theory” which supposed if one Asian state fell those around it would also become Communist. This had happened in Eastern Europe after World War II and, when China had become a Communist state in 1949 followed by North Vietnam in 1954. In Korea in the early 1950s, the United Nations (UN) had prevented South Korea from being overrun by the Communist North.

Many in the U.S. feared states like South Vietnam, Cambodia, Thailand, and Laos would fall next. Laos was in the middle of this struggle. Operatives of the CIA soon confronted forces of the Democratic Republic of Vietnam (DRV) supplied by Russia and China. The Laotians were about to experience all the horrors of modern war and lose its innocence forever.

War Comes to the Land of a Thousand Elephants

During the U.S. presence in Laos, the struggle for control of this tiny kingdom was fierce and ruthless. Like the rest of mainland Southeast Asia, the U.S. slowly entered the conflict seeking to prevent these nations from falling to what they believed were agents of the Soviet Union and the People’s Republic of China (PRC). This effort failed and, when the U.S. departed in 1973, all of Indochina fell, leaving the people and lands devastated; with worse yet to come.

In looking back, most Westerners at the time knew little of the Laotian conflict. That was the way U.S. leaders wanted it. From the beginning of America’s assumption of the military aspects of the Vietnam War, no political or military leader



A map of air operations in Laos. *Barrel Roll* was in northern Laos and *Steel Tiger* was in the south and referred both to operations and geographic designations. *Steel Tiger East* was also called *Tiger Hound* and was considered an augmentation of the war in South Vietnam.

wanted the people of the U.S. to know about the secret war in Laos. Led by U.S. personnel and fought mostly by Laotians of varying ethnic backgrounds, this war unfolded in the shadow of the larger war in neighboring Vietnam. The outcome was no more successful, nor less destructive. This article focuses on the covert war and one specific aspect of it known as Operation *Barrel Roll*.

What Was *Barrel Roll*?

The U.S. air campaign, designated *Barrel Roll*, derived from the failure of the Geneva Accords of July 23, 1962, which called for the creation of a nonaligned and independent Laotian state. Throughout late 1962 and all of 1963, neutralist Prime Minister Souvanna Phouma was unable to establish a coalition government due, in large measure, to Communist intransigence. As a result, he requested and

Dr. William P. Head is Chief, 78th ABW History Office, Robins AFB, Georgia. He received his Ph.D. in U.S. diplomatic history from Florida State University in 1980. He has fourteen book-length publications to his credit. His most recent book is Shadow and Stinger: The History and Deployment of the AC-119G/K Gunships (Texas A&M, 2007). For this work, he received the AFMC Book Award and won the Frank Futrell Air Force-level prize. He is currently awaiting publication of his third book in the gunship trilogy, entitled Night Hunters: A History of the AC-130s and their Role in U.S. Air Power (Texas A&M Press). This work has been released as an Air Force special study. Dr. Head has authored forty articles and a like number of book reviews in such journals as Air Power History, Virginia Review of Asian Studies, Journal of Third World Studies, Journal of Military History, and the Journal of American History. He has made presentations on Modern Military, air power, Asian and American history to 106 scholarly meetings over the past thirty years.

received U.S. military aid in the form of arms, equipment, supplies, and AT-28 fighter-bombers. Once they received these materials, plans went forward to initiate a primarily defensive war which included *Barrel Roll*. This air operation took place in northern Laos and officially lasted from December 14, 1964 to March 29, 1973.

The operation unfolded primarily to support ground forces of the Royal Laotian Government (RLG) and the native mountain people known as the Hmong. These irregulars were trained and supplied by the CIA and led by the controversial Gen. Vang Pao. The specific area of operation (AO) stretched from the Laotian capital of Vientiane on the border of Thailand north to the historic and, strategic Plaine de Jarres (PDJ) or Plain of Jars then, northeast to the Pathet Lao capital of Sam Neua located in Sam Neua province on the DRV border.¹

The Plain of Jars was littered with hundreds of forty to sixty pound stone pots and jars which archeologists believed were crafted in pre-historic times. One expert described the Plain of Jars as a megalithic archaeological landscape. The jars were scattered around the upland valleys and the lower foothills of the central plain of the Xiangkhoang Plateau.² While there is disagreement over what the jars were, most archeologists believe they were funeral urns.³

The main air components of the campaign were covert units of the U.S. Air Force's 2nd Air Division (2AD) which evolved into the Seventh Air Force (7AF) and the Navy's Task Force 77. At the behest of President Lyndon B. Johnson; the Commander-in-Chief Pacific (CINCPAC), then Admiral Ulysses Simpson Grant Sharp, Jr., (1964-1968); Commander, United States Military Assistance Command, Vietnam (COMUSMACV), General William C. Westmoreland (1964-1968); and William Healy Sullivan, the U.S. Ambassador to Laos (1964-1969) in Vientiane, Rules of Engagement (ROE) evolved. Mostly at Sullivan's insistence, they placed heavy restrictions on all U.S. military forces in Laos and were augmented by restraints, rules, and policies determined by the Commander, 7AF, eventually William M. "Spike" Momyer. The ROEs also stated what was permitted or forbidden regarding air operations.⁴

By January 1967, Air Force and CIA leaders had divided Laos into operational sectors specifically A-G. Armed reconnaissance in northern Laos was designated *Barrel Roll* and operations in the south *Steel Tiger*. Later, *Steel Tiger East* was created. It was also known as *Tiger Hound* since it was part of air operations in the Republic of Vietnam (South Vietnam).

In these AOs, U.S. aircraft conducted strikes around villages against targets of opportunity. They were allowed to attack any of these during the day or night if it was within 200 yards of a traversable trail or road. They could attack fixed targets of opportunity if the target was "a validated Royal Laotian Air Force (RLAF) 'A' or 'B' target or the pilot had the okay from officials in Vientiane or received fire from said target."⁵

Members of the ground and aerial Forward Air/Area Control System (FACS) and the AN/MSQ-77 guidance system directed attack aircraft to these targets. The AN/MSQ-77 was often employed during attacks against validated



The Plain of Jars.

targets, day or night, and in all types of weather. Early in the Vietnam War, the U.S. did not have precision navigation capabilities like the Global Positioning Satellite (GPS). Many aircrews, especially in B-52 bombers, nicknamed BUFFs, could not “see” ground targets, and the existing navigation systems lacked sufficient precision to conduct the types of missions ordered by the Johnson Administration.⁶

Early in the Vietnam War, the U.S. did not have precision navigation capabilities

The Air Force developed the AN/MSQ-77 radar system to guide the aircraft to the target during sorties designated as Ground Directed Bombing (GDB). The radar portion of the system could follow any aircraft within 200 miles of the station allowing a single radar system to track planes over all of North Vietnam and South Vietnam. The ground station was originally called “Radar Bomb Directing Central” and was constructed as a computer containing vacuum tubes and a “Plotting Board,” which literally drew a precise map for the tracked aircraft. These maps identified the aircraft’s location in relationship to a chosen target. The computer constantly gauged the altitude, airspeed, wind drift corrections, and ground elevation changes using the ballistics of the bombs carried by the aircraft. In turn, the plotting board and computer operators alerted the aircrews to required changes in their flight path and, then, the exact moment to drop their bombs. More than 3/4th of all the bombs dropped in Vietnam, used this GDB process.⁷

The FACs, often known as “*Ravens*,” had to request permission from the U.S. Embassy to direct attacks on targets within ten miles of the Cambodian border; during all night strikes against fixed targets unless under MSQ direction; and against large numbers of boats on streams and rivers other than the Song Ma River. Pilots making as-

saults without FAC or MSQ had to confirm their position beforehand via radar or Tactical Air Navigation (TACAN) systems.⁸

Unique Zones

Within the *Steel Tiger* AO, the Allies created two zones employing slightly different ROEs. The first was designated *Cricket West*, or *Fringe*, near the Nape Pass which the North Vietnamese Army (NVA) used as part of their infamous resupply route known as the Ho Chi Minh Trail. During the Vietnam War, a variety of U.S. aircraft, including B-52 heavy bombers, conducted concentrated interdiction operations that included *Commando Hunt I-VII*. *Cricket West* was an area west of this interdiction zone. When NVA units, also called the People’s Army of Vietnam (PAVN), jeopardized pro-American troop positions in this AO, U.S. and Allied aircraft provided Close Air Support (CAS). During the secret war as these operations expanded, the outer edges of the AO became known as *Cricket Fringe*.⁹

In November 1966, officials designated the other unique region the *Steel Tiger* Special Operating Area. It was a narrow strip of the eastern Laotian panhandle from a point barely north of the Demilitarized Zone (DMZ) “along the NVN and SVN borders, south to Cambodia.” Leaders sought to employ non-FAC authorized air attacks in this AO using air assets diverted from Operation *Rolling Thunder* to make specific CAS strikes. Allied sorties could not attack within twenty-five nautical miles (NM) of the Laotian cities of Luang Prabang and Vientiane, or within 10 NM of Attopeu, Pakse, Saravane, Savannakhet, and Thakhek and, later, Muong Phalane. Eventually, “A-1 propeller-driven aircraft were authorized to penetrate within 10 miles of Attopeu when attacking targets along Route 110, a major enemy artery in the extreme south.”¹⁰

Throughout the remaining seven years, officials persistently altered the ROEs based on the battlefield successes or failures of the non-Communist forces. Some were permanent and others temporary. One key example took place in January 1967, when planners expanded *Barrel Roll* to allow attacks against enemy highways. In one case, Soviet officials lodged a protest about strikes in the Khang Khay region. This halted the sorties for a time. Finally, an International Control Commission meeting at Xieng Khouang put the area off limits.¹¹

All the air operations in Laos, such as *Barrel Roll* and *Steel Tiger*, began as an effort to get the Hanoi government to stop its material and personnel support for the National Liberation Front (NLF) and their military arm, the Viet Cong (VC), within the borders of South Vietnam. The major target of these aerial assaults was the NVA’s main logistical route through Laos, the Trong Son Road, better known as the Ho Chi Minh Trail. Originally built during the French war, they had been expanding this corridor of roads and foot-paths since the late 1950s. They had 150,000 “volunteers” who lived in the jungles and maintained the Trail. By 1964, the Allies began an air campaign against mobile and stationary targets along the route “from southwestern North Vietnam, through southeastern Laos, and into South



In the middle is Senior Gen. Vo Nguyen Giap inspecting the Ho Chi Minh Trail



The Trail was comprised of everything from paved roads to water paths hidden by three-canopy jungles

Vietnam.” Concurrently, air assets were used for CAS missions in support of RLG forces, CIA-supported Hmong tribal forces, and Thai “volunteers.” In what became the clandestine ground war in northern Laos, *Barrel Roll* worked to help the “secret army” hurl back incursions by the PAVN and Pathet Lao.¹²

Barrel Roll proved to be one of the most closely guarded secrets and most covert aspects of the U.S. military efforts in mainland Southeast Asia. Since delegates and national leaders at the Geneva Conference of 1954, and 1962, ostensibly agreed that Laos should be neutral, conducting a war there had to be kept a secret. Both the DRV and U.S. went to ridiculous extremes to assure the secrecy of military operations while slowly escalating military actions. Laos was neither, free or independent. Its lands were left ravaged and its people homeless, hungry, and abandoned by the rest of the world.

Origins of the Laotian Tragedy

As early as 1961, the main U.S. concern in Southeast Asia was not in Vietnam but Laos. President John F. Kennedy was elected and sworn in amidst euphoria that he would create a new national order later described as “Camelot.” No sooner had he assumed office than he ran into the realities of foreign entanglements that had begun during the previous administration. He had to face the problems in the developing world that were particularly acute in the Caribbean and Southeast Asia. He believed Laos was, “The most immediate of the problems that we found upon taking office.” On March 23, Kennedy held a nationally televised news conference focused on Laos. Pointing to a large map situated behind him, he explained that there existed a severe threat that the Communist “Pathet Lao insurgents, supported by the Russians and the North Vietnamese, would capture the northeastern part of the country.” He explained that, “Laos is far away from

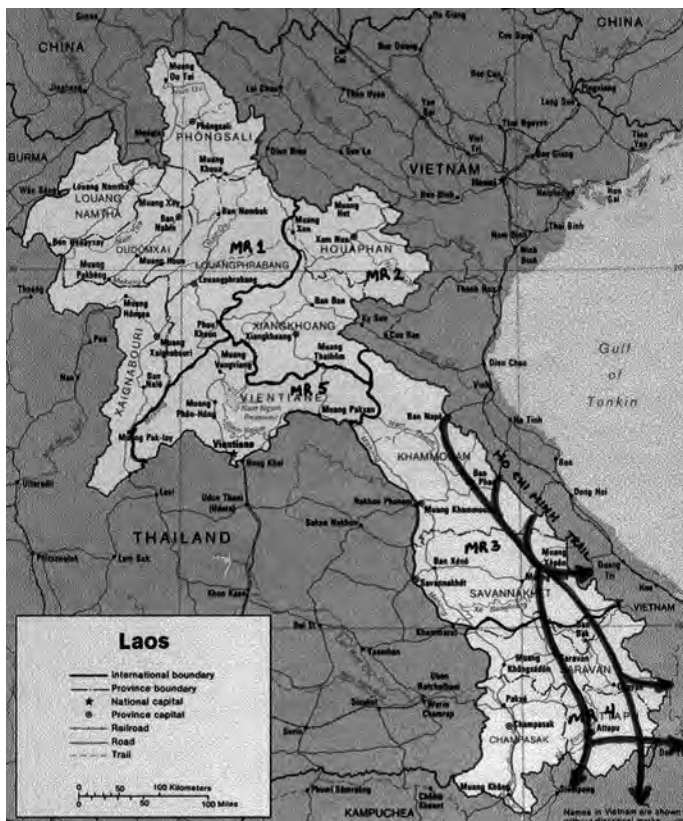
America, but the world is small. The security of all Southeast Asia will be endangered if Laos loses its neutral independence.”¹³

He went on to assert that while by itself Laos had little strategic importance, “it shared borders with six other countries and had traditionally served as a buffer zone between the more powerful neighboring states.” America’s major concern was that the “insurgency would spread and destabilize the rest of the region.” If this happened, he warned they might come to dominate the entire region and threaten the security of all Southeast Asia. Thus began America’s efforts to find a peaceful end to the crisis. This became the basis of the 1962 accords and the attempt at a coalition government. Ultimately, the Laotian situation fa-

As early as 1961, the main U.S. concern in Southeast Asia was not in Vietnam but Laos

cilitated the Vietnam War.¹⁴

On July 23, 1962, the U.S., the Pathet Lao, and the DRV had agreed to the toothless agreement in Geneva, Switzerland, which proposed to have all foreign military forces leave Laos and pledge not to use “Laotian territory for interfering in the internal affairs of another country.”¹⁵ Things began well enough when the Laotians established a coalition Government of National Union in the capital of Vientiane. On October 2, 1962, the deadline for the foreign troops to leave, the NVA still had 6,000 troops in the eastern half of Laos.¹⁶ As this situation escalated, members of the Laotian military refused to support the new government. The U.S. fearful of a Communist takeover, began supplying the RLG through Thailand. Instead of a solution, the 1962 accords left Laos tangled in a web of the “political and territorial ambitions of Communist neighbors, the security concerns of Thailand and the U.S., and geographic fate.”¹⁷



Operations Map of Laos

In late 1962, in spite of U.S. efforts at a diplomatic settlement, small skirmishes broke out between Royal Lao Army (RLA) factions and members of the Pathet Lao. Even with full scale war in the offing, negotiations continued with little success. Things soon went from bad to worse when members of the right-wing initiated a coup and arrested neutralist Prime Minister Prince Souvanna Phouma. Leonard Unger, the U.S. Ambassador to Laos told the rebels the U.S. planned to continue to support Souvanna Phouma. The irony of this was only a few months earlier, U.S. policy makers had called him “a tool of the leftists.” This statement also impacted those Laotians in the middle by forcing them to shift political allegiance from the left to the right in order to survive. After months of maneuvering, in May 1964, the Prime Minister proclaimed a formal political alliance in which those on the right and center allied against those on the left. From this point on, all pretense of negotiations or peace came to an end.¹⁸

Fighting erupted on the Plain of Jars, with leaders and members of each political group rushing to pick a side. Faced with a real war, Souvanna Phouma requested the U.S. provide him with materiel support. Lyndon Johnson, the new president, who had been sworn in following the November 22, 1963 assassination of President Kennedy in Dallas, Texas, acted quickly to bolster the center-right union and ordered military equipment and supplies dispatched to Laos.¹⁹

In November 1963, even before full-scale fighting began and not long after Kennedy’s slaying, Gen. Maxwell D. Taylor, chairman of the Joint Chiefs of Staff (JCS) proposed a tactical plan for the Laotian conflict which called

for U.S. personnel to fly aerial armed reconnaissance sorties over Laos as part of a two-phased program that would alert Hanoi that the U.S. was staunchly behind both the Laotian government and, the pro-western government in Saigon even though their longtime puppet Ngo Dinh Diem had been overthrown and assassinated. Planners decided to fly these missions above the Laotian panhandle near the border of Laos and the DRV.²⁰

Once the White House approved these sorties, U.S. pilots launched the first on May 19, 1964. Members of *Yankee Team*, flying RF-101 Voodoo aircraft, executed low-level photo reconnaissance flights over southern Laos. From the start, enemy Anti-aircraft Artillery (AAA) fired at the aircraft. To counter this, escort aircraft were added to the mission package. On the 21st, U.S. aircraft reprised these sorties over northern Laos. This began America’s total commitment to the war in Laos and later, Vietnam. The surveillance flights proved to be the beginning of the covert war in Laos.²¹

In response to these air operations, in June 1964, the Pathet Lao, supported by the NVA, launched a spring offensive in to the Plain of Jars. President Johnson countered by approving the initiation of Operation *Barrel Roll* that provided CAS for the RLG forces. On June 9, U.S. Air Force F-100Ds targeted Communist AAA. Thus, began a unique conflict that would last for nine grueling years. As noted, all during *Barrel Roll* operations, it functioned under a rather peculiar set of ROEs that originated from Ambassador Sullivan. At first, the missions proved relatively successful but, as time passed, and the war in Vietnam wound down, the supply of materials to Laos petered out and, in the end, *Barrel Roll* came to an ignominious conclusion.²²

Internal Rivalries

Throughout the Laotian war, rivalries grew among various individuals and groups in Laos, Saigon, and the U.S. One situation arose between Air Force leaders at Udon RTAB and Saigon and those at the U.S. embassy in Vientiane.²³ Then Captain Richard Secord, the Air Force’s liaison between the CIA and 7AF later complained, “We were always trying to pry assets out of the Air Force at times and places they didn’t want to go. You had to push’em, cajole’em, at times threaten them... My people were always trying to corrupt the process because the process itself simply was not structured for our kind of war... It was a continual frustration.”²⁴ Historian Timothy Castle contends that Sullivan attempted to relegate the Air Force commander and his staff, “To the status of clerks hired to carry out his airpower decisions.”²⁵

The 7th/13th personnel often complained about having to deploy their air assets to northern Laos and employing airpower, specifically modern tactical fighter aircraft like “long-range artillery.” Those on the ground grouched about what they believed was the Air Force’s failure to comprehend that partisan forces did not operate like a conventional army. In the earlier mentioned Contemporary Historical Evaluation of Combat Operations (CHECO) reports, the ROEs for aerial combat in Laos were highly re-



F-100 dropping napalm over the Trail.

strictive and aimed at protecting Laotian civilians. They limited crews, and constantly changed, making them convoluted to the point that many pilots saw them as unfathomable. Policy-makers in Washington and Vientiane seemed unable or unwilling to study the reality of the war and, thus, provided an assemblage of directives that governed every kind of mission for every service branch and every military region.²⁶

Early examples of air combat rules stated that the Allies could not use napalm, no Communist vehicle could be attacked more than 200 meters from any roadway, and no NVA or Pathet Lao troops could be bombed within 1,000 meters of a pagoda. Eventually, concerns for the lives of the U.S. crews ended such limitations. They were replaced by other restrictions that created “no bomb zones” which provided the enemy with unintended sanctuaries. Since unmarked Communist hospital and pagodas were off limits, the NVA used them as ammunition dumps, supply caches, and AAA sites. Each time the Allies changed, the enemy adjusted.²⁷

Initially, the U.S. advisors totaled roughly 750 individuals, while the NVA had approximately 7,000 in Laos. In turn, the Pathet Lao numbers continued to grow throughout 1964 and into 1965. From the outset, Kennedy had decided to counter Hanoi’s violation of the Geneva accords without fanfare, thus, America employed covert measures rather than open a direct commitment of troops as Johnson would do in Vietnam during 1965. For this reason the conflict in Laos evolved into a secret war. In reality early clandestine assistance gradually turned into direct participation as U.S. pilots flew CAS sorties in support of RLG forces.²⁸

As this process unfolded in Laos, Johnson began to increase the numbers of U.S. troops in Vietnam while he relegated Laos to a secondary status. The U.S. goals in Laos changed and were aimed at the destruction of the Ho Chi Minh Trail to curb the NVA resupply of its forces in South Vietnam. The role of shutting down the logistics infiltration

route fell to U.S. airpower which also was supposed to prevent the fall of the feeble Laotian government and secure a stalemate. Since they were dependent on the American airmen for their very survival, the RLG gave the U.S. permission to bomb the Ho Chi Minh Trail. As *Barrel Roll* expanded in the late 1960s, American crews were flying 300 attack missions a day. The amazing aspect of this was that between 1962 and 1970, with the exception of a few minor news articles, the general public knew little about the Laotian war. Congress was aware of the conflict, but both the Johnson and Nixon Administrations kept a lid on information flowing out of Laos until 1970.²⁹

One of the oddest aspects of the Laotian conflict was that the U.S. Ambassadors in Vientiane directed the U.S./Laotian tactical combat process. The three American ambassadors who served in Laos were Leonard Unger, William H. Sullivan, and G. McMurtrie Godley. Officially, they supervised all Americans in Laos on the “Country Team.” This made them “responsible for directing all air operations in northern Laos.” Even though they did not formulate the plans, they did, with Laotian government approval, designate the targets to be bombed. In short, “no enemy target could be bombed without their permission.” Under these ROEs, aerial attacks were frequently tightly restricted in order to avoid hitting pro-Government irregular units “operating beyond the control of Allied authorities.”³⁰

According to General William W. “Spike” Momyer, when operations began in Laos, the Air Force, in order to aid the RLAf, set-up Headquarters (HQ) Second Air Division (2AD), Thirteenth Air Force (13AF) at Udorn Royal Thai Air Base (RTAB), Thailand. It resided only forty-five miles from Vientiane and was headed by a major general who reported directly to the 13AF Commander and the 2AD Commander in Saigon as well as the U.S. ambassadors in Thailand and Laos. This officer, and his staff, developed the specific plans and directives that guided *Barrel Roll* missions. In April 1966, officials re-designated the unit at Udorn RTAB the 7AF/13AF when the Gen. Momyer stood up the 7AF at Tan Son Nhut Air Base (AB).³¹

Early examples of air combat rules stated that the Allies could not use napalm

Unlike other U.S. embassies, the one in Vientiane had an air staff component which expanded to 125 individuals by the end of 1969. Officials established air operations centers in each one of the five Laotian military regions. From these centers, U.S. pilots flew FAC sorties. Known as *Ravens*, these FAC flew “top cover” missions for Gen. Vang Pao and his Hmong irregular troops as well as RLAf and RLG forces. These daring and unconventional crews flew O-1s, O-2s, U-17s, T-28s, and OV-10 *Broncos*. Their tours of duty lasted six to twelve months. They augmented these aircraft with C-47s used as Airborne Battlefield Command and Control Centers (ABC&CC). The *Ravens* performed hazardous covert duties that included unofficial missions



General Vang Pao addressing his officers.

since the U.S. and Laos maintained the illusion of standing by the Geneva Accords.³² For those who recall, the famous television show “Mission Impossible” always opened with a recorded message telling Mr. Phelps that if any member of his team were killed or captured, the Secretary would deny all knowledge. The *Ravens* were in much the same situation. If they died or were captured in action their heroism remained a well-guarded secret.

Barrel Roll proved to be different from the combat in other regions of the Laotian theater of operations. As mentioned at the beginning, Laos was ruled by a 600-year-old monarchy. The king lived in the royal palace in Luang Prabang and was a figurehead. The real government apparatus was located at Vientiane. Robert Pisor, in his book on the Siege of Khe Sanh entitled *The End of the Line*, describes the view of Laos from across the border as follows:

From the height of Hill 881 one could see the bone-shaped scar of an Army Special Forces camp at Lang Vei, the church steeple of Khe Sanh Village, the smoky hamlets of the mountain tribes known as Bru [Hmong], the air strip and bunkers of Khe Sanh Combat Base—and even thick-walled villas of French planters where wrinkled, brown women sorted coffee beans and gracious ladies served crème de menthe. All around lay a phantasmagorical landscape, the kind of place where trolls might live. An awesome, sheer-sided mountain of stone called Co Roc guarded the gateway to Laos, the land of mystery and green mountains that flowed gently around [Hill 881] to the South. Tiger Peak loomed large in the hazy far distance, a barrier near the boundary of North Vietnam. Down on the plateau, confusing tangles of thorn and vine and low brush gave way to incredibly dense stands of twelve-foot-high elephant grass. Plummeting mountain streams frothed white against house-sized boulders on the hillside. Across the valleys silent waterfalls flashed like sunlit diamonds in the deep, green, velvet lushness of the jungle.³³



The Plain of Jars: A major combat zone during the War.

For their part, the Americans who served in Laos used the code name “The Land of Oz” for Laos, especially in the *Barrel Roll* AO. Since northern Laos was Oz or, sometimes, Camelot, Gen. Vang Pao was the “Wizard of Oz.” While the officials in Saigon and Washington did not like the terms and tried to discourage their use, everyone who served in this “phantasmagorical” land used the names regularly. The CIA even gave themselves the code name “Controlled American Source.” It was all part of the effort to keep the reality of the conflict under wraps.³⁴

In a plot right out of a Hollywood make-believe movie, each faction in this vicious fratricidal war was led by a royal Laotian prince. The centrist Prime Minister was Prince Souvanna Phouma, while his half-brother, Prince Souphanouvong, better known as the “Red Prince,” was the leader and organizer of the Communist Pathet Lao. *Barrel Roll* was in northern Laos which was made up mostly of mountains. The only real flat terrain was in the Mekong River valley on the Thai border. To add to distinctiveness of this part of Laos was the historic Plain of Jars which was located in the middle of the country. Roughly four percent of the land could be used for farming. The roadways were simple and limited, and there was no railroad. The main stronghold of the Pathet Lao was in eastern Laos on the border with the DRV. They established their capital at Sam Neua. The area controlled by RLG was in the west. The PDJ was located in between and was the main battlefield because it was the “strategic crossroads of Laos.” It was a rolling and panoramic grassland more than 500 miles square with hundreds of enormous antediluvian stone jars covering the landscape.³⁵

By the time U.S. and NVA advisors arrived, it was clear that neither the Laotians nor the Pathet Lao were very good soldiers. Hanoi’s dispatch of regular troops helped bolster the Pathet Lao, while the CIA had, from the outset, been training the Hmong native mountain tribal people, led by the charismatic Gen. Vang Pao. They proved to be the most adroit warriors on the government side. Major



Hmong Soldiers and their families. They were very young.

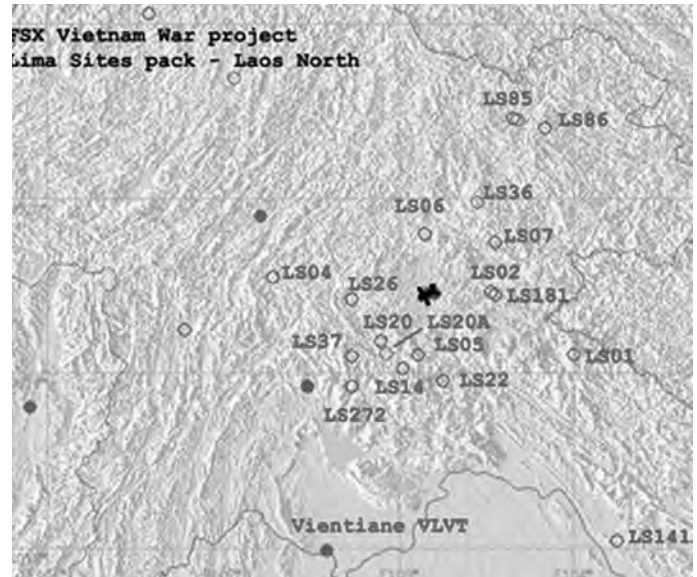
General Vang Pao had once been a lieutenant colonel in the Laotian Army. His dynamic personality and enthusiasm inspired loyalty not only from his guerrilla troops but the U.S. advisors who fought with him. To station his forces in a more advantageous place, the Hmong left their ancient village homes in the north to take up positions in mountain strongholds near the PDJ. By 1968, the Hmong infantry totaled more than 40,000 soldiers.³⁶

In this area, the Hmong were easily supplied by the CIA's own proprietary airline, known as *Air America*. They also created a network of 198 "Lima Sites," which were comprised of airstrips as well as small enclaves of houses and maintenance hangars on mountain tops or hidden in valleys surrounded by mountains. These sites were designed so that light aircraft could land carrying the supplies and equipment for the Laotian pro-government units. These forces also used these sites as forward operating bases (FOB).³⁷

For his part, Vang Pao's main military headquarters were located at Long Tieng, which was a little south of the PDJ in a flat valley surrounded by mountains on three sides. Air Force and CIA aircrews, operating undercover, joined him there. Here again, the base camp was code named to maintain secrecy. Americans and Laotians always called it "Alternate." Vang had his civil headquarters located near Sam Thong adjacent to Lima Site 20. In order to avoid attention, Long Tieng was called 20-A, or 20-Alternate.³⁸

The Patterns of Battle

As if the backdrop of *Barrel Roll* and the secret war were not strange enough, the pattern of battle was equally unique. Throughout the conflict, the ground war shifted back and forth due to the climate. From September to April, in the annual dry season, the Pathet Lao took the offensive. As the monsoon rains of the wet season arrived during May and lasted until September, the torrential



A map of some of the CIA's Lima Sites.

rains turned the roads into a quagmire complete with sticky thick mud. The government's forces' defensive tactics proved to have the advantage since they could call on air support and use their mobility to keep the Communists at arm's length. In fact, neither side had the military power to decisively defeat the other.³⁹

Not only did the Laotian climate guide the battle pattern, but the equipment and materials available to each side did as well. In Laos, the two sides were the opposite of what existed in Vietnam. The Pathet Lao, supported by the NVA, operated as a regular army, supported by tanks, trucks, and artillery. The RLG troops and the Hmong conducted operations as irregular guerilla units. At first, the U.S. advisors had tried to build up the RLA, but they proved to be poor soldiers. Thus, they increasingly turned to Vang Pao and his fighters, the majority of whom were very young. The longer the war dragged on, the casualties suffered by the Hmong reduced their numbers to the point that, by the 1970s, the U.S. had to depend on Thai "volunteer" forces.

In the early years, the Hmong proved strong enough to push the Pathet Lao back, and many Americans were hopeful they could stabilize Laos and keep the country non-Communist. However, each time they seemed close to victory, leaders in Hanoi infused significant numbers of new troops into the fight. Increasingly, these proved to be PAVN regulars. The U.S. was having a hard enough time defeating these troops in Vietnam. To ask the under supplied and outnumbered Hmong to face these forces became increasingly problematic. In order to give themselves an advantage in this combat, Vang Pao's fighters used the monsoon season to initiate offensive actions. Without dry roads to move their tanks and trucks, the enemy lacked the ability to move quickly and fell prey to guerilla actions. Once the dry season arrived in September, they could counterattack until March to retake territories the Hmong had worked so hard to seize. This see-saw war left things in a relative stalemate, which was the U.S. goal. To their credit, Vang



Lima Site 20-A.

Pao's forces were most often outnumbered and outgunned but performed courageously and skillfully. Often, they depended on air support from USAF and RLAf aircraft. Even so, they not only held their own, but many of their offensives drove deep into enemy territory.⁴⁰

Forward Air Control

In the early days of the conflict, a major issue facing the Allied air campaign was the lack of FAC assets. In earlier wars, such aircraft had been designed to locate and identify ground targets. In this case, the Allies required similar assets to do the same job among the dense jungle foliage that shrouded the Laotian terrain. The U.S. did not have such aircraft in Laos or anywhere else for that matter. They had been phased out after the Korean War.⁴¹

Refusing to cave in, the CIA adapted. In 1963, Air Force officials sent four "sanitized" or "sheep-dipped" Air Commandos from their Combat Control Teams (CCTs) to work for the CIA in Laos. These individuals left one branch of service, had an extensive cover story created including letters to their family describing their new job, so that they could covertly work for another service or agency. Their career records were kept in a dual system so once this work was completed they could return to their former military branch with no loss of rank or pay. The CCTs were parachuted or landed by helicopters into forward zones. Once in place they provided air control for the aerial delivery of other personnel such as paratroopers.⁴²

These Air Commandos and CCT members soon grasped the FAC problem and procured as many old FAC manuals as they could. Then they adapted these FAC tactics using the aircraft they had available, which included the assets of *Air America*. They immediately began flying missions in support of both ground and air forces. This included marking ground targets with smoke rockets and flares which evolved into an official program designated *Butterfly*, whose results proved to be better than anyone



One of the main aircraft flown by Forward Air Controllers the Cessna O-1 Bird Dog.

could have imagined. The *Butterfly* program lasted until late 1966. When Gen. Momyer visited Laos he was appalled by the eccentric nature of the operation and that many of those who were flying were neither officers nor trained pilots. When he returned to Saigon, he ended the program with three words, "that will cease." Still, the need existed, so those in Laos replaced the *Butterflies* with the *FAC Ravens*.⁴³

The *Ravens* were Air Force officers who already had 500 flying hours or six months as FACs in South Vietnam. They volunteered to serve the last six month of their tours in Laos. During the war there were always shortages of crews and aircraft. Between 1966 and 1968, there were only six *Ravens* assigned to fly control missions for the growing number of U.S. sorties being flown over Laos. Even during the pinnacle of the program, "when they would control one-third to two-thirds of the tactical air (tacair) strikes in the *Barrel Roll* area, there were never more than twenty-two *Ravens*."⁴⁴ During a mission, the *Raven* pilot was accompanied by a Laotian observer to not only help identify buildings and landmarks but to obtain clearance from RLG officials for air attacks. This made things easier since, if they did not have permission to attack specific targets, U.S. attack aircraft had to get clearance directly from the embassy which precluded a rapid response to enemy ground targets. Ground-based Laotian Forward Air Guides (FAGs) were able to request quick air support missions even though they spoke little English. Without their Laotian observers communications between the FAGs and FACs would have been impossible.⁴⁵

Another aspect of the Laotian conflict that was a reversal of the war in South Vietnam was that in Laos, the Air Force used conventional air power to support an unconventional ground war. This was significant since the war in Laos increasingly became an air war. The main role of the USAF in the Land of Oz was to cut off the southern part of the Mekong River Valley in order to create a buffer for Thailand, thus, protecting "the Laotian central government in Vientiane from a direct Communist threat; draining PAVN manpower and resources; and closing the



Another aircraft used by the FACs, the Cessna O-2 Skymaster.

approaches to the Ho Chi Minh trail.” In turn, the U.S. employed their aerial interdiction assets to block enemy resupply efforts and secure Thailand. Above all, this was a primary reason to fight the war in Laos since Thailand was America’s preeminent ally in mainland Southeast Asia. In 1964, then Secretary of State Dean Rusk, in explaining the growing American commitment to South Vietnam declared, “Laos was only the wart on the hog.”⁴⁶

The RLAF and Operation *Water Pump*

The Americans were not the only pilots or aircraft flying during *Barrel Roll*. No sooner had the 1962 Geneva agreement fallen apart than Souvanna Phouma requested U.S. aid for the RLAF. In August 1963, Kennedy approved the dispatch of AT-28 aircraft to Laos. Later, this was augmented with helicopters and light transports. In April 1964, Johnson directed the Air Force to send a detachment of Air Commandos to Laos to train RLAF crews. Known as Project *Water Pump*, the U.S. advisors both trained RLAF crews and assisted with aircraft maintenance. Based at Udorn RTAB in northern Thailand, they worked at forward operating locations (FOLs) in Vientiane at Wattay AB and other locations throughout Laos. The Air Commandos also trained *Air America*, *Butterfly*, and Thai personnel how to support ground operations.⁴⁷

U.S. policy makers...believed all they had to do to secure Laos was fight a “holding action”

Since the Geneva accords officially prohibited any belligerent forces in Laos, the U.S. presence came under what became known as the “Country Team” policy, where military directives came from the U.S. ambassador in Vientiane. Unlike South Vietnam where the Military Assistance Command, Vietnam (MACV) handled military policy and the allocation of military assets, in Laos there was no mil-

itary command, and Ambassador Sullivan was in charge of armed forces matters. Unlike his successor, he was particularly forceful in the application of his authority. He frequently had quarrels with the military officials assigned to Laos.⁴⁸

To further complicate the air operations in *Barrel Roll*, MACV was not part of the chain of command in northern Laos. Instead, the U.S. Pacific Command, located in Hawaii and commanded by a Navy officer, controlled air assets in *Barrel Roll*. The CINCPAC, operating under direct orders from the Johnson White House in the early days, in turn, provided directives to officials in *Barrel Roll* through Pacific Air Forces (PACAF) and 7AF leaders in Saigon. This cumbersome situation, that began with the President and took a circuitous route to Vientiane, meant strike missions were approved without an air officer with expertise in aerial warfare!⁴⁹

Since CIA operatives had been in Laos since 1955, and there was no military presence, they took over the job of helping the central government in the civil war. One of the earliest aspects of this support proved to be the mysterious airline, *Air America*, which was stationed at Udorn RTAB. Among the forces they underwrote were the Hmong led by paramilitary officers like Vang Pao at Long Tieng and subordinate locations in northern Laos. This took on an important change of direction in May 1964, when *Air America* pilots, flying AT-28s with Laotian markings bombed and strafed Communist targets in the PDJ. Soon after, *Water Pump* pilots and crews began flying secret missions in support of the RLA and Hmong irregulars.

This was followed by American jet aircraft flying “Yankee Team” reconnaissance missions over the Ho Chi Minh Trail and PDJ in Laos. To complicate matters, the enemy shot down two of these aircraft over the PDJ. In retaliation Air Force F-100s destroyed the AAA site. All of this provided political issues that led U.S. officials in Saigon and Washington to rein in the “cowboys” in Laos. The *Water Pump* personnel “enlisted airmen, and nonrated officers performed as FACs in Laotian aerial assaults from 1964 until the spring of 1967.” These *Air America* aircraft employing the call sign *Butterfly*, located targets for AT-28s and tactical aircraft “diverted from North Vietnam to targets in Laos.” In the end, “the *Water Pump* contingent was folded into Project 404, a program under which U.S. military personnel wearing civilian clothes were assigned as additional “attaches” to the embassy in Vientiane.”⁵⁰

Why was This the Strategy?

Originally, the U.S. policy makers based their decisions about Laos on the belief the struggle in Vietnam would be resolved within a year or two. They believed all they had to do to secure Laos was fight a “holding action.” No one in Washington foresaw the Laotian conflict lasting ten years.⁵¹ Colonel Perry F. Lamy, an Air Force historian and the author of a research report for the Air War College, published in 1995, described Washington’s view as follows:

Since the fate of Laos did not depend on a military solution



AT-28s used during *Barrel Roll*.

in the air or on the ground in Laos and could only be decided by the outcome in Vietnam, winning the war against the DRV in northern Laos was not the objective. Instead, maintaining access to the country was paramount and keeping the Royal Lao government in power became the primary objective. For Hanoi, Laos was also a “limited war” with goals and objectives that were tied to its continued use of the Ho Chi Minh trail.⁵²

Northern leaders not only made preservation of the Ho Chi Minh Trail paramount but, in order to keep the myth of neutrality alive they also had to maintain the fiction the conflict in South Vietnam was a popular uprising they had little if anything to do with. Thus, while the NVA might have been able to send in a large enough force to overrun Laos during much of the conflict they tried, instead, to maintain a stalemate that allowed them to keep open the infiltration routes into South Vietnam and operate them as free of U.S. attacks as possible.⁵³

General Vang Pao

The one group capable of holding off the Communists during the “secret war” was the Hmong guerillas commanded by Vang Pao. In 1959, the former lieutenant colonel, whose family had been from an indigenous Hmong ethnic minority, joined the CIA’s clandestine operations to resist Pathet Lao. Impressed by Vang Pao’s skills and pro-American politics, the CIA soon worked out a plan to take the Hmong under their tutelage and train them to fight the Pathet Lao. What the CIA officials liked most was that the highland Hmong were more aggressive than the lowland Lao. To develop this group into a paramilitary force, they promoted Vang Pao into a leadership role to lead the Hmong. In 1961, the U.S. sent the first weapons to the Hmong and began their formal military instruction. To execute the latter process, American officials secretly deployed nine CIA specialists, nine U.S. Army Special Forces personnel, and ninety-nine Thai members of the Police Aer-

ial Reconnaissance Unit (PARU). Once trained and armed, the Hmong became known as the “Secret Army” or the “Armee Clandestine.”⁵⁴

To some experts the Hmong were simply a tool of U.S. undercover foreign policy. Conversely, journalist and historian Jane Hamilton-Merritt, saw them as heroic anti-Communist warriors. Having spent many months with the Hmong, during and after the war, she lauded the secret soldiers as the only real group in Laos “dedicated to defeating the North Vietnamese Army (NVA).” In her famous book, *Tragic Mountains*, she defends Gen. Vang Pao calling him “a fearless leader and patriot.” Some others criticized him as being a typical Asia warlord.⁵⁵ Hamilton-Merritt describes Vang Pao’s military assets as follows:

Drawing upon years of guerilla warfare experience against the Japanese and Viet Minh, Vang Pao made full use of the advantages of unpredictability. Sometimes he ordered one aircraft readied for a mission. At the last moment, he jumped into another.... He had recently discovered that it was easier to direct firefights by radio from the right seat of a slow-moving plane, flying at high altitudes.... As visible as he was to his enemies, he remained a fast-moving, elusive, and unpredictable target. Needing little sleep, he thought and fought with the energy of several men. Both enemy and ally found it difficult to outguess him.⁵⁶

Respected Vietnam historian, Dr. John Prados, in his books and articles on the topic, has questioned why Vang Pao, and not the RLG received the lion’s share of U.S. material aid. To him the CIA’s willingness to keep the RLG weak and allow the Hmong free rein “flew in the face of fostering the type of national government that could have defeated the Pathet Lao.”⁵⁷ This certainly is an argument worth pondering, but the answer seems clear in that the CIA had been there first and, for years fought alone. Moreover, the bickering and divisions among the royal family and governing officials had already made the central government weak. Further, the U.S. had sent aid to support the RLA and RLA. Besides, America’s policy focused on Vietnam not Laos and as long as they could maintain a stalemate they were satisfied. Whether this was a good policy or not is certainly another matter and, one Prados makes very clear.

The Secret War Grows

When the 1962 accords were finalized, the U.S. put the “secret army” program on hold. Like the neutrality agreement, this did not last long. Since the NVA refused to actually remove its forces, Kennedy authorized a resumption of clandestine operations. The CIA and Thai military created “Headquarters 333,” located at Udon Thani, and designed it to function as a joint Thai/American command center for covert military activities and intelligence gathering in Laos. As 1963 came to an end, the Hmong army had expanded to 10,000 soldiers. To sustain the pro-government units, Thai government officials covertly sent artillery units to northern Laos and, *Air America* increasingly

airlifted supplies to the Hmong. The CIA also added to the number of aircraft they were flying and created the *Bird and Son* and *Continental Air Services* to facilitate logistics operations.⁵⁸

The evolution of military activities reached another watershed in mid-March 1964, when the CIA initiated the aforementioned Project *Water Pump*. One key aspect of the program was the training of Laotian, Thai, Hmong, and *Air America* aircrews on how to fly the available aircraft and sustain aircraft like the AT-28 *Trojan* ground-attack aircraft. Members of Detachment (Det.) 6, 1st Air Commando Wing conducted this instruction at Udon RTAB, Thailand. On May 25, 1964, these units flew their first CAS mission in support of Vang Pao's Hmong forces. When Gen. Momyer shut down *Water Pump* at the end of 1966, the RLAF was reorganized into five wings of ten aircraft each. This ultimately proved more successful since *Water Pump* could not train enough pilots to keep ahead of the death rate of graduates or the departure rate of U.S. pilots. The need became so acute many Det. 6-trained personnel flew until they died. This non-standard operation came to Gen. Momyer's attention and he terminated the U.S. civilian pilot program. While Det. 6 continued to train pilots, the unit itself was absorbed into the 606th Air Commando Squadron. In 1967, the 606th became part of the 56th Special Operations Wing. As one report noted, "The air program did, however, create the world's only guerrilla army with air superiority."⁵⁹

Who's in Charge?

The irony of the war in Laos was as the war in Vietnam expanded and the U.S. role increased, the original setup in Laos changed from its ad hoc nature to that of a "red headed step child." On May 29, 1961, Kennedy sent a directive to all U.S. government agencies operating overseas telling them they were to operate under the direct supervision of the ambassador. As mentioned, this "Country Team" directive meant, in Laos, "the American military came under the civilian control, since according to the neutralization agreement, there could never be a senior U.S. military commander within the country." This gave Ambassador Sullivan direction over military matters. He proved to be a controversial official who was both smart and arbitrary. Air Force and Army officials in Saigon hated him and saw him as an encumbrance to successful military operations in Laos. Sullivan constantly demanded total authority over every aspect of U.S. military activities in Laos. He frequently ignored sound advice from military liaisons and applied some of the most stringent and illogical restrictions ever conceived. This frustrated the military officials in Saigon, Hawaii, and Washington. MACV commander, Gen. William C. Westmoreland derisively referred to Sullivan as the "Field Marshal."⁶⁰

This having been said, one must realize that Sullivan's position was very difficult. He was constantly saddled with the competing interests of the CIA, 7AF, MACV, and Thailand, which frequently did not mesh. In his efforts to balance all of this, he had to keep from alienating Prime

Minister Souvanna Phouma who was an important ally of the U.S. and allowed the U.S. nearly total freedom of action in his country.⁶¹ One aspect of the war that Sullivan was, in retrospect, right about was the kind of aircraft needed to fight this unique conflict. According to Christopher Robbins in his book *The Ravens*, the Ambassador was convinced that "a high performance jets flying at eight hundred knots . . . was not the most effective instrument to use against truck convoys that were moving at a snail's pace down the muddy Ho Chi Minh Trail." He directed that the Allies in Laos use propeller-driven aircraft, such as the AT-28s and A-1Es, as well as fixed-wing gunships to destroy targets along the infiltration routes.⁶²

The original setup in Laos changed from its ad hoc nature to that of a "red headed step child"

This viewpoint has been supported by numerous historians and analysts during and after the Vietnam War. Earl H. Tilford, Jr., in his book *Crosswinds*, writes,

*The Air Force was determined to fight the Vietnam War, to the greatest extent possible, with the aircraft in its normal inventory; high performance jets. Although the Air Force obtained a few Douglas A-1 Skyraiders from the Navy, along with some rebuilt T-28 trainers for use early on in Vietnam and later in Laos and Cambodia, the Air Force leadership was opposed to large-scale acquisition of planes designed specifically for counterinsurgency or low-intensity conflict. These latter planes tended to be propeller-driven aircraft—distinctly "unsexy" and, in the opinion of General Momyer, of limited use. Momyer argued, incorrectly, that jets were, in all respects, superior to propeller planes and could perform every task required for tactical aircraft in Vietnam.*⁶³

In my book on the development of the AC-119G/K I noted, "When the USAF joined the war in Southeast Asia in the early and mid-1960s . . . two camps grew up with the USAF—those who wanted to prove once and for all the ultimate virtues of fast-moving aircraft and those from the special operations world who believed in low and slow air power." Ultimately, aircraft like the AC-47, AC-119, and AC-130, proved their efficacy. The fact the AC-130s and other special operations aircraft are still in the Air Force inventory indicates their value then and, now.⁶⁴

During Sullivan's tenure as ambassador, the senior in-country military officer was the AIRA or the ambassador's air attaché. Led by an Air Force colonel, the AIRA's office was, at first, made up of the attaché and six other individuals. As the air activities expanded in 1966-1967, this number grew to 117 Air Force personnel. The main Air Force role in Laos was to sustain the Royal Lao military and the Hmong forces in the north. This they did under the guidance of Project 404. The Air Force established five air operations centers in Laos. These included centers at Vientiane, Pakse, Savannakhet, Long Tieng, and Luang Prabang. Each provided the ambassador with intelligence,



Soviet-built AN-2 *Colt*.

administrative services, communications support, and air operations help under a program called *Palace Dog*.⁶⁵

Obtaining enough air assets to carry out their missions proved to be an increasingly difficult conundrum which became more stressful when Johnson approved the concentrated bombing campaign of North Vietnam designated Operation *Rolling Thunder*. Once these air attacks began, on March 5, 1965, officials divided the *Barrel Roll* AO into two AOs. On April 3, operations in the northeast remained *Barrel Roll*, while the southern region, where interdiction attacks against traffic along the Ho Chi Minh Trail took place, was renamed *Tiger Hound*. Westmoreland's air officers in Saigon assumed command and control of this area.⁶⁶

The decision to make this change took place on March 29, 1965, at a meeting of the Southeast Asia Coordinating Committee held at Udon Thani, Thailand. Here, Sullivan, officers from MACV, the CIA, and the 2 AD decided to create *Tiger Hound* and leave *Barrel Roll* in the ambassador's hands. Thus, operational control of U.S. air assets moved from CINCPAC, in Hawaii, through his air officer at PACAF, to the 2 AD. On April 1, 1966, the 2 AD became the 7 AF. Target attack permission came from the RLG, CIA, and/or MACV to be approved in Saigon. However, air operations in *Barrel Roll* did not receive a high priority under this arrangement. Officials decided U.S. aircraft could be deployed for interdiction in Laos only after aircraft met CAS requirements in South Vietnam. Provisions of the Honolulu agreements provided Westmoreland with "veto power over bombing, interdiction, and reconnaissance programs outside territorial South Vietnam." Thus, *Barrel Roll* fell behind South Vietnamese air operations, *Rolling Thunder*, and *Steel Tiger* on the priorities list. This meant that five percent of all U.S. Southeast Asia sorties were flown in northern Laos.⁶⁷

The War Waxes and Wanes

From early 1965 and late 1968, the secret war in the

Barrel Roll AO ebbed and flowed in rhythm with the monsoon seasons. The NVA and Pathet Lao attacked in the dry season while the Hmong launched counteroffensives in the wet season. Gradually, the ferocity of the combat increased with each engagement as the Communists employed more and better armed troops countered by America's use of more and better airpower. In July 1966, three Communist infantry regiments, one independent infantry battalion, and an artillery battalion, took the town of Nam Bac creating a defensive perimeter around the area just north of Luang Prabang. As the NVA and Pathet Lao continued their offensive, their lines of advance were attacked by Allied air assets, and they were forced to halt. In August, Vang Pao's troops smashed into the enemy defensive positions and drove them to within forty-five miles of the North Vietnamese border. Officials in Hanoi had to commit additional troops to halt the Hmong assault and saved their forces.⁶⁸

During the dry season of 1967, Communists forces attacked again, this time across the Plain of Jars. The pro-RLG and Hmong troops suffered heavy losses. By the end of the year, things looked very bad. In spite of significant air support from the USAF and RLA, the PAVN advance was relentless. They soon realized the impact of the TACAN facilities and that destroying them could curtail Allied air attacks. From December 1967 to August 1968, U.S. intelligence sources found that the NVA and Pathet Lao forces had grown from 50,000 to more than 110,000, with 34,000 being PAVN regulars, 6,000 advisors, and 18,000 support troops.⁶⁹

On December 6, Lima Site 44 was overrun and three weeks later, on Christmas Day, Communist forces captured Lima Site 61, the location of a vital mobile facility. These assaults were part of a coordinated plan to eliminate U.S. airpower's ability to bomb and strafe their logistical system prior to their initiation of the infamous Tet Offensive of 1968. In conjunction with these pre-Tet strikes, the NVA and Pathet Lao struck key Laotian positions throughout the country. In northern Laos, the dry season saw the enemy take back Nam Bac. By January 13, the RLA had suffered 200 killed and 2,400 captured. It was a grim New Year for the Americans as the Communists slowly pushed forward, seizing territory in the north. Things were about to get worse in Vietnam with the Tet Offensive and the Siege of Khe Sanh.⁷⁰

The RLG garrison at Ban Houi Sane, in the Laotian panhandle, along Route 9, twenty-one miles west of the Marine Combat Base near Khe Sanh, was overrun by the 24th Regiment, 314th NVA Division. For the first time in the war, a NVA unit in Laos fielded armored assets, specifically, Soviet-built PT-76 tanks. To the south, the PAVN's Group 565 defeated government troops in Khammouane Province and appropriated the entire rice harvest. With starvation in the offing for the common Laotian farmer, the enemy attacked Saravane and Attopeu, taking Allied forces completely by surprise. Once in control of these two towns, the NVA and Pathet Lao stopped to regroup and resupply their forces in southern Laos. With the larger Communist offensive about to begin all across Vietnam, the enemy seemed poised to take the all of Laos.⁷¹

Even as this situation was unfolding, on January 12, Lima Site 85, one of the most important sites, was assaulted. It had a 700-foot runway and TACAN facility which Air Force personnel had built in 1966. In early 1967, they augmented the system with an all-weather capability. It was manned by sixteen to nineteen Air Force communications experts. The enemy's attack on the TACAN Lima Site 85 was unusual since one of its components involved aerial combat. As the NVA attacked LS-85, they used two Soviet-built AN-2 *Colt* biplanes, of the North Vietnamese Air Force (NVAF), to bombard LS-85 on top of a craggy peak known as Phou Phathi. The only U.S. aircraft immediately able to support LS-85 was an *Air America* Bell 205 helicopter, which had launched to avoid air-dropped 120mm mortar rounds released by the *Colts*. Once airborne, the chopper pursued one of the AN-2s, which had already been damaged by ground fire. The *Colt* crashed as it attempted to make evasive turns. With this plane downed, the helicopter pursued the remaining aircraft. The Americans fired at the *Colt* with an AK-47 pointed through a sliding window. They shot down the fragile biplane killing the enemy pilot.⁷²

For the time being, Phou Phathi was safe. However, the NVA was not going to let things alone because, by late January, the combined TACAN/TSQ-81 LS-85 site, on top of the mountain, was providing targeting control for fifty-five percent of the *Rolling Thunder* air attacks over North Vietnam and twenty percent of the air strikes in the *Barrel Roll* region. With LS-85 helping U.S. aircraft kill so many Communist troops, it became a primary target of the NVA. LS-85 was in need of reinforcements to protect it. Part of the problem was the charade of neutrality in Laos and the U.S. decision not to even arm the so-called contractors running the site. They were Air Force communications personnel. This delusory posture led to disaster!⁷³

On March 11, Communist units, spearheaded by sappers of the 41st Dac Cong Battalion, supported by the 923rd NVA Infantry Battalion, assaulted the Lima Site 85. This time, the strike was so swift it caught everyone by surprise, and LS-85 was overrun. Of the sixteen Air Force technicians at the site, five escaped, but eleven were never heard from again. While officially declared missing in action (MIA), they were most likely killed. This was not only a sobering event but one that impacted circumstances in northern Laos and for Air Force air strikes in North Vietnam. The site had to be replaced, so Vang Pao sent his forces to attack enemy positions in Moung Son and Nakhang. The Hmong, in spite of heavy resistance, finally seized these high points. In July, the U.S. built new TACAN sites. With Lima site capabilities restored in the area, the secret army could take the offensive during July and August. The Hmong forces were assisted by 742 American CAS sorties, with 450 others being made in other parts of the *Barrel Roll* region.⁷⁴

In looking back, late 1967 and early 1968 proved to be a turning point in the conflict. The NVA forces were now totally committed to the war in Laos. They were running things and the Pathet Lao were merely figure heads. They maintained intense pressure on RLG forces, all year round,

regardless of the weather cycles. The Laotians no longer had any respite to regroup. To deal with this grim circumstance, during the 1969 wet season, officials in the new Nixon White House approved Air Force proposals to launch a major air campaign in *Barrel Roll* designated *Rain Dance*. It coincided with Vang Pao's offensive in the Plain of Jars. On March 17, the USAF launched eighty strikes, each day, for twelve days. It proved so successful, as did the Hmong offensive that it was extended until April 7. In the end, the Air Force flew 730 sorties.⁷⁵

Determined to keep the pressure on the enemy in Laos, on May 22, Air Force aircraft initiated Operation *Stranglehold* which lasted for five days and focused on Routes 6 and 7, a major part of the NVA's logistical lifeline. Even with the heavy losses they suffered, the NVA launched Campaign *Thoan Thang* or *Total Victory*, in June. Supported by dozens of tanks, they quickly took Moung Soui. Air crews flew 103 strike missions, while the RLAf flew forty-four AT-28 missions trying to save the town. There were just too many NVA troops. Seven new battalions had arrived from the North since April, and they simply overwhelmed the town's defenders.⁷⁶

In June, with Moung Soui under siege, Nixon sent G. McMurtrie Godley to replace Sullivan as ambassador to Laos. He was well aware of how the CIA conducted paramilitary operations, having been the ambassador to the Congo in the mid-1960s when pro-government mercenaries had defeated the Simba rebels. He immediately changed the ROEs, eliminating ninety percent of them and relaxing the rest. This allowed for an increase in the bombing in the *Barrel Roll* and *Tiger Hound* AOs. The results came quickly when more than half of the inhabitants, of the once heavily populated Plain of Jars, fled the area and took refuge in camps in southern Laos. Members of the Agency for International Development (AID), who kept refugee rolls, reported these numbers had risen from 130,000 per year in 1964 to 1968 to 230,000 in February 1970.⁷⁷

On August 6, 1969, Hmong fighters launched a full scale counterattack, designated *Kou Kiet* or *Redeem Honor*, in Military Region 2. The weather was very wet that summer, with 46 inches of rain falling in July alone as opposed to the normal 16 inches. Supported by RLAf and American CAS mission, they swept across the Plain of Jars pushing the Communists before them. With muddy bogs replacing the roads, the NVA's logistics flow stopped. Whenever the weather improved, Allied planes flew 145 sorties a day in support of the Hmong. Without adequate resupply, the enemy withdrew the west. For the first time since 1961 the entire Plain of Jars region was under RLG control. When the campaign drew to an end in October, official reports counted 25 tanks, 113 vehicles, six million rounds of ammunition, 6,400 weapons, and 202,000 gallons of fuel captured or destroyed, most by the air attacks. Things were so positive, that Sullivan as he left declared, "We believe that damage to the enemy represents the best results per sortie by tactical air in Southeast Asia."⁷⁸ Clearly, airpower had played a major role in the temporary victory by the RLG forces. During the summer, the number of sorties flown in the *Barrel Roll* AO increased from 300 per month to 200 per day.⁷⁹



A B-52 landing at U-Tapao RTAB.

The 1970s see Major Changes

As the new decade began, the combat pattern repeated itself when the Communists launched yet another offensive. Commencing in late December 1969, it rapidly retook all the lands they had lost during the wet season including Xieng Khouang and the lion's share of the high ground surrounding the Plain of Jars. It was a disaster even worse than the one experienced in 1968. In February 1970, Ambassador Godley literally begged the President to approve B-52 attacks to prevent all of Laos from being overrun. On February 17-18, 1970, the BUFFs launched thirty-six missions against NVA targets dropping 1,078 tons of bombs. This air/land engagement became known as the first battle of *Skyline Ridge*. The B-52 raids were awesome and effective. They were augmented by night missions designed to destroy vehicular traffic along the Ho Chi Minh Trail. The U.S. deployed AT-28s, AC-47s, AC-119s, and AC-130s flying roughly 3,000 sorties. So fruitful were these raids that, by March 18, NVA/Pathet Lao units had to retreat or be wiped out. This provided a break for the Hmong who had been pushed back to the very outskirts of Vang Pao's base camp at Long Tieng. Concurrently, the Air Force was preparing for Operation *Commando Hunt III* which became the largest commitment of the B-52 strategic air weapons to that time. Designed to shut down the Trail, its affect was spectacular in terms of total destruction of enemy traffic. However, it could not completely stop the enemy from diversifying the Trail or from sending troops and supplies into South Vietnam.⁸⁰

The Beginning of the End?

In spite of their losses, the Communist's situation had already begun to improve in mid-September 1969, when officials in Hanoi sent the last two regiments of the 312th Division, specifically the 165th and 209th; the rebuilt 316th Division; the NVA 866th Infantry Regiment; the 16th NVA



One of the aircraft flown by the SOS units, the AC-130H Fixed-Wing Gunship, *Spectre*

Artillery Regiment; a tank company; six sapper and engineer battalions; as well as ten Pathet Lao battalions to bolster their forces in Laos. These were the units which, on February 11, 1970, launched the previously mentioned dry season *Campaign 139*. They had retaken the PDJ by February 20. The Hmong and RLG troops fell back, first to Muong Soui, then to Xieng Khouang. Within five days, they had to abandon Xieng Khouang. The Communists seized Xam Thong on March 18, the last strong point between the NVA and Vang Pao's headquarters. Officials in Washington approved Operation *Goodlook*, the desperate insertion of B-52s into northern Laos. This campaign forced the enemy to withdraw on April 25. However, unlike previous ebbs and flows of the war, significant numbers of the 316th and 866th stayed behind both to assist the Pathet Lao and prepare for new assaults in the dry season.⁸¹ One CIA study, from the time period, reported that, in 1970, "About the most positive thing that can be said about Laos is that it still exists as a non-Communist state."⁸²

As the 1970s began, a worn out Souvannah Phouma turned seventy, without a successor. While the RLG soldiered on as the seasonal back-and-forth combat dragged on, the regime steadily grew weaker, while the PAVN and the Pathet Lao grew stronger. In the 1960s, the one thing the RLG could count on was U.S. support. President Nixon was deeply disturbed by high U.S. casualties at battles like "Hamburger Hill" so in May 1969, he sped up "Vietnamization."⁸³

Two key aspects of this new policy were the withdrawal of U.S. forces and the competition for shrinking U.S. tactical air assets. One report revealed that in December 1968, "approximately 700 American strike aircraft had been available in-theater." By April of 1972, only 313 were still present.⁸⁴ This pattern was mirrored in Laos when on July 18, 1972, the 22nd Special Operations Squadron (SOS), stationed at Nakhon Phanom, was disbanded. On December 20, the 602nd SOS stood down, with only the 1st

SOS still providing CAS missions for RLG ground operations. The pilots and crews of the RLAF tried fill in for their departed U.S. counterparts and flew dozens of additional missions. In 1968, they flew 10,000 strike sorties. Between 1970 and 1972 this jumped to an average of more than 30,000 a year.⁸⁵

Based on the existing C2 process involving the AIRA, CIA, and 7 AF, airmen had precious little real control over air assets or targeting. Air Force leadership requested that *Raven* FACs assume a lesser role. Instead of a larger Air Force role, local leaders used more *Nail* FACs from the 23rd Tactical Air Support Squadron at Nakhon Phanom. At this point, they had begun transitioning to OV-10 *Bronco* aircraft. While the *Nails* flew more sorties in Military Region 2, they never really made inroads into the role of the *Ravens*.⁸⁶

This time, the PAVN and Pathet Lao forces did not withdraw into North Vietnam during the rainy season and stayed to prepare for their own offensives. Early in the fight, air mobility and transport responsibilities performed by personnel working for contracted aircraft and those operating the Lima Sites, had afforded the Hmong with an advantage over the PAVN and Pathet Lao forces who were utterly dependent on the limited number of real roads in Laos. Thus, the Communists focused a great deal of attention on repairing, expanding, improving, and diversifying their road network inside Laos. As a result, they could pour increasingly large amounts of supplies, equipment, weapons, and personnel into the little war torn kingdom. In the 1970s, this allowed them to keep their logistics and communications lines open all year long.⁸⁷

In the 1970s, concerned by growing Hmong casualties, U.S. authorities in Washington and Saigon came to believe the best way to preserve them was to stay in their defensive positions all year, and stop their wet season offensives. They wanted Vang Pao to fight a holding action at the edge of the Plain of Jars, so he could hold as much territory once a seemingly inevitable cease-fire came to pass. Nixon's advisors insisted U.S. airpower be employed to interdict Communist supply lines, not as CAS in support of ground attacks. Vang Pao, ever the proponent of the offensive, continued to launch attacks during the wet season in these last years of the war. As time passed, his successes began to grow smaller. During 1971, with B-52 *Commando Hunt* bombing operations ongoing along the Ho Chi Minh Trail, Communists forces in Laos, having weathered increased air attacks, regrouped and launched yet another offensive called *Skyline II*. Again, the Hmong defenders, supported by 1,500 U.S. CAS sorties, pushed the enemy back.⁸⁸

In America, the public was gaining an increased knowledge of the secret war. In October 1969, Missouri Democratic Senator Stuart Symington (the first Secretary of the Air Force), chair of the oversight subcommittee of the Senate Committee on Foreign Relations, began hearings on Security Agreements and Commitments Abroad. These closed sessions unveiled the history of the secret war to Congress. In spite of the resulting censored transcript, the level of commitment to Laos began to leak to the public. In 1971, when the *Pentagon Papers* were published, the flood

gates opened, and Nixon had no choice but to divulge the degree to which America was involved in Laos.⁸⁹ This made it more difficult for the U.S. to respond to NVA and Pathet Lao threats. In the spring of 1972, after investigating the ground war in Laos, a Congressional delegation reported, "No one we met in Laos, American or Lao, seemed to have any prescription for the future other than to continue what's being done now."⁹⁰

As the 1970s continued to unfold and, as members of Congress and the public grew disillusioned with the war, the President withdrew more American forces. Congress funded fewer dollars to provide military stores to the Vietnamese and Laotians. In March 1971, 17,000 ARVN forces, supported by U.S. airpower, initiated Operation *Lam Son 719*. A major component of the "Vietnamization" program, Presidents Nixon and Thieu hoped it would finally destroy the Ho Chi Minh Trail and enemy safe havens in south-eastern Laos. *Lam Son 719* started well enough with several enemy supply caches being destroyed near Tchepone. However, the ARVN forces soon found themselves on the verge of disaster. In spite of public claims of victory by Thieu and Nixon, the ARVN were pushed back by 36,000 NVA. They barely escaped being wiped out because U.S. air strikes and hundreds of U.S. Army helicopters airlifted the survivors out of the death trap. The B-52s flew 1,358 sorties and dropped 32,000 tons of bombs, while the helicopters flew 160,000 sorties and had 168 destroyed.⁹¹

In America, the public was gaining an increased knowledge of the secret war

The ARVN offensive had failed and, soon, the NVA redoubled their efforts to expand the Laotian infiltration network westward, pushing Royal Lao forces back toward the Mekong River. Officials in Hanoi soon realized that RLG forces in the southern panhandle were not the equal of the hardened NVA troops. With such ineffectual troops facing them, they moved south and seized the important town of Attopeu on April 30, 1971.⁹² In hindsight, with Secretary of State Dr. Henry Kissinger undertaking negotiations with the Communists to get the U.S. out of Indochina, and the President having promised to get America out of the war, Allied defeat in Laos might have been predictable as early as 1972.

Gradually, the U.S. withdrawal of forces under the Nixon Doctrine's Vietnamization program was also changing the nature of the war in Laos. Instead of Hmong ground operations supported by U.S. CAS air attacks, by 1971, Air Force strike missions were mostly interdiction sorties. CAS sorties had shrunk from 114 sorties per day to 38, or 70 percent from the previous year.⁹³ The truth is that while the Hmong troops comprised roughly fifteen percent of the RLG's forces, they were suffering seventy percent of its casualties. To quote Kenneth Conby, "The grinding nature of the conflict was also having a cumulative effect on the adult male population of the Hmong. Severe attrition had forced the Hmong into a numbers game they could not win."⁹⁴

General Vang Pao was aware of the adversities facing his people and his cause. On more than one occasion, he told his American allies that, without increased support and supplies, he would have to migrate the Hmong to Thailand. In November 1969, he even contacted the Pathet Lao in an effort to negotiate a settlement where the Hmong would stop attacking the Communists and let them create a semiautonomous state in Xieng Khouang Province.⁹⁵

The official CHECO Report, penned by Lt. Col. Harry D. Blout, remarked “the very fact that RLG and PL talks were even being considered was indicative of the success of U.S. air support to Laos.” Pathet Lao leaders were not opposed to these talks. They welcomed them. However, the reality was that they were now in bed with the NVA, and no negotiations were going to take place without Hanoi’s approval. By late 1971, things had changed throughout Indochina, mostly in favor of the Communists. They were now involved in a new war in Cambodia, and the American’s were gradually leaving. This meant leaders in Hanoi could make strict demands, since they held most of the good cards. Time was on their side.⁹⁶

Blout’s report further asserted, “After years of advances and retreats in northern Laos, the vastly stronger and better equipped NVA may have decided that their gains by arms have been incompatible with their losses to U.S. air.” Blout concluded ominously:

As the wet season closed it was easy to be pessimistic about the war in Northern Laos. General Vang Pao’s decimated guerrilla force had not achieved significant wet season gains. The NVA was still present in large numbers while the U.S. was scaling down With the enemy beginning his offensive ... from positions that he held, the dry season campaign could well prove to be the RLG’s last. If the RLG were to fall, formal agreements partitioning the country into pro and non-Communist areas could mean the end of all hopes that Laos could serve as a buffer. The threat of Communism to Thailand would be considerably increased.⁹⁷

Trying to Find a Solution

As Vang Pao’s forces shrank in numbers, the situation began to mirror Robert E. Lee’s conundrum during the height of the American Civil War. Both commanded brave and dedicated troops, but the longer the wars went on, their ability to replace those they lost became ever more difficult. On the other hand, their enemy grew stronger with each passing day both in terms of supplies and manpower. In a desperate effort to provide more troops to Vang Pao, the Allies came up with a plan, designated *Project Unity* that recruited Thai “volunteers” to fight with the Hmong. From 1971 to 1972, these forces assumed much of the ground war in northern Laos. By the end of 1971, the number of Thai soldiers reached 8,000 men. In 1972, this number grew to 17,800. Ultimately, their forces totaled 3 artillery and 27 infantry battalions. In the spring of 1972, it seemed the Hmong and Thais might be able to salvage the situation in northern Laos.⁹⁸

In October 1971, Souvannah Phouma reluctantly

agreed to talks based on the conditions laid out by the Pathet Lao. On the 14th, delegates from both sides gathered in Vientiane to hash out the preliminary guidelines for the negotiations. Two weeks later, the Secretary General of the Pathet Lao, Phoumi Vongvichit, arrived and conveyed the Communist demands which included: an end to U.S air attacks in Laos; the departure of U.S. advisors and military personnel; an election for a new National Assembly; the creation of a coalition government; and reparations and resettlement for those Lao who had been forcibly relocated.⁹⁹

The pace of the talks was decided by “the perceived military success of the protagonists”

During negotiations involving both Vietnam and Laos, the pace of the talks was decided by “the perceived military success of the protagonists.” Thus, the RLG pushed to come to a settlement before the Communists launched another offensive. This they failed to do and, on December 17, 1971, the NVA initiated *Campaign Z*, which was led by Maj. Gen. Le Trong Tan and consisted of a multi-division assault. Le had commanded the NVA troops that defeated the ARVN during *Lam Son 719*. The RLG and Hmong stood little chance as the NVA sped across the Plain of Jars and reached the outskirts of Long Tieng. Previously, the Pathet Lao and NVA were unable to complete the job. This time, they were supported by a battery of 130 mm artillery. The situation became grim for the defenders as they were constantly shelled.¹⁰⁰

With the pro-RLG forces holding on by their fingernails, Thai *Unity* troops arrived in the nick of time to stop the enemy. B-52s began regular bombing strikes and, by January 17, 1972, the NVA had been repelled from the high ground around the valley. Still, they held most of the Plain of Jars and, rather than fall back, Gen. Tan redirected his advance southwest and, on March 18, they overran Sam Thong. The NVA, then, returned its attention to Long Tieng without success. On April 28, they retired to defensive positions. They had come very close to total victory but, by failing they assured the ebb and flow pattern would continue. On May 21, 1972, RLG and Hmong forces, supported by CAS sorties, launched yet another offensive designed to retake the Plain of Jars. For 170 days, intense fighting raged across the historic plain coming to a halt on November 15. In spite of the effort, the pro-government forces could not defeat the NVA and Pathet Laos. The Communists were reported to have killed 1,200 RLG and Hmong troops. If this is even close to accurate, it was a devastating loss the RLG could hardly replace.¹⁰¹

The War Takes on a New Direction

On March 30, 1972, Senior General Nguyen Giap launched a conventional invasion of South Vietnam called the *Nguyen Hue*, or the *Easter*, or *Spring* Offensive designed to win the war as the U.S. began its draw down. The gamble failed to pay off due to the massive U.S commit-

ment of airpower during *Linebacker I* which lasted from April to September 1972. While the daring effort failed in South Vietnam, it drew U.S. attention away from Laos and Cambodia. Also diverting American public attention was the election of 1972, in which President Nixon won reelection. With RLG and Hmong forces drained nearly dry, officials in Hanoi, believed they saw a chance to remove the largest thorn in their side in Laos—Vang Pao's army. With battles raging all across South Vietnam, they initiated a new attack on Lon Tieng.¹⁰²

Once the *Easter Offensive* began, U.S. airpower assets returned, in force, to both Vietnam and Laos. The operational tempo of the conflict in northeastern Laos grew as well. With plenty of air cover, RLG, Hmong, and Thai forces attacked key NVA and Pathet Lao positions. This time, instead of waiting for the dry season, the Communists immediately counterattacked in order to become "well postured for the peace negotiations."¹⁰³ The Pathet Lao and PAVN initiated this new assault in August 1972. It lasted until November and came to within sixteen miles of Vang Pao's headquarters. Once again, it was stopped by concentrated B-52 and F-111 *Raven* fighter-bombers strikes. Still, the Communists held the advantage and, on November 10, 1972, succeeded in convening cease-fire talks between their Pathet Lao brothers and Souvanna Phouma's RLG. Realizing the cease-fire talks were imminent, Communist forces used the negotiation period to seize the remaining pro-government strongholds on the Plain of Jars.¹⁰⁴

Once the *Easter Offensive* began, U.S. airpower assets returned, in force

Throughout the Paris negotiations, there had never been discussions of a formal Laotian cease-fire to be part of the final accords. When it was finally signed on January 27, 1973, there was none. American and North Vietnamese representatives had verbally stated there would be a cease-fire no longer than fifteen days after the agreement was signed. Article 20 of the Paris Peace Accords dealt with Laos and Cambodia. In theory, both the North Vietnamese and the U.S. vowed to respect the neutrality of both nations and withdraw their troops.¹⁰⁵

As Christopher Robbins, says in his book on the *Ravens*, to expect Hanoi to uphold this agreement after they had sneered at previous neutrality accords, "took optimism bordering on an act of faith that they would now abandon the ambitions and struggles of thirty years because of a clumsily drafted afterthought in a document they had no intention of honoring anyway."¹⁰⁶

As soon as the Paris Accords and the Laotian neutrality were in place, U.S. military and civilian personnel began leaving, not just from Vietnam, but all of Southeast Asia. Ambassador Godley was left in shock by the outcome. In his heated remarks regarding the agreements, he declared, "We had led him [Souvanna Phouma] down the garden path. Let's face it, we were cutting and running... Once we were out of Vietnam the only way we could have protected

Laos was with an Army corps. It was totally out of the question and we knew it. We were licked."¹⁰⁷

The RLG now had to decide if they should conclude a separate agreement with the Pathet Lao at any cost or carry on the fight with no hope of victory. Leaders in Hanoi also wanted a quick end to the war in order to assure their troops and logistics personnel unrestrained use of the Ho Chi Minh Trail. With the signing of the Paris Peace Accords, both sides grasped the fact the U.S. was leaving and they had to act fast to solidify their position. On February 21, Souvanna Phouma signed an agreement with the Pathet Lao entitled "Restoration of Peace and Reconciliation in Laos." In the hours leading up to the execution of the cease-fire, savage fighting transpired with both factions trying to grab as much territory as possible before the cease-fire went into effect. In truth, this settlement was a fantasy, since the Communists had no intention of withdrawing their troops from Laos or stopping their use of the Trail.¹⁰⁸

On February 22, 1973, the cease-fire went into effect even though not all of the fighting stopped. The worst fighting occurred near the town of Paksong which was the last RLG strong point on the Bolovens Plateau. This was particularly important because it was high ground that overlooked the Mekong River. To prevent it from falling to the NVA, Souvanna Phouma requested the U.S. send aircraft to bomb the advancing enemy troops. The Air Force dispatched nine B-52s and twelve tactical fighters-bombers. On February 24, they hit major targets on the outskirts of the town halting the attack. This became a pattern and, by the end of the month, the BUFFs had flown 1,417 sorties and obliterated 286 targets in northern Laos.¹⁰⁹

Again, on April 16 and 17, the Prime Minister requested U.S. air support, and the Air Force sent B-52s to attack NVA troops assaulting Ban Tha Vieng on the Plain of Jars. While the Air Force continued to fly missions to support the Laotian forces, the cease-fire had hung the RLG and Hmong out to dry. The B-52s and tactical aircraft missions lasted into mid-April with the final *Barrel Roll* sortie flown on April 17, 1973. On 5 April 1974, the two sides established a coalition government by a royal decree. Souvanna Phouma was the president. The Pathet Lao soon took over from the center neutralists. The war was over and the enemy had won!¹¹⁰

***Barrel Roll* & the "Secret War" Come to an End**

Pursuant to the cease-fire agreement, on June 4, 1973, all U.S. and Thai personnel departed Laos. The Communists were supposed to leave as well. They did not! Between 50,000 and 60,000 NVA remained in control of large portions of Laos. Even before this happened, the U.S. began an airlift out of Long Tieng to Thailand in order to evacuate as many of the Hmong as possible. Another 40,000 to 50,000 marched out of Laos on foot. On December 2, 1975, the Pathet Lao removed most of their rivals and, soon, the coalition government and the monarchy were replaced by a Communist provisional government. Then they dissolved the provisional government and established the Lao Peoples' Democratic Republic.¹¹¹



Despite the war's impact, tourists have returned to Laos in places like Xieng Khuan (Buddha Park); Vientiane, Laos.

With the fall of Laos to the Pathet Lao, the final Indochina domino had fallen. In April and May of 1975, first Cambodia had fallen to the Khmer Rouge and, then, Vietnam to the NVA. It was a devastating defeat for U.S. foreign policy. Worse, it was stain on the military and diplomatic reputation of the U.S., which took decades to wash out. As for those who had fought with the Americans, thousands went into exile, while millions were left behind. They were either uprooted from their homes or faced deprivation and death at the hands of the pitiless winners. Perhaps the best summation of the fall of Indochina comes from Cambodian statesman, Prince Sisowath Sirik Matak, days before his execution at the hands of the Khmer Rouge. He had written the U.S. Ambassador to refuse the U.S.'s offer of evacuation saying,

I cannot, alas, leave in such a cowardly fashion. As for you and in particular for your great country, I never believed for a moment that you would have this sentiment of abandoning a people who have chosen liberty....You leave and my wish is that you and your country will find happiness under the sky. But mark it well that, if I shall die here on the spot and in my country that I love, it is too bad because we all

*are born and must die one day. I have only committed this mistake in believing in you, the Americans.*¹¹²

Summary & Conclusion

In an effort to preserve a non-Communist Laos, U.S. and Allied aircraft had dropped nearly three million tons of bombs on “neutral” Laos, three times the tonnage dropped on North Vietnam. During *Barrel Roll*, less than 500,000 tons were dropped in northern Laos or, around, six percent of all the bombs expended by the U.S. and Laotian crews during the war. Between early 1965 and late 1968, Allied aircraft flew nearly 100 *Barrel Roll* sorties a day. This number rose to 300 in 1969 and, then, declined to 200 in 1970. From 1971 to 1973, they fell to 100 per day. For those flying these missions, it was a sad result. Much like air operations in *Steel Tiger* and *Tiger Hound*, the effort and performance proved to be heroic but, in the end futile.¹¹³

During the 100 months that *Barrel Roll* operated, CIA pilots and operatives, U.S. Air Force crews, and Thai volunteers risked everything to help the RLG hold off the Communists who had invaded the Land of a Million ele-

phants. While its main job had been to provide air cover for the Hmong, it also afforded other air crews time to attack the enemy infiltration routes in the *Steel Tiger* region during Operations *Commando Hunt* I-VII interdiction campaigns. This helped maintain the RLG in power.¹¹⁴ Even so, when the cease-fire began in the summer of 1973, “the NVA controlled two-thirds of the land area and one-third of the population of Laos, approximately the same amounts that they had under their control in 1961.” According to one report the total ordnance expenditure for *Barrel Roll* and *Steel Tiger*, from November 1, 1968 to February 28, 1973, including U.S. tacair assets and B-52 sorties but “not Royal Lao Air Force or Vietnamese National Air Force” units, was 316,880 tacair sorties in *Steel Tiger* and 84,416 in *Barrel Roll*. In addition, tacair ordnance was 955,544 tons and B-52 was 743,703 tons.¹¹⁵

In spite of these impressive numbers, the reality, as alluded to earlier, was that the Air Force and CIA ran a shoe-string operation in Laos. In fact, *Barrel Roll*, proved to be fourth on the priority list for U.S. air assets coming in behind air missions in South Vietnam, early on Operation *Rolling Thunder* and, even *Steel Tiger*. Even after *Rolling Thunder* ended in 1968, *Barrel Roll* continued to be last. Once *Linebacker* operations began in 1972, they got even fewer assets. Statistically, they received an average of only 10 percent of the Air Force’s available tacair resources. Another example of this circumstance took place during the NVA’s *Easter* offensive when *Linebacker* reduced the airstrikes over northern Laos to only 5 percent.¹¹⁶

Another key goal of all the air operations in Laos was to protect Thailand and to discourage the NVA from invading Thailand. However, neither *Barrel Roll* nor *Steel Tiger* provided clear cut theory or plan for a strategic victory. All it did was assure a strategic stalemate. This was done with a loss of 131 American aircraft between 1964 and 1973. By comparison to other air operations this was a very low loss rate.¹¹⁷

The relative success of the overall operations remains

difficult to assess. As with most attempts to count kills or damage, many things prevent accuracy. Crews in the *Barrel Roll* operation area often provided inflated bomb damage assessments. This was not necessarily intentional. The mountainous terrain, poor weather, ground cover, the lack of ground forces to provide confirmation, not to mention the communications and language issues between U.S. spotters and Hmong ground troops, all helped lead to inaccurate numbers. Thus, officials developed an exaggerated notion of how effective air crews in *Barrel Roll* were performing. The results of *Barrel Roll*, “which were made obvious by the repeating seasonal nature of PAVN and Pathet Lao offensives,” lead to the conclusion U.S. airpower was very effective.¹¹⁸

Whatever achievements were realized, it was done at a tremendous cost to the Laotian people and nation. When the U.S. departed the Republic of Vietnam, Laos, and Cambodia their fates were sealed. These nations, alone had little, if any, chance to defeat the North Vietnamese invaders, which were abundantly supported by the Soviet Union and the PRC. The fratricidal bloodletting in Laos had been part of the U.S. plan to buy time in order to preserve the independence of the Republic of Vietnam. While the stalemate worked for a time, South Vietnam fell anyway. To quote Col. Lamy’s paper on *Barrel Roll*:

*The cost of this effort was enormous in terms of Hmong lives, aircraft loss, and US aircrew losses. US military advisors and Ravens served finite lengths of time in Laos: six months to one year tours. However, the Hmong fought this war until they died. An entire generation of Hmong men were killed in this conflict. Likewise, the RLAF aircrews flew until the war ended or they died. Several hundred thousand refugees lost their homes and were displaced. Ultimately, the cost to the Laotians was their country and the subsequent Communist retribution taken against the minority people of Laos who fought the North Vietnamese. This punishment continued well into the 1980s.*¹¹⁹ ■

NOTES

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3. Jane Hamilton-Merritt, *Tragic Mountains: The Hmong, the Americans and the Secret Wars for Laos, 1942-1992*, (Bloomington, Ind.: Indiana University Press, 1993), [hereafter *Tragic Mountains*].
4. Project CHECO Report, by Capt. Edward Valentine, 7th AF, DOAC, “USAF Operations from Thailand 1 January 1967 To 1 July 1968,” 1 Dec 68, http://www.chancefac.net/ROE/Laos_1967-68.htm, [hereafter Valentine Report]; Project CHECO Report, by Captain William R. Burditt, “Rules of Engagement, October 1972-August 1973,” (Hickam AFB, HI: HQ Pacific Air Forces (PACAF), 1 March 1977), [hereafter Burditt Report].
5. Valentine Report; Burditt Report; Project CHECO Report, “U.S. Air Force Reconnaissance in Southeast Asia,” file

- K717.0413-65, 25 Oct 66, published 4 Nov 66, [hereafter USAF Recon]. See, “Summary of Air Operations, Southeast Asia,” Vol. 103, (Hickam AFB, HI: HQ PACAF, 1965-1973), [hereafter Air Ops SEA]. Pursuant to the role of the branches of government & military played, see Neil Sheehan, Hedrick Smith, E.W. Kenworthy, & Fox Butterfield, *The Pentagon Papers as published by the New York Times*. (NY: Bantam Books, 1971).
6. B-52 crews affectionately called their “ride” BUFF meaning “Big Ugly Fat Fellow or Fuc_____”
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8. Valentine Report. For more on *Ravens* or FACs, see Burditt Report, pp. 1-14.
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10. Valentine Report.
11. *Ibid.*
12. Air Ops SEA; Burditt Report; Pratt Report; Roger Warner, *Shooting at the Moon: The Story of America’s Clandestine War in*

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13. John T. Correll, "Barrel Roll," *Air Force Magazine*, August 2006, <http://www.airforcemag.com/MagazineArchive/Pages/2006/August%202006/0806roll.aspx>, [hereafter Correll Article].

14. *Ibid.*

15. Arnold R. Issacs, Gordon Hardy and MacAlister Brown, *Pawns of War: Cambodia and Laos*, (Boston: Boston Publishing Company, 1987), p. 69, [hereafter *Pawns of War*]. Other books worth reading include, Alfred W. McCoy and Nina S. Adams, ed., *Laos: War and Revolution*, (NY: Harper & Row, 1970) and Joseph J. Zasloff, *North Vietnam and the Pathet Lao: Partners in the Struggle for Laos*, (Cambridge, MA: Harvard University Press, 1970); John Prados, *Presidents' Secret Wars: CIA and Pentagon Covert Operations from WWII through the Persian Gulf*, (Chicago: Elephant Paperbacks, 1996); [*Presidents' Secret Wars*].

16. *Ibid.*, p. 72.

17. Timothy N. Castle, *At War in the Shadow of Vietnam: U.S. Military Aid to the Royal Lao Government, 1955-1975*, (NY: Columbia Univ. Press, 1993), p. 46, [hereafter *Shadow of Vietnam*].

18. Isaacs, et. al., *Pawns of War*, p. 74.

19. Col. Rod Paschall, *The Making of a Clandestine Army*, (Boston: Boston Publishing Company, 1988), p. 113, [hereafter *Clandestine Army*].

20. USAF Recon; John Schlight, *A War Too Long: The United States Air Force in Southeast Asia, 1961-1975*, (Washington, D.C.: The Center of Air Force History, 1993), p. 19, [hereafter *A War Too Long*]; Project CHECO Report, by Major John C. Pratt, "The Royal Laotian Air Force, 1954-1970," (Hickam AFB, HI: HQ PACAF, 15 Sep 1970), [hereafter RLAf, 1954-1970]. For another important work on the early years of the Vietnam War, also see John Schlight, *The War in South Vietnam: The Years of the Offensive, 1965-1968*, (Washington, D.C.: Air Force History & Museums Program, 1999).

21. USAF Recon; RLAf, 1954-1970; Schlight, *A War Too Long*, pp. 19-20.

22. Perry L. Lamy, *Barrel Roll, 1968 - 73: An Air Campaign in Support of National Policy*, (Maxwell AFB, AL: Air War College, Air University Press, 10 May 1995), pp. 5-21, [hereafter *Barrel Roll*]; USAF Recon; RLAf, 1954-1970. For more on this aspect of the War see, Carl Berger, ed., *The United States Air Force in Southeast Asia, 1961-1973: An Illustrated Account*, (Washington, D.C.: Office of USAF History, 1984).

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24. Warner, *Shooting at the Moon*, pp. 195-196.

25. Castle, *Shadow of Vietnam*, p. 90.

26. Valentine Report; Burditt Report; USAF Recon.

27. Jacob van Staaveren, *Interdiction in Southern Laos, 1961-1968*, (Washington, D.C.: Center for Air Force History, 1993), p. 66, [hereafter *Southern Laos*]; Christopher Robbins, *The Ravens: Pilots of the Secret War of Laos*, (NY: Bantam Books, Inc., 1988), pp. 32-39; revised edition, Robbins, *Ibid.*, (Bangkok: Asia Books, 2000), pp. 33-37, [hereafter *The Ravens*]. Also see Robbins book *Air America*, (NY: Avon Books, 1979), [hereafter *Air America*].

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30. Gen. William H. Momyer, *Airpower in Three Wars*, (Washington, D.C.: Office of USAF Hist., 1978), pp. 86-87.

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32. *Ibid.*, pp. 86-87, 199-200.

33. Robert Pisor, *The End of the Line: The Siege of Khe Sanh*, (NY: W.W. Norton Press, Inc., 1982), p. 15.

34. For more on the Hmong & Vang Pao see, Hamilton-Merritt, *Tragic Mountains*. For the code names, see page 97.

35. Correll Article; Walter J. Boyne, "The Plain of Jars," *Air Force Magazine*, June 1999, p.78.

36. Correll Article; Hamilton-Merritt, *Tragic Mountains*, pp.

113-129.

37. For more on the Lima Sites and *Air America*, see Dr. Joe F. Leeker, "Air America in Laos II – military aid, Part II, *Air America* in Laos: military and paramilitary aid 1968-1973," First published on 29 May 2006, last updated on 24 August 2015, [http://www.utdallas.edu/library/specialcollections/hac/cataam/Leeker/history/Laos2 Part2.pdf](http://www.utdallas.edu/library/specialcollections/hac/cataam/Leeker/history/Laos2%20Part2.pdf).

38. *Ibid.*; Correll Article; Hamilton-Merritt, *Tragic Mountains*, pp. 69-94, 100-112, 120-129.

39. Hamilton-Merritt, *Tragic Mountains*, pp. 69-94, 130-143.

40. *Ibid.*, pp. 144-170; James S. Olson, *The Vietnam War: Handbook of the Literature and Research*, (Westport, CT: Greenwood Press, 1993), pp. 269-273.

41. Haas, *Apollo's Warriors*, p. 216.

42. Hamilton-Merritt, *Tragic Mountains*, pp. 211-224. Air Commandos are, members of Special Operations units that fly SOF aircraft. For more on them, see William P. Head, *Shadow and Stinger: Developing the AC-119G/K Gunships in the Vietnam War*, (College Station, TX: Texas A&M University Press, 2007), [hereafter *Shadow and Stinger*]; William P. Head, *Night Hunters: The AC-130s and Their Role in U.S. Airpower*, (College Station, TX: Texas A&M University Press, 2014), especially pages 1-142, [hereafter *Night Hunters*].

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44. Robbins, *The Ravens*, pp. 70-72; Lamy, *Barrel Roll*, p. 35; Berger, ed, USAF in SEA, p. 130.

45. Robbins, *The Ravens*, pp. 71-72; Lamy, *Barrel Roll*, p. 36; Berger, ed, USAF in SEA, p. 130.

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47. Correll Article; Air Ops SEA; Pratt Report.

48. Correll Article; Air Ops SEA; John T. Correll, "Disunity of Command," *Air Force Magazine*, (Jan. 2005), p. 34.

49. See note 45.

50. Correll Article.

51. Robbins, *The Ravens*, p. 137.

52. Lamy, *Barrel Roll*, p. 26. For items used to support this, see Oral History Interview, Department of the Air Force with Col. Paul Pettigrew, USAF, 5 Mar 70, Maxwell AFB, AL, pp. 9-11; Schlight, *A War Too Long*, p. 187.

53. John Morocco, *Thunder From Above* volume in Robert Manning ed., *The Vietnam Experience*, (Boston: Boston Publishing, Inc., 1984), p. 26, [hereafter *Thunder From Above*].

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55. For details on the Hmong "Secret Army" and Vang Pao, see Hamilton-Merritt, *Tragic Mountains*, pp. 113-120; 136-143, 189-197, 198-210.

56. *Ibid.*, p. 136.

57. Prados, *President's Secret Wars*, p. 273.

58. Castle, *Shadow of Vietnam*, pp. 60-61; Air Ops in SEA.

59. Hamilton-Merritt, *Tragic Mountains*, pp. 190-197; Neil Sheehan, et. al., *Pentagon Papers*, p. 289; Haas, *Apollo's Warriors*, pp. 180-188, 193; John Morocco, *Rain of Fire: Air War, 1969-1973*, volume in Robert Manning ed., *The Vietnam Experience*, (Boston: Boston Publishing, 1986), [hereafter *Rain of Fire*].

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61. Morocco, *Rain of Fire*, p. 30; Air Ops in SEA.

62. Robbins, *The Ravens*, p. 115.
63. Earl H. Tilford, Jr., *Crosswinds: The Air Force's Setup in Vietnam*, (College Station, TX: Texas A&M University Press, 1994), p. 76, [hereafter *Crosswinds*].
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65. Morocco, *Rain of Fire*, p. 29; Castle, *Shadow of Vietnam*, pp. 85-86; Air Ops in SEA.
66. Tilford, *Crosswinds*, pp. 123-124; Air Ops in SEA; Head, *Night Hunters*, p. 57; William Head, "Operation Tiger Hound," in Spencer C. Tucker, ed., *Encyclopedia of the Vietnam War: A Political, Social, and Military History*, Vol. II, (Santa Barbara, CA: ABC-CLIO, Inc., 1998), pp. 690-691.
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71. *Ibid.*, p. 188.
72. *Ibid.*, pp. 190-192; Tilford, *Crosswinds*, pp. 120-121.
73. Conboy, *Shadow War*, p. 189.
74. *Ibid.*, pp. 193-210; Hamilton-Merritt, *Tragic Mountains*, pp. 171-188.
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77. Morocco, *Rain of Fire*, p. 46.
78. Conboy, *Shadow War*, pp. 217, 248.
79. Morocco, *Rain of Fire*, pp. 42-45; Air Support in Laos; Project CHECO, by Kenneth Sams, Lt. Col. John Schlight, and Major John C. Pratt, *Air Operations in Northern Laos, 1 November 1969 – 1 April 1970*, (Hickam AFB, HI: HQ PACAF, 5 May 1970).
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81. Morocco, *Rain of Fire*, p.45; *Victory in Vietnam*, p. 255.
82. Isaacs, et. al., *Pawns of War*, p. 105.
83. William P. Head, USAF Special Study, *Their Tears Fell Like Monsoon rain: Iconic Battles of the Vietnam War*, (Robins AFB, GA: 78 ABW Office of History, 2016), pp. 282-355, [hereafter *Iconic Battles*], pp. 357-382.
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86. Lamy, *Barrel Roll*, pp. 34-36; Conboy, *Shadow War*, p. 265.
87. Lamy, *Barrel Roll*, pp. 33-34; Conboy, *Shadow War*, pp. 299-300.
88. Lamy, *Barrel Roll*, p. 33; Conboy, *Shadow War*, p. 299.
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92. Isaacs, *Pawns of War*, p. 104; Head, They Called Defeat "Victory."
93. Schlight, *A War too Long*, p. 207.
94. Conboy, *Shadow War*, p. 249. For more on attrition, see Hamilton-Merritt, *Tragic Mountains*, pp. 263-276.
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97. *Ibid.*
98. Conboy, *Shadow War*, p. 405.
99. Isaacs, et. al. *Pawns of War*, p. 105; Hamilton-Merritt, *Tragic Mountains*, pp. 239-247.
100. *Victory in Vietnam*, p. 302.
101. *Ibid.*
102. Head, *Iconic Battles*, pp. 282-355; Head, *War from above the Clouds*, pp. 392-418.
103. Lamy, *Barrel Roll*, p. 33.
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105. Robbins, *The Ravens*, p. 365.
106. *Ibid.*
107. *Ibid.* See also, Hamilton-Merritt, *Tragic Mountains*, pp. 225-229, 240-245.
108. Hamilton-Merritt, *Tragic Mountains*, pp. 225-229; Air Ops in SEA; Lamy, *Barrel Roll*, pp. 33-38. For details see, Morocco, *Rain of Fire*, pp. 29-30; Tilford, *Crosswinds*, pp. 75-77. For more on the air war after *Rolling Thunder*, see *Iconic Battles*, pp. 282-355.
109. Earl H. Tilford, Jr., *Setup: What the Air Force Did in Vietnam and Why*, (Maxwell AFB, AL: Air University Press, 1991), p. 272.
110. Isaacs, et. al. *Pawns of War*, p. 133.
111. *Ibid.*; Hamilton-Merritt, *Tragic Mountains*, pp. 293-322.
112. Col. Harry G. Summers, Jr., *Vietnam Magazine*, April 1995, accessed from <http://www.historynet.com/americas-bitter-end-in-vietnam.htm>. 28 March 2013.
113. Air Ops in SEA; Head, *War From Above the Clouds*, p. 95; Tilford, *Crosswinds*, pp. 178-180; Head and Grinter, *Looking Back*, p. 119.
114. For more on Operations *Commando Hunt* I-VII, see Tilford, "Bombing Our Way Back Home," pp. 123-144.
115. Lamy, *Barrel Roll*, p. 37. Original source, Department of the Air Force, "Summary of Air Operations," February, 1973, 1-1. For more on this topic see Air Ops SEA.
116. Lamy, *Barrel Roll*, p. 40.
117. *Ibid.*, pp. 40-48; For detailed numbers for U.S. aircraft losses in the Second Indochina War, see Chris Hobson, *Vietnam Air Losses: United States Air Force, Navy, and Marine Corps Fixed-Wing Aircraft Losses in Southeast Asia, 1961-1973*, (Hinckley, UK: Midland Publishing, 2001).
118. Lamy, *Barrel Roll*, p. 42.
119. *Ibid.*, p. 48. For more on the Hmong's suffering, see Hamilton-Merritt, *Tragic Mountains*.

Building Air Force Intellectual Capacity: An Innovative Look at Creating Air University and the Air Force Academy, 1918-1955

John T. Farquhar

The Rocky Mountains tower over the U.S. Air Force Academy.

How does a military organization inspire learning? How does an Air Force build a professional educational system and generate intellectual capital? How does a military academy inculcate traditional virtues of duty, honor, country and not stifle creativity, innovation, and thinking? These related, but different, questions shape thinking about the creation of the United States Air Force professional officer schools, specifically the Air University and the US Air Force Academy. A premise forms the core of this article: thinking about military education, or creating Air Force intellectual capacity, parallels studies of military innovation, or military technical revolution. Examining the context, theory, and application of military educational developments provides insights into US Air Force organizational culture, politics, and leadership. These same insights mark the United States Air Force as a whole during its formative years (1918-1955), a period of rapid institutional, doctrinal, and technological change. To focus, this study proposes a tentative thesis: in establishing an Air University, Air Force leaders sought evolutionary, sustaining institutional change but may have achieved more; while in creating an Air Force Academy, air leaders sought a revolutionary, disruptive change to military education, but may have achieved less. Regardless of the validity of this admittedly shaky hypothesis, the US Air Force succeeded in creating educational systems that advanced the institution's educational capacity.¹

Viewing US Air Force educational efforts through the lens of military and technological innovation provides useful insights. Throughout its existence, the US Air Force considered technology vital to its core mission, identity, and service culture. Hence, analyzing the creation of Air University and the US Air Force Academy with this in mind offers perspective and perception. In *Winning the Next War: Innovation and the Modern Military*, Stephen Peter Rosen warns that bureaucracies are not only hard to change, but are designed not to change. While military mavericks, those who "buck the chain of command," intuitively appeal to our society, their efforts rarely succeed and indeed may detract from progress. Rosen also posits that innovation requires ideological struggle, winning the battle of ideas is essential to changed thinking. Finally, he suggests that change occurs through those in power. Military technological and educational innovation must win backing by senior officers, ideally with a strategy for intellectual and organizational improvement.²

In "Technology and History: Kranzberg's Laws," Melvin Kranzberg offers additional insights of technological innovation as a human activity. Thus, technological determinism, the belief that technology is "the prime factor shaping our lifestyles, values, institutions, and other elements of our society" must be viewed as a human activity with all the foibles and irrationality associated.³ The author articulates "Kranzberg's Laws" that with some adaptation inform understanding of military education. For example, he states that since entire systems interact, a system cannot be studied in isolation; one must look at the interaction of these systems with the entire social, political, economic, and cultural environment. Fur-



President Eisenhower signs the Air Force Academy authorization.

thermore, Kranzberg suggests that although technology, might be a prime element in public issues, non-technical factors take precedence in technology-policy decisions.⁴ For this article, substitute “education” for “technology.”

Although there are many other authors and ideas in the field, innovation analyst Terry Pierce characterizes innovations as “disruptive” (major or revolutionary) or “sustaining” (incremental or evolutionary). He proposes that disruptive change requires a “product champion,” a senior leader who forms and backs small innovation groups, and then steers architectural change by transforming both organization and doctrine. Because organizations inherently resist disruptive change, product champions succeed by disguising disruptive (major) transformation as sustaining (incremental).⁵ In sum, the technological innovation thoughts of Rosen, Kranzberg, and Pierce inform understanding of the military educational innovations represented by the creation of Air University and the Air Force Academy that span the 1918-1955 time frame.

Armistice Day, November 11, 1918, ended American fighting in World War I, but initiated military and political efforts to establish professional military education for the US Army Aviation Service. On November 26, 1918, slightly more than two weeks from the war’s last shots, West Point graduate and pilot Lieutenant Colonel A. J. Hanlon pro-

Dr. John T. Farquhar graduated from the Air Force Academy and flew as a navigator in the RC-135 reconnaissance aircraft with the Strategic Air Command and Air Combat Command. With a Master’s Degree in U.S. Diplomatic History from Creighton University and a Ph.D. in American Military History from Ohio State, Dr. Farquhar has taught courses in military history, air power, strategy, and military innovation at the United States Air Force Academy where he serves as an associate professor of Military and Strategic Studies. He has published articles in Air Power History and Air & Space Power Journal.

posed creating a U.S. Aeronautical Academy “to inculcate into [Air Service] officers love of country, proper conception of duty, and the highest regard for honor.”⁶ Reflecting his personal experience, Hanlon explained the “dissatisfaction” of Air Service personnel for their treatment by regular Army officers and that West Point graduates “were anything but popular.” In December 1918, Robert E. Vinson, President of the University of Texas, offered Camp Mabry in Austin as a site for an Air Service Academy to serve as the West Point of the air arm. A month later, Lieutenant Colonel Barton K. Yount proposed an Air Service Academy to the Director of Military Aeronautics with three primary objectives:⁷

To instill discipline, *esprit de corps*, and high ideals of honor . . .

To thoroughly train [officers] . . . in drill regulations and other military subjects . . .

To thoroughly instruct them . . . [in] the subject of aviation . . . and to begin their flying training [ground school].

By the end of 1919, two more military proposals and a resolution from the Texas state senate backing an air service academy in San Antonio surfaced.⁸

The flurry of air service professional educational ideas revealed a split in thinking. Hanlon, Yount, the Texas Senate, and others backed a “West Point for the air,” while Lieutenant Colonel William C. Sherman, Chief of Air Service Training, working for Brigadier General William “Billy” Mitchell argued for a more technical air academy that would instruct in administration, ground and air tactics, combined arms, and technical training. In short, plans for practical, flying-oriented training battled a focus on discipline (a recurrent theme from West Pointers aghast at the slack, informal Air Service), honor, and duty. The struggle over purpose proved moot as American doughboys shed their uniforms as rapidly as possible. Peace, a return to “normalcy,” and budget tightening trumped plans for post-war universal military service and professional military education. By the end of 1919, plans for an Air Service Academy were dead and conscientious airmen shifted effort to adding aviation subjects into the West Point curriculum.⁹

The flurry of air service professional educational ideas revealed a split in thinking

Billy Mitchell’s sensational efforts to achieve an independent air force returned attention to the creation of an air academy. First manifested in the 1921 *Ostfriesland* bombing trials where Mitchell’s airmen “sank a battleship” and then escalating in his attack on the Departments of War and the Navy for “gross negligence” in the 1925 USS *Shenandoah* dirigible crash, Mitchell seized newspaper headlines and sparked Congressional debate over airpower. In his testimony before Congress and again at his court-martial trial, Mitchell backed an air academy as the “backbone” of a pro-

fessional air force, but the message remained muted compared to his more headline grabbing statements.¹⁰ Nevertheless, on April 3, 1922, the US Senate passed a resolution directing the Secretaries of War and Navy:¹¹

To report to Congress (1) whether or not it is feasible and advisable to establish a school of aeronautics to be known as the United States Academy for Aeronautics . . . (2) whether or not it is practicable to use a part of the buildings and grounds of the United States Military Academy and of the United States Naval Academy for separate schools in aeronautics.

In response, Major General Mason M. Patrick, Chief of the Air Service, backed the establishment of a separate academy for aeronautics as “highly desirable” and opposed using existing facilities at West Point or Annapolis. Unfortunately, Billy Mitchell’s notoriety, Congressional testimony, and court-martial proceedings distracted from the “essential” air academy. By the end of 1925, he failed to secure either an independent air force or an air academy. Furthermore, Mitchell’s beleaguered boss, Maj Gen Patrick changed his stance; Patrick now believed that “with certain changes,” expanded courses at West Point would be “sufficient” for the Air Service.¹²

The Air Corps Tactical School played a vital role in shaping operational doctrine

The rejection of Mitchell did not end progress in air service professional education. Although relatively unheralded, the Air Service created an Air Service Tactical School (ACTS) at Langley Field, Virginia in 1923. In addition, by 1925, General Patrick authorized permanent primary flying training at Brooks Field, advanced flying training at Kelly Field (both located at San Antonio), balloon training at Scott Field, Illinois, technical schools at Chanute Field, Illinois, and an engineering school at McCook Field, near Dayton, Ohio. Although lacking an air academy, professional military training through specialized air service schools advanced significantly.¹³

The Air Corps Tactical School played a vital role in shaping operational doctrine and the conceptual thinking of key American air leaders during World War II. Although classes numbered less than sixty officers, former ACTS students and staff dominated the ranks of senior Army Air Force commanders. Claire Chennault, George Kenney, Hoyt Vandenberg, Harold George, Heywood “Possum” Hansell, and others played significant wartime roles and proved ACTS worth as a doctrinal cradle for the Army Air Forces.¹⁴ When General Arnold directed the Air Staff to begin planning for a postwar Air Force in 1944, two ideas emerged: World War II demonstrated the need for an independent Air Force to further air power potential and the vital need for an ACTS-like institution to serve as an idea factory and doctrinal hub.¹⁵ By January 29, 1946, Generals Eisenhower and Carl A. Spaatz, the new Army Air Forces

Chief of Staff, agreed upon a new functional organization for the AAF. Air Force combat commands included the Strategic Air Command, Air Defense Command, and Tactical Air Command and support commands featured Air Training Command, Air Transport Command, and Air University among others. The new organizational scheme would become effective on February 15, 1946.¹⁶

Postwar planners envisioned Air University (AU) as a revised and expanded Air Corps Tactical School. Whereas ACTS was a single school, Air University would comprise an integrated school system including a co-located Air War College, Air Command and Staff College, and other schools as required (eventually adding Squadron Officer School). Air planners addressed pre-war Air Corps educational problems and sought to integrate junior and senior officers in separate, but supporting programs. Additionally, at the insistence of General Spaatz, non-rated officers would compete with rated flying officers in all schools. On March 12, 1946, General Spaatz named Major General Muir S. Fairchild as Commander of Air University located at Maxwell Field, Alabama with an initial authorized strength of 3,867 officers and men. The initial Air University mission paralleled ACTS and “planned to equip officers with the knowledge and skills necessary for assuming progressively more important assignments in command and staff positions through the Air Force.”¹⁷

After its 1946 creation, Air University faced a battle for scope and range of activities. The initial Air Staff directive outlined an ambitious array of AU tasks:

- To develop basic doctrines and concepts for the employment of air power;

- To review, revise, and prepare basic AAF doctrines for publication;

- To maintain continuing research into strategic, tactical, and defensive concepts of air power;

- To review and evaluate new tactics, techniques, and organization and to make recommendations regarding them;

- To collect, analyze, and disseminate information on new methods and techniques for aerial warfare;

- To plan and supervise the development and testing of new and improved methods and techniques of aerial warfare;

- To approve, activate, and designate test agencies and monitor all projects involving tactical unit testing.¹⁸

Major General Elwood R. Quesada, commander of the new Tactical Air Command, vigorously protested the broad scale of activities that would require tactical flying groups to accomplish. General Spaatz quickly agreed and informed General Fairchild that Air University would not receive tactical aircraft nor conduct equipment evaluations, testing, and demonstrations. Attempting to calm organizational waters, Major General David M. Schlatter, Air University deputy commander, announced Air University’s focus on research, evaluation, and doctrinal functions and serve as a “monitoring agency or steering committee” utilizing expertise from all Air Force commands.¹⁹

As legislation establishing an independent United States Air Force advanced, Air University embraced its ACTS doctrinal legacy. Aware that formal doctrine lagged rapid wartime technological advances, including radar and atomic weapons, Air University faculty, students, and research staff sought to capture wartime lessons and rewrite air doctrine. General Fairchild created a sixteen-man Research Section to stimulate thinking and discussion. Individual student and faculty papers, plus seminar and class projects, tackled current problems often identified by the Air Staff. For example, in 1948, Brigadier General Thomas S. Power, deputy assistant chief of air staff for operations, called for AU to revise FM 100-20, *Command and Employment of Air Power*, the seminal wartime document considered airpower's "declaration of independence." This top-priority task continued through the early 1950s and resulted in Air Force Manual (AFM) 1-2, *United States Air Force Basic Doctrine*, effective April 1, 1953.²⁰

Air University faculty, ... and research staff sought to capture wartime lessons and rewrite air doctrine

The establishment of Air University as a research institution focused on contemporary Air Force problems shifted attention to the creation of an Air Force Academy. Like the earlier post-World War I efforts, planning for an air academy featured both military and civilian political components. Institutionally, Air University played the central role in military staff efforts while "the great state of Texas" again sought center stage in Congressional legislation. Like the earlier generation, post-World War II planners faced challenges of massive demobilization, fiscal constraints, and convincing a war-weary public. Yet, considerations of an air academy differed in context from the period following the Great War with the dramatic, powerful impact of air power in World War II and an emerging Cold War dominated by the horrific prospect of atomic weapons.

Lieutenant General Muir S. Fairchild's 1947-48 study of an Air Force Academy proved innovative and impactful. Like earlier efforts, Air University personnel considered the suitability of expanding facilities at Annapolis and West Point, but this consideration was half-hearted at best, citing expense and wartime difficulties with flying training. Largely unspoken, airmen steadfastly believed air power earned its place in wartime performance and deserved a prestigious service academy.²¹ General Fairchild charged his research teams to consider two different plans: a "conventional" plan based on a four-year undergraduate service academy and a five-year "composite" plan where subsidized officer candidates would first attend a civilian university for two years and then three years at an air academy. He also asked whether to include pilot training in the cadet program. Seeking to avoid unimaginative, "military" minds, Fairchild sought the best aspects of civilian college education with a service academy's foundation of "duty, honor, country." In August 1948, now Air Force Vice Chief of Staff, General Fairchild convened a conference of senior



Lt. Gen. Muir S. Fairchild.

officers and distinguished civilian educators, later known as the Fairchild Board. After deliberations, General Fairchild's "composite" plan won an 8-5 vote with two abstentions.²² Nevertheless, in a hierarchical organization, innovation must first pass muster with the boss.

In a September 1, 1948, letter to the Commanding General of Air University, new Air Force Chief of Staff Hoyt S. Vandenberg accepted the Fairchild Board's exclusion of pilot training from a new academy's curriculum, but rejected the "composite" plan in favor of a conventional West Point-based approach.²³ Vandenberg then directed a full-time Air Force Academy Planning Board to devise a tentative plan of action, time table, and estimate of funds "at the earliest possible date" and he authorized Air University to take whatever measures were necessary, including recalling to active duty retired and reserve personnel.²⁴

Seeking to bring fame, jobs, and attention to home Congressional districts, a number of legislative proposals advanced concurrently with military staff efforts. The two most prominent, House Resolution 4547 and Senate 1868, proposed "to establish the United States Air Academy at Randolph Field, Texas."²⁵ Air leaders faced a delicate balancing act in determining the Air Force's ideal location for an academy without offending key legislative supporters. Fortunately, significant public support bolstered the drive for an Academy in contrast to the post-World War I years. Editorials supporting an Air Force Academy appeared in the *Baltimore Post*, *San Antonio Light*, *Washington Post*, *Newsweek*, *New York Times Magazine*, and others. In September 1949, George Gallup conducted a poll with the

question: "Do you think Congress should or should not vote money for a separate Air Force Academy?" The results indicated impressive support: fifty-seven percent favored, twenty-five percent opposed, and eighteen percent held no opinion.²⁶ The public attention prompted Secretary of Defense James V. Forrestal to appoint a Service Academy Board to study the issue on March 14, 1949.²⁷

The recommendation of the Service Academy Board proved a pivotal moment in the quest for an Air Force Academy, although it was not a foregone conclusion. A blue-ribbon commission of top military and academic talent, the Service Academy Board featured Robert L. Sterns, President of the University of Colorado (Chairman); retired General Dwight D. Eisenhower, President of Columbia University (Vice Chairman), James P. Baxter, President of Williams College; Frederick A. Middlebush, President of the University of Missouri; George D. Stoddard, President of the University of Illinois; Edward L. Moreland, Executive Vice President of the Massachusetts Institute of Technology; Major General Bryant E. Moore, Superintendent of the U.S. Military Academy; Rear Admiral James L. Holloway, Superintendent of the U.S. Naval Academy; and Major General David M. Schlatter, Deputy Commander of Air University.²⁸ After initial deliberations, most members supported the existing service academy concept and creating an Air Force Academy with one major, and surprising, exception: former West Pointer and acclaimed General of the Army Dwight D. Eisenhower. Ike strongly believed there should not be separate service academies. A strong advocate of effective joint operations and military service unification, Eisenhower wrote to Secretary of Defense Forrestal:²⁹

With regard to the Air Academy, I still believe that most individuals are approaching this matter from technical and service viewpoints rather than from an overall possibility for good. I realize, however, that you may be forced into the creation of a new and separate academy. This, as you know, I regard the least desirable of all. I would prefer that the two existing academies be enlarged as much as possible (even double West Point) and call the whole thing the United Service Academy. One would be the Annapolis Branch and one the West Point Branch. If we have to build a third, the same principle should apply.

Eisenhower viewed a new AFA as an obstacle to the inter-service teamwork needed for modern war. For differing reasons, Eisenhower's opposition also aligned him with President Truman's opinion on the issue.³⁰

The deliberate, thoughtful study and debate within the Stearns-Eisenhower Board prompted Eisenhower to change his mind. Priding himself as a dispassionate, rational decision maker, Eisenhower weighed the evidence presented and overturned his objections. On December 21, 1949, the committee's report strongly endorsed retaining the service academy system and backed the proposed Air Force Academy. As later events would prove, Eisenhower's conversion to Air Force Academy support represented the watershed moment in the Air Force Academy story.³¹

As the Stearns-Eisenhower Board wrestled with the service academies at a conceptual level, the Air Force Academy Planning Board, based at Air University, honed the practical details. Driven by a dedicated planning staff led by project officer Lieutenant Colonel Arthur E. Boudreau, the AFA Planning Board orchestrated sixteen military officers and thirty-nine distinguished civilians as consultants and subject matter experts. The luminaries included General George C. Kenney, Commander of Air University, General Muir S. Fairchild, Air Force Vice Chief of Staff, Lieutenant General John K. Cannon, and a voice from the 1919 efforts, retired Lieutenant General Barton K. Yount.³² Focused at the organizational level, the Planning Board settled upon a three-fold Academy mission.³³

To provide an assured and constant source of approximately fifty per cent of the annual regular officer replacement requirements for the Air Force.

To provide these officer replacements with the requisite educational background essential to career service in the air force, and

To provide an adequate officer corps which may be augmented in times of war and national emergency.

Most members supported the existing service academy concept and creating an Air Force Academy

The board produced three volumes that accomplished its charter. Volume I outlined the overall plan and provided the rationale for an Air Force Academy citing the rise of air power, the "frightening possibilities" of future [atomic] war, and an immediate educational need since the US Air Force faced a shocking decline in the number of college-educated officers each year.³⁴ Volume II presented a complete prospective curriculum in 433 pages of exquisite, or perhaps excruciating, detail with course descriptions and individual class objectives, plans, and readings for the entire four-year curriculum. Volume III set forth organizational and support details. In the report's opening preface, the Planning Board announced its visionary justification for the new academy:³⁵

Recent history's most significant chapter is that of the rise of military Air Power. It is a story of Air Power's ascension to rank with the other great forces of land and sea. Yet, Air Power stands not at the end of a long and tortuous path but at the beginning. Its future lies in the progress of mankind. Its force—for good and evil—for the progress or retrogression—must be directed and controlled by the mind of man, and in significant measure by the officers and men who are the United States Air Force.

To bring the Service Academy Board and Air Force Academy Planning Board ideas to fruition, General Hoyt S. Vandenberg named Lieutenant General Hubert R. Harmon as the Special Assistant for Air Force Academy Matters to the Air Force Chief of Staff. Respected as the Army



Lt. Gen. Hubert R. Harmon signs the U.S. Air Force Academy Authorization.

Air Forces Chief of Personnel in the latter stages of World War II responsible for the massive demobilization efforts, Harmon earned a reputation as a superb administrator. Moreover, a fellow Class of 1915 West Point graduate and football teammate of Eisenhower, Harmon was a man who invoked trust. He provided the glue to bring disparate plans and ideas together. His focus on the mission, drive to accomplish tasks, and people skills enabled him to overcome bureaucratic inertia.³⁶ By late 1949, all the elements for opening an Air Force Academy seemed to be in place, yet Public Law 325, The Air Force Academy Act, was signed on April 1, 1954 and an interim Air Force Academy was dedicated on July 11, 1955.³⁷

Why did it take five years from authorization to opening the Air Force Academy? Why so long? Four major reasons emerge: first, the June 1950 North Korean invasion diverted attention to larger matters of life and death and potential escalation to atomic war. Second, President Harry S. Truman opposed the new Academy for fiscal and personal reasons. A National Guard artillery officer during the First World War (with more actual combat experience than many senior World War II commanders), Truman resented regular officer condescension. Third, the other services gave lukewarm support for the new academy in public, and in private worked against the AFA not wishing to see traditional West Point-Annapolis influence diluted. Fourth, the realities of local and party politics added issues, procedures, and time. Also, the sheer number of bills introduced in the House and Senate between 1947 and 1954 overwhelmed legislative capacity. The official Air Force Acad-

emy History describes fourteen separate bills with varying degrees of overlap. Since many of the bills tied the new academy to a specific location within a Congressional district, the Air Force legislative liaison team sought to decouple approval for an academy from the decision of where to locate it. The ensuing delay frustrated Lieutenant General Harmon and demonstrated woes of political bureaucracy.³⁸ Furthermore, the Korean War and other domestic issues threatened the ruling Democratic Party's standing. With the next election in doubt, politicians were reluctant to take action. Even when Eisenhower won the 1952 presidential election, the new administration and Republican Congressional leadership needed time to organize their agenda. Fortunately, Ike's legendary temper and life-long friendship with Harmon propelled AFA efforts.³⁹

Given Stephen Rosen's observation that bureaucracies are designed not to change, perhaps the better question to consider is why the post-World War II attempt to establish an Air Force Academy succeeded when the initial post-World War I efforts failed? Returning to the military innovation ideas of Rosen, Kranzberg, and Pierce, themes of organizational power, ideological struggle, social interaction, political context, and leadership through product champions emerge. Drawing upon Stephen Rosen's theories, Billy Mitchell's failed gambit as a military maverick to produce an independent air force not only prompted retrenchment from those in power, but derailed plans for an air service academy. More important, air power lost the ideological struggle. Although air power proved important in the Great War, ground power proved vital and decisive. Moreover, public war-weariness and fiscal belt tightening overwhelmed concerns of far off, future war.

By late 1949, all the elements for opening an Air Force Academy seemed to be in place

The evolution and struggle of Air Force professional education demonstrated Melvin Kranzberg's observations on the importance of the human element in technological, or in this case, educational, change. In one dimension, Billy Mitchell's fiery combativeness contrasts with Hubert Harmon's patient collegiality. In another, Harmon's genuine lifelong friendship with Eisenhower and other senior generals wins trust, while Mitchell's diva antics enrage powerful potential allies. In the four-decade saga of establishing an air academy, Kranzberg's law stressing the interaction of entire systems proves apt. For air planners, the solving of one problem whether legislative, academic, organizational, fiscal, political, personnel, or other only leads to another. Kranzberg's claim of non-technical concerns overriding technical issues is demonstrated when comparing the various air academy boards (Fairchild, Stearns-Eisenhower, Air Force Academy Planning) versus the tale of legislative wheeling and dealing. Irrational political factors whether political jealousies, Congressional egos, local politics, or resentment against service academies overwhelm and delay rational deliberations.

Admittedly Terry Pierce's ideas concerning sustaining versus disruptive innovation shape this paper's initial hypothesis. Intended as an evolutionary, sustaining innovation in the form of an improved Air Corps Tactical School, the initial version of Air University results in a revolutionary change: an institution devoted to life-long, professional learning with academic freedom for faculty and students to explore issues without censure.⁴⁰ Dedicated to research, seminar-based forums for discussion and thought, AU represents a military organization that changes service culture. Without Distinguished Graduate status from Air Command and Staff or Air War College, advanced academic degree, or other demonstrated academic learning, today's officers cannot advance to senior ranks. In contrast, one cannot imagine World War II's relatively uneducated heroic leaders advancing to field grade, let alone flag rank, in today's Air Force.

Why did it take five years from authorization to opening the Air Force Academy?

The second part of this article's thesis is flawed. Inspired by the Fairchild Board's "composite plan," the premise suggests that air leaders wanted an institution significantly different than West Point and failed to achieve it. Closer analysis reveals that the primary planners indeed wanted a "West Point of the Air." Harmon, Eisenhower, Vandenberg, and others actually achieved what they sought. The Air Force Academy did not represent a disruptive innovative change in this sense: the hypothesis creates a false premise. Nevertheless, to those who fought the legislative and bureaucratic battles to create USAFA, the new high-tech campus at a spectacular location with a qualified military faculty and accredited curriculum represents a triumph of innovation. Whether the innovation was a disruptive or sustaining is a moot point.

Terry Pierce's emphasis on a product champion forms the overriding lesson of this study. As noted by Phillip Meilinger, the official AFA history, and others, Lieutenant General Hubert R. Harmon deserves the accolades as "Father of the Air Force Academy"; he sustains the vision, masters the details and guides the team. On the other hand, Dwight D. Eisenhower emerges as an even more important product champion whether as General of the Army, Columbia University President, or President of the United States. Carl Reddel's article, "Ike Changes His Mind" gets it right. Eisenhower's conversion from opposition to support of an Air Force Academy proves pivotal. Before Eisenhower's assumption of the presidency, air academy bills languished in legislative muck and Truman's opposition encourages other nay sayers, especially the traditional service academies. After becoming president, Ike's legendary temper breaks legislative logjams and rapid progress ensues; he signs Public Law 325 in fourteen months and attends the AFA dedication a year later. In contrast, the post-World War I efforts lack a Harmon or Eisenhower. In some ways Truman represents the power of a negative product champion.

Innovation theories provide sound insights on the US Air Force attempt to create intellectual capacity. Nevertheless, the most profound difference between the two post-war periods and the key to successful professional military education advances remains contextual. Not only Air Force leaders, but senior Army and Navy commanders and the public in general understood the rise of air power in World War II and the threat of atomic war. Although the outbreak of the Korean War delayed plans for an Air Force Academy, it also justified its existence. When learning of the impasse blocking the creation of the AFA, Eisenhower exclaimed that further delay was unacceptable, failure to build the academy "is to risk our national existence in any future war."⁴¹ Both Air University and the Air Force Academy exist because of the Cold War. Although largely unappreciated by many people today, Cold War realities formed Air Force organizational and service culture to include military education. ■

NOTES

1. The author wishes to thank Dr. Mary E. Ruwell and Lt Col Doug Kennedy, USAF, Ret. for ideas and able assistance negotiating the Special Collections Branch, Brigadier General Robert F. McDermott Cadet Library, US Air Force Academy (USAFA) and Dr. Charles D. Dusch, Command Historian, USAFA for providing his detailed lessons notes that guided my research. Detailed, insightful histories of Air University and the US Air Force Academy abound. Robert T. Finney's *History of the Air Corps Tactical School 1920-1940*, Thomas Greer's *The Development of Air Doctrine in the Army Air Arm 1917-1941*, and Peter R. Faber's "Interwar US Army Aviation and the Air Corps Tactical School: Incubators of American Airpower" in *The Paths of Heaven: The Evolution of Airpower Theory*, edited by Phillip S. Meilinger, provide the foundation for the predecessor to Air University. Likewise Phillip S. Meilinger's *Hubert R. Harmon: Airman, Officer, Father of the Air Force Academy* sets gold standard for the many works about the Air Force Academy. Equally valuable, Paul T. Rin-

genbach's *Battling Tradition: Robert F. McDermott and Shaping the U.S. Air Force Academy*, M. Hamlin Cannon and Henry S. Fellerman's *Quest for an Air Force Academy*, and *High Flight: History of the U.S. Air Force Academy*, edited by Edward A. Kaplan, provide high-quality works for both scholars and general readers. Although less accessible, the official histories of Air University and US Air Force Academy greatly exceed expectations for organizational unit histories. Also, the author acknowledges Dr. Steven A. Pomeroy's valuable tutelage in the field of military-technological innovation.

2. Stephen Peter Rosen, *Winning the Next War: Innovation and the Modern Military* (Ithaca, NY: Cornell University Press, 1991), 2, 11-12, 20-21.

3. Melvin Kranzberg, "Technology and History: Kranzberg's Laws," in *Technology and American History: A Historical Anthology from Technology to Culture*, ed. Terry S. Reynolds and Stephen H. Cutcliffe (Chicago: University of Chicago Press, 1997), 6.

4. I find Kranzberg's Laws quite useful as a thinking and teaching tool. Kranzberg's:
 First Law reads as follows: Technology is neither good nor bad; nor is it neutral.
 Second Law can be simply stated: Invention is the mother of necessity. Every technical innovations seems to require additional technical advances in order to make it fully effective.
 Third Law: Technology comes in packages, big and small.
 Fourth Law . . . Although technology might be a prime element in many public issues, nontechnical factors take precedence in technology-policy decisions.
 Fifth Law: All history is relevant, but the history of technology is the most relevant.
 Sixth Law: Technology is a very human activity—and so is the history of technology. *Ibid.*, pp. 5-20.

5. Terry C. Pierce, *Warfighting and Disruptive Technologies: Disguising Innovation* (New York: Cass, 2004), 21,31, 34.

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10. For an account of Mitchell's air power publicity campaign and court martial, see Alfred F. Hurley, *Billy Mitchell: Crusader for Air Power* (Bloomington: Indiana University Press, 1975), 90-109.

11. Cannon and Fellerman, *Quest*, 19.

12. Cannon and Fellerman, *Quest*, 21, 23-24.

13. Cannon and Fellerman, *Quest*, 23 and Wesley Frank Craven and James Lea Cate, eds., *The Army Air Forces in World War II*, vol. 6: *Men and Planes* (Washington: Office of Air Force History, 1983), 123.

14. See Appendix 2 of Robert T. Finney, *History of the Air Corps Tactical School 1920-1940* (Washington: Air Force History and Museums Program, 1998) for a list of ACTS faculty and students. For an in-depth look at ACTS influence on Air Corps doctrine see Peter R. Faber's "Interwar US Army Aviation and the Air Corps Tactical School: Incubators of American Airpower" in *The Paths of Heaven: The Evolution of Airpower Theory*, ed. Phillip S. Meilinger (Maxwell Air Force Base, AL: Air University Press, 1997), 183-238.

15. Vance O. Mitchell, *Air Force Officers: Personnel Policy Development, 1944-1974* (Washington: Air Force History and Museums Program, 1996), 9-11; Herman S. Wolk, *Planning and Organizing the Postwar Air Force 1943-1947* (Washington: Office of Air Force History, 1984), ; Herman S. Wolk, "The Quest for Independence," in *Winged Shield, Winged Sword: A History of the United States Air Force*, Vol. 1: 1907-1950, ed. Bernard C. Nalty (Washington, Air Force History and Museums Program, 1997), 372-375.

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20. *Ibid.*, 5, 211, 366-367.

21. Official History, 19-20; Mitchell, *Air Force Officers*, 130-131.

22. Official History, 19-20; Mitchell, *Air Force Officers*, 130-131; Phillip S. Meilinger, *Hubert R. Harmon: Airman, Officer, Father of the Air Force Academy* (Golden, CO: Fulcrum Group, 2009), 178.

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24. *AFA Planning Board*, ix; Official History, 21.

25. For an in-depth study of the multiple Congressional bills to establish an AFA see Official History, 25-91 and Cannon and Fellerman, *Quest*, Chapter 6, "Congress and the Air Force Academy," 128-180; *AFA Planning Board*, vii; Meilinger, *Hubert R. Harmon*, 176.

26. Official History, 14.

27. Paul T. Ringenbach, *Battling Tradition: Robert F. McDermott and Shaping the U.S. Air Force Academy* (Chicago: Imprint Publications, 2006), 33-35; Official History, 15-16; Meilinger, *Hubert R. Harmon*, 183-184; Carl W. Reddel, "Ike Changes His Mind: Creation of the United States Air Force Academy," in *High Flight: History of the U.S. Air Force Academy*, ed. Edward A. Kaplan (Chicago: Imprint Publications, 2011), 27.

28. Official History, 15-16; Malham M. Wakin, "The Evolution of the Core Curriculum at the U.S. Air Force Academy," in *Forging the Sword: Selecting, Educating, and Training Cadets in the Modern World*, ed. Elliot V. Converse, III (Chicago: Imprint Publications, 1998), 218.

29. Reddel, "Ike Changes His Mind," 26.

30. *Ibid.*, 25-26.

31. Official History, 15; Reddel, "Ike Changes His Mind," 28; Meilinger, *Hubert R. Harmon*, 183-184.

32. *AFA Planning Board*, xii-xiii; Ringenbach, *Battling Tradition*, 30-31.

33. *AFA Planning Board*, 7.

34. *AFA Planning Board*, 3-4.

35. *AFA Planning Board*, ix.

36. In researching this paper, I faced the choice of focusing upon Harmon's role in the creation of the Air Force Academy, but my mentor and friend, Phil Meilinger had literally "written the book" on that subject. For a comprehensive account of Harmon's role, see Meilinger's chapter "The Man and the Idea" in *Hubert R. Harmon: Airman, Officer, Father of the Air Force Academy*, 167-189 and his shorter "Hubert R. Harmon and the Air Force Academy: The Man and the Issues," in *High Flight: History of the U.S. Air Force Academy*, Edward A. Kaplan, ed. (Chicago: Imprint Publications, 2011), 77-106. Other views of Harmon include Official History, 1; Wakin, "Evolution of the Core Curriculum," 219; and Ringenbach, *Battling Tradition*, 36-41.

37. Cannon and Fellerman, *Quest*, 275.

38. Official History, xiii-xiv.

39. The reasons paraphrase Meilinger, "Hubert R. Harmon and the Air Force Academy," 88-89.

40. Futrell, *Ideas, Concepts, Doctrine*, 285.

41. Official History, 17.

The History of the Air Force Historical Foundation: An Extract



Two supporters of the Foundation, Gen. Carl A. "Tooney" Spaatz (left) and Gen. Laurence S. Kuter (right) flank Air Chief Marshal Sir Arthur Tedder in 1943.

in Kreis

The Air Force Historical Foundation originated after World War II from an informal group of senior officers, friends in many cases since the 1920s, who met from time to time to play poker or at other social functions. General Carl Spaatz and Lt. Gen. Ira Eaker were key proponents of an organization to preserve and promote the history and heritage of the new United States Air Force and of aviation in general. Both men were icons who had the respect, stature, and reputation necessary to support an organization created to promote awareness of air power history. One person influential in forming the concept for the Foundation was Lt. Col. Arthur J. Larsen, slated to become librarian at a new Air Force Academy, if one were ever to be organized. Larsen recognized that some impetus from outside the Air Force was needed in conjunction with the Service's own efforts if the history of air power were to be developed as a distinct academic discipline useful for the Air Force.

Early in the 1950s, Larsen wrote several staff studies recommending creation of an independent but quasi-official Air Force Historical Foundation similar to the Naval Historical Foundation; one model Larsen used was the relationship between the federal government and the Smithsonian Institution. At the time, the Air Force had no historian or history office, and whatever historical work was done took place at the Air University at Maxwell AFB, Alabama. The Air University staff, however, had much to do, and had to use their limited resources to prepare teaching materials from scratch for the Service schools there. At the middle of the Twentieth Century, after a decades-long struggle to gain independence and develop aviation technology, their new Service was under attack. Of particular concern were the post-war budget battles with the other Services and restrictions placed upon the use of air power in the Korean conflict. Casting about for an intellectual basis for defending the potential of air power, these men found that there was almost no literature examining and recording the Army Air Forces' accomplishments during the European and Pacific wars. There were no published works on air operations or air warfare available for use by the Service schools at Maxwell AFB; Craven's and Cate's seven volume *The Army Air Forces in World War II* was not published until 1955. So desperate for material were the developers of the new Air Force ROTC program that they had to write and mimeograph by hand the teaching material for instructors at the various detachments, or locate outside contractors to prepare textbooks.

Sensitive particularly to the attacks on the concept of strategic bombing, which most of these men had been instrumental in developing during the 1930s, and carrying into operational execution during the recent war, Spaatz, Eaker, and their colleagues set out to start an organization that could fill some of the historical requirements that the Service needed. Two early supporters were Lt. Gen. Laurence S. Kuter, the Air Force's Director of Personnel, and Maj. Gen.



Gen. William F. McKee, who helped guide approval through the Air Council.

William F. McKee, Assistant Vice Chief of Staff. General Kuter, as Acting Chairman of the Air Council, guided the approval action for the Foundation through the Council, where it was approved on December 2, 1952. Kuter and McKee then met with the Chief of Staff, General Hoyt S. Vandenberg, explaining to him the need for such a Foundation and of the Air Council's action. General Vandenberg approved the establishment of the Air Force Historical Foundation on January 5, 1953. In establishing the Foundation, General Vandenberg clearly intended it to be a quasi-official, integral part of his new Service, and an agency that could provide material support in defining the Air Force's mission and organization in the absence of a formal history function in the Service. These tasks applied

John F. Kreis, a retired U.S. Air Force officer, is a historian and military and defense analyst as well as a Senior Fellow of the Air Force Historical Foundation. He holds a B.A. in economics from Willamette University, Salem, Oregon, and an M.A. in medieval history from the University of Delaware. He is the author of Air Warfare and Air Base Air Defense, 1914-1973, as well as numerous articles on air power history and operations in addition to being the General Editor for Piercing the Fog: Intelligence and Army Air Forces Operations in World War II. This is an extract from a history of the Foundation that Mr. Kreis is completing.

particularly to the need for some organization that could promote the USAF's interests in public and in ways that the Service itself could not.

The Foundation was incorporated in the District of Columbia. Specifically, the purpose was to supplement the official Air Force programs for commemoration of its history and outstanding members. There was to be a close relationship between the Foundation and the historical activities at the Air University.

Article II of the Constitution of the Foundation adopted on May 27, 1953 said that the Foundation was to be:

[A]n independent, incorporated body, existing by and with the sanction of law as a non-profit organization, [it] shall be intimately associated with, and will at all times coordinate its program with the United States Air Force.

The close association between the Air Force and the Foundation can be seen in the committee of active duty and retired Air Force personnel that General Vandenberg appointed to prepare the constitution and articles of incorporation: General (Ret.) Carl Spaatz, Maj. Gen. (Ret.) H. Conger Pratt, and Brig. Gen. (Ret.) T. DeWitt Milling.

The group completed its work by May 27, 1953, and twenty-four original Trustees were appointed. The constitution specified that the most recently retired CSAF would be the *ex-officio* president of the Foundation, and this was General Spaatz, who served until June 30, 1953 when General Vandenberg took over. On Vandenberg's untimely death in 1954, the Trustees elected Maj. Gen. Benjamin D. Foulois to the post, which he held for twelve years. Foulois had been Chief of Air Service, American Expeditionary Forces in France during World War I; later he was Chief of the Air Corps from 1931 to 1935. Foulois was very close to Carl Spaatz and Lt. Gen. Ira Eaker, both of whom had worked with him during the 1920s and 1930s.

The other original officers of the Foundation were First Vice President Lt. Gen. (Ret.) Idwal Edwards, Second Vice President C. R. Smith, Third Vice President Gill Robb Wilson, and Treasurer Maj. Gen. (Ret.) St. Clair Streett. The Foundation's first Secretary was the Assistant Vice Chief of Staff, Maj. Gen. Robert W. Burns, who also served as the Air Force project officer. By the end of the first year, the Foundation had 2,000 members, with 300 contributing military organizations, and General Burns had raised \$35,000.

The Foundation moved its headquarters to Maxwell AFB in September, and hired a salaried administrator, Brig. Gen. Hume Peabody (Ret.), as Executive Director. At the same time, and in line with the Air Force's charter of the Foundation, the Commander of Air University became the Foundation's *ex-officio* secretary. Peabody was succeeded in short order by Maj. Gen. (Ret.) Orvil A. Anderson, who had been relieved as Commander of AU by President Harry Truman after making some rather inflammatory remarks about how air power was not being used in the war in Korea in 1950. ■

Warden Revisited: The Pursuit of Victory Through Air Power



John Andreas Olsen

USAF F-15s and F-16s fly over the burning oil fields during Desert Storm.

Colonel John A. Warden, III, USAF (Ret.) is arguably one of the most influential American air power theorists since the Second World War; he is also one of the most controversial officers in the United States Air Force (USAF), drawing both praise and condemnation nearly on a par with Brigadier General Billy Mitchell. An outspoken advocate of using air power as the dominant and decisive element in a military campaign, rather than merely as support to the ground commander's scheme of maneuver, he had acquired a reputation as a radical thinker by the late 1980s. When General H. Norman Schwarzkopf, commander in chief of Central Command, asked the Air Staff to put together a plan for retaliatory air strikes in response to the Iraqi occupation of Kuwait in August 1990, Warden led an effort that presented Schwarzkopf with an outline for a full-blown strategic air campaign plan, advocating precision attacks on the Iraqi leadership; command, control, and communication apparatus; and a selection of electrical facilities, supply dumps, and key infrastructure. His offensive and daring scheme for "victory through air power" stood in stark contrast to prevailing ground-centric doctrine, newly updated contingency plans for the region, and standard Air Force practice at the time. Warden's "Instant Thunder" became the conceptual underpinning for the air portion of Operation Desert Storm, by many regarded as the most successful air campaign in modern history.

Schwarzkopf acknowledged Warden's contribution in his biography, *It Does Not Take a Hero*, and he wrote a personal letter to Warden stating "together we mapped out the strategic concept that ultimately led to our country's great victory in Desert Storm."¹ The Chairman of the Joint Chiefs of Staff, General Colin L. Powell, suggested in *My American Journey* that Warden's "original concept remained at the heart of the Desert Storm air war."² Award-winning author David Halberstam took it still further in *War in a Time of Peace*.

If one of the newsmagazines had wanted to run on its cover the photograph of the man who had played the most critical role in achieving victory, it might well have chosen Warden instead of Powell or Schwarzkopf. He was considered by some military experts to be an important figure, emblematic not just in the air force but across the board among a younger generation of officers eager to adjust military thinking, planning, and structures to the uses of new weaponry. The principal opponents of Warden's radical ideas turned out to be not, as one might expect, army men or civilian leaders, but senior officers in his own branch of service, especially the three- and four-star officers who dominated much of the air force strategy and technology and came from the Tactical Air Command (TAC). They had a much more conventional view of the order of battle and believed airpower was there to support the army on the ground and interdict enemy forces. They despised Warden and his ideas, a hostility that never lessened.³

Several distinguished historians, officers, and other experts have concluded that Warden and his team defined the direction of the 1991 military strategy and thereby introduced a new paradigm to the conduct of war,⁴ but the controversy that surrounded Warden's role and impact has lingered on and still causes emotions to run high.⁵ This article examines Warden's influence on the USAF more than a quarter of a century after the Gulf War of 1991 by exploring his role as a theorist, strategist, reformer, wartime planner, and educator. It revisits his writings, advocacy for change, involvement in Operation Desert Storm, and efforts to institutionalize his way of thinking at the Air Command and Staff College. Along the way, the article highlights the views of Warden's supporters and detractors alike.⁶

Theorist: Writings on Air Power

John Ashley Warden III, born in McKinney, Texas, on December 21, 1943, started to delve into military strategy during his days at the Air Force Academy, 1961-65. His early flying career, positions in the Air Staff, and operational assignments at home and aboard—including a tour as an OV-10 Forward Air Controller working with the Army and flying over Laos in the Vietnam War—further strengthened his interest in war planning and political decision-making. At Texas Tech in 1974-75, he used the opportunity to read widely and ponder anew aspects of the Second World War in a master's thesis on grand strategy. While a student at the National War College (NWC), 1985-86, he turned his attention to the application of air power.

The Air Campaign

This occurred at a time when the Air Force seemed content to grant the Army preeminence in warfighting, most profoundly articulated in the AirLand Battle Doc-

John Andreas Olsen is a colonel in the Royal Norwegian Air Force, currently assigned to London as defence attaché. He is also a visiting professor at the Swedish Defence University and a non-resident senior fellow of the Mitchell Institute for Aerospace Studies. His previous assignments include tours as director of security analyses in the Norwegian MoD, deputy commander at NATO Headquarters, Sarajevo, dean of the Norwegian Defence University College and head of the college's division for strategic studies. Olsen is a graduate of the German Command and Staff College and has served as liaison officer to the German Operational Command and as military assistant to the Norwegian Embassy in Berlin. He has a doctorate from De Montfort University and a master's degree from the University of Warwick. Olsen has published a series of books, four of which have been selected for the USAF Chief of Staff's Reading List: John Warden and the Renaissance of American Air Power (2007), A History of Air Warfare (2010), Air Commanders (2012), and Airpower Reborn (2015).



Cadet John A. Warden, U.S. Air Force Academy, 1965.

trine, FM 100-5, published in 1982 and refined in 1986.⁷ That doctrine dealt with air power on the tactical level only, and the overarching concept was that air power should support the ground commander on the battlefield. The approach was defensive, gradual, force-on-force oriented, and attritional. The book he wrote during his time at the NWC, *The Air Campaign*, countered such a narrow interpretation of air power's potential, leading Major General Perry M. Smith, then commandant at NWC, to comment that "this is the most important book on air power written in the past decade."⁸ General Charles L. Donnelly, at the time commander of United States Air Force, Europe (USAFE), thought the book provided "the air commander the intellectual wherewithal needed not only to avoid losing, but to win."⁹ Air Force historian Richard P. Hallion described the book as "the clearest American expression of air power thought since the days of Mitchell and Seversky... [it] provoked widespread discussion, controversy, and review throughout the Air Force. It catapulted Warden into the first rank of modern air power theorists."¹⁰

First published in 1988, *The Air Campaign* has since become a standard text for air force academies and staff colleges worldwide. Warden's systematic linkage of *ends* (political objectives), *ways* (strategies to attain those ends), and *means* (specific targets to prosecute in order to execute the chosen strategy) became a useful guide to planning air campaigns at the operational level of war. Warden introduced terms such as "air campaign" and "center of gravity" that today are taken for granted in doctrines and operational planning documents throughout the world. The real significance of *The Air Campaign* was that Warden introduced a way of thinking about air power separate from



Col. Warden, Wing Commander at 36TFW Bitburg, 1987.

ground forces and the immediate battlefield, a line of reasoning that was largely absent in the mid-1980s. The book attracted a far wider audience than doctrinal manuals.

The Five Rings Model

Lieutenant General Michael J. Dugan, who became deputy chief of staff for plans and operations in the Air Staff (AF/XO) in March 1988, concluded that Warden was the right man to spearhead an effort to promote air power as a leading military instrument. He had found *The Air Campaign* “...original, refreshing, focused and easy to read”; he believed it expressed a coherent foundation for thinking about air power at the operational level of war. He made sure the book was distributed within the Air Staff. Having discussed the matter with Major General Charles G. Boyd, the director of plans (XOX), they placed Warden in charge of the Directorate of Warfighting Concepts (XOXW) in July 1988, to advance air power decisiveness.¹¹ The new directorate was staffed by approximately eighty officers assigned to five divisions: Doctrine (XOXWD), Strategy (XOXWS), Requirements (XOXWR), Long-Range Planning (XOXWP), and Concepts (XOXWC). The latter was referred to as “Checkmate,” but the term has since been used loosely to refer to the entire directorate.

Warden now had a top-cover mandate to reinvigorate Air Force thinking about air strategy, the independent use of air power, and the operational art of war.¹² He quickly ensured that these divisions had strong connections with the Department of Defense, Congress, the national intelligence agencies, the Joint Staff, and a range of think tanks.



The 5 Rings Model.

Warden created an intellectual atmosphere that encouraged the explicit linkage of air power as an instrument to national security objectives. He became the Air Staff’s conceptual leader for change and the catalyst for resurrecting the idea of air power being used offensively, for strategic effect, rather than for destruction and attrition.

Warden now had a top-cover mandate to reinvigorate Air Force thinking about air strategy

Warden presented his “Five Rings” model for the first time in May 1988, in a paper titled “Global Strategy Outline.”¹³ Although he had articulated the basic idea in *The Air Campaign*, and many of the arguments echoed those of the Air Corps Tactical School (ACTS), Warden explicitly portrayed “the enemy as a system” with five center of gravity categories. The Five Rings model, graphically presented as concentric circles, reflected the relative importance of the target-sets within a nation-state. He labeled the bull’s-eye “the command ring.” The circle surrounding this inner core he identified as the state’s “critical war industry”: the key production centers. The third circle contained the state’s “infrastructure,” primarily industry and transportation links such as roads, bridges and railways. The fourth circle represented “population and agriculture”—the citizens of the state and its food sources. The final ring was the state’s “fielded military forces.” The order of the rings explained not only the relative importance of the centers of gravity, but also their vulnerability to attack. It was Basil Liddell Hart’s “Indirect Approach” in the third dimension. The names of the rings changed over time to where they are today—leadership, processes, infrastructure, population, and fielded forces—but the basic concept has endured.¹⁴

From this model, Warden deduced that simultaneous and parallel attacks launched against multiple target-sets within each of the five rings would have an exponential effect on a modern nation-state. The individual and collective disruption of several sub-systems through massive and continuous aerial attacks and the mutual reinforcement of all these disruptions were likely to cripple the entire national infrastructure by inducing strategic and systemic paralysis. This approach challenged the established notion of viewing strategic results as a sum of things attacked and destroyed, or even as a product of weighted values. Warden's view was that failure against a target or even a target-set would not negate the entire effort because the cumulative effect would remain. Unlike earlier visionaries such as Douhet, Mitchell, and de Seversky, Warden had both the technology and the theoretical underpinnings to make his arguments credible. He was the first since the classic air theorists to express an air power theory with emphasis on the strategic element. He emphasized tempo—hyperwar—to act massively and pointedly rather than gradually. He argued that precision and speed created a mass of their own.

The view of the “enemy as a system,” analyzing the opponent according to centers of gravity, and the belief in bombing for functional disruption and strategic paralysis of the leadership rather than physical destruction of tanks and artillery, presaged today's concept of effects-based operations.¹⁵

Reformer: Rethinking Air Force Priorities

From mid-1988 until mid-1990, when planning for Desert Storm fully consumed the directorate's energies, XOxW pioneered many concepts that strongly influenced the Air Force as a whole. In addressing his staff Warden insisted that “we are not responsible or beholden to TAC or SAC. Our charter is to think, and we can think any kind of thoughts that we want to think, and it is okay: In fact, that is what we are supposed to be doing.”¹⁶ He also made it clear that he expected this team to come up with ideas that the senior leadership would reject: “If ninety percent of the ideas are not sent back as unrealistic and even ridiculed, then we are not doing our job: our job is to keep pushing the envelope.”¹⁷ To some this was the epitome of ideal leadership: they were given a mandate to criticize existing patterns and promote institutional change. To others, questioning the current organization and operational procedures bordered on institutional disloyalty. Warden spent time inculcating his Five Rings Model and views on air warfare into both his subordinates and superiors, encouraging serious and critical thinking about the purpose of their own profession.¹⁸

Air Legions—Composite Wings

When Warden and some of his key staff officers suggested restructuring the Air Force organization into composite wings—referred to by Warden as “Air Legions”—they attracted considerable attention from the

senior leadership. The basic idea was straightforward: wings should incorporate a mix of aircraft, and these forces would train together on a daily basis under one commander. Dugan liked the idea, but his replacement as AF/XO from May 1989, General Jimmie V. Adams, told Warden that neither he nor General Robert D. Russ, the commander of TAC, believed in the Air Legion concept. Russ had received a briefing from Warden and his team that was not to his liking and he did not appreciate Warden's overall insistence on “strategic air power.” Besides, TAC's senior leadership concluded that Warden had not been a successful wing commander. Between NWC and the Air Staff, Warden had spent twelve months as vice commander and four months in command of the 36th Tactical Fighter Wing, Bitburg (Germany). Commanding three squadrons of F-15s, he had initiated so many controversial changes in such a short period that General William L. Kirk, the USAFE commander, felt uncomfortable and cut his tour short.¹⁹ Thus, while Warden had credibility as a thinker in the Air Staff, he did not have a high standing in TAC's “war-fighting” community.

This approach challenged the established notion of viewing strategic results as a sum of things attacked

As for the Air Legion concept itself, Adams thought the current Air Force organization worked well and considered it inappropriate for a colonel to advocate ideas that the senior TAC leadership did not support. Despite this, Warden and his team continued to argue their case. Adams, frustrated and annoyed by his subordinate, finally berated Warden to “... drive a stake through the heart of this idea... You started it, now go out and tell people you were wrong. Kill this idea... it has absolutely no redeeming value for the Air Force.”²⁰ Warden put the project on hold, but the composite wing idea was reactivated when General Dugan replaced General Larry D. Welch as Air Force chief of staff in June 1990.²¹ When General Merrill A. McPeak in turn replaced Dugan later that year he expressed the same view: “the Air Force should consider creating tactical wings that reflect the mix of aircraft required to fight as an integrated unit... forces should be organized the way we intend to fight.”²² He ultimately endorsed Warden's proposal by establishing two composite wings.

In retrospect, the composite wing philosophy, which to some extent followed from the Air Legion concept, never truly established itself in the Air Force. Still, according to General Welch, the Air Legion was the forerunner of what would later become the Air Expeditionary Force: not in form or function, but in prompting the Air Force to extend its thinking beyond the static Cold War structure.²³

The Air Option

Warden's directorate also helped to change how the biennial Defense Planning Guidance (DPG) reflected the Air Force's potential contributions. In early 1989 Warden as-

serted that the Department of Defense should consider an “Air Option” as an alternative to the “Land Option” or the “Maritime Option” in deciding how to respond to a threat scenario.²⁴ According to Major General Ronald J. Bath, who was closely involved with the subject for several years, the basic ideas pursued by the “Wardenites” found their way into the Quadrennial Defense Review (QDR) in the late 1990s: “... their footprints were all over the documents... Warden was the vanguard of a new Air Force and his ideas are embedded throughout the USAF’s organization and doctrine beyond the 1990s...”²⁵

A key catalyst in elevating and articulating these ideas was then Major Dave A. Deptula; he worked for Warden in the doctrine division and the two continued to operate seamlessly together also after Deptula was selected to work directly for the Secretary of the Air Force, Dr. Donald Rice, in the fall of 1989. Warden and Deptula, now promoted to Lieutenant Colonel, advocated the Air Option through different channels: the initiative helped the Air Force to define its own role and make it more conscious, as an institution, of power projection.²⁶

A View of the Air Force Today

In 1989, three of Warden’s men on their own initiative wrote an anonymous “protest paper” titled “A View of the Air Force Today.”²⁷ The principal author, then Lieutenant Colonel Michael V. Hayden—later to become director of the National Security Agency (NSA), four-star general, and director of the Central Intelligence Agency (CIA)—and two collaborators offered provocative and constructive criticism of the Air Force leadership, expressing concern that the lack of a central vision was costing the service its long-term relevance. The document was highly controversial, and many senior airmen disliked the effort altogether on the basis that one should not criticize one’s own organization. General Dugan, by then the USAFE commander, loved it. The “underground paper,” carefully distributed, has never been published in its entirety, but excerpts were printed in *Inside the Air Force* in May 1991 and Carl H. Builder summarized it in *The Icarus Syndrome*. It was a wake-up call for the Air Force.

Global Reach—Global Power

With the fall of the Berlin Wall, Dr. Rice challenged his staff to define the new security environment and to come up with ideas for how the Air Force could best contribute to the changes. A small team—Deptula, Colonel John W. Brooks and Christopher Bowie—initiated a series of brainstorming sessions and developed briefings and memos with “The Air Force and U.S. National Security” as a working title. By mid-December Rice was comfortable with the outline, continued to seek improvement and called for an “idiom”, a catch phrase to capture the essence of the Air Force.²⁸ Deptula asked Warden for a list of potential ideas and in response Warden’s executive officer, Lieutenant Colonel T.K. Kearney, developed a series of “bumper stickers” for messaging purposes among which was “Global

Reach—Global Power.”²⁹ Warden sent the “bumper stickers” along with a two-page background paper up the chain of command with the recommendation that the Air Force adopt a slogan and its supporting logic. When the stickers lingered in the “in-box,” an impatient Deptula started to incorporate the “Global Reach—Global Power” slogan in various briefings throughout the spring of 1990. Secretary Rice liked it immediately, as did the Secretary of Defense, Richard B. Cheney and the Chief of Staff of the Air Force, General Welch. Deptula became the primary author of the evolving document, formulating how air power could and should be used to achieve national objectives and suggested a path toward an integrated view of the USAF and its use of air power. The new document offered a perspective on how air power’s unique characteristics—speed, range, flexibility, precision and lethality—contributed to national security in a rapidly changing world.

Dr. Rice eventually signed “Global Reach—Global Power” on June 13, 1990.³⁰ According to Dr. Hallion, it “attracted immediate attention within the national defense community, provoking an immediate debate between air power modernists and sea power traditionalists, particularly over its recognition that land-based air power now constituted the dominant form of national presence and power projection.”³¹ When Iraq invaded Kuwait less than two months later the paper presented a rationale for what air power could contribute beyond supporting ground operations.³² “Global Reach—Global Power” was expanded after Operation Desert Storm, and has since been codified as the enduring vision of the contributions of the Air Force to national security; it remains so to this day.³³

A key catalyst in elevating and articulating these ideas was then Major Dave A. Deptula

The Air Campaign, the Five Rings Model, the Air Legion, the Air Option, the concerns expressed in “A View of the Air Force Today,” and the evolution of “Global Reach—Global Power” were just some of the initiatives driven by or associated with Warden’s directorate in this period. In the process, Warden earned a reputation as “Right Turn Warden,” because “if he had a compelling idea and a superior rejected it, he simply took a right turn and went to the next higher level. Failing there, he would take yet another right turn and go to the next higher level, infuriating in the process a long line of his superiors.”³⁴ While Dugan accepted and even encouraged this as AF/XO, Adams found Warden’s *modus operandi* troublesome and disrespectful.

Strategist and Planner: The Desert Storm Air Campaign

The Iraqi occupation of Kuwait on August 2, 1990, took the political and military leadership by surprise. A few days into the crisis, General Schwarzkopf had become increasingly dissatisfied with his own Central Command’s (CENTCOM’s) lack of imagination with regard to a cam-



Col. Warden in his office, reviewing the Instant Thunder presentation, mid-August 1990.

campaign plan for air strikes. He had asked General Powell whether the Joint Staff could provide him with a “strategic air campaign” plan, but the Chairman responded that it was short of people who could do so. Schwarzkopf found that Central Command Air Forces (CENTAF), his air component, was too busy deploying and setting up forces in theater. Besides, he had already sent his air component commander, Lieutenant General Charles A. Horner, to Saudi Arabia to oversee the reception and basing of arriving joint forces.

On August 8, Schwarzkopf called the Air Force, requesting strategic targets for retaliatory strikes in case Saddam Hussein did something “heinous.”³⁵ Schwarzkopf wanted a plan that would strike deep into Iraq and damage or destroy targets of great values to the Iraqi leadership: “we cannot go out piecemeal with an air/land battle plan. I have got to hit him at his heart! I need it kind of fast.”³⁶ General John M. Loh, the vice chief of staff, who took the call because General Dugan, the newly appointed chief of the Air Force, was out of office that day, told Schwarzkopf that he could send a team to brief him in the next few days.³⁷ When informed about the call, General Dugan called Schwarzkopf the next day to clarify his intent and welcomed the opportunity to contribute. He had to choose whether to assign the planning to TAC, under the command of General Russ, or to assign the task within the Air Staff. He chose the Air Staff because of the immediate availability of the various joint community elements and the national intelligence agencies; he also had “extreme confidence in Warden.”³⁸ Dugan concluded that Warden could devise something “conceptually better” and do so “in

a shorter timeframe” than TAC.³⁹ As it happened, Warden had on his own initiative already started an effort to develop a stand-alone, hard-hitting, war-winning air offensive plan based on the Five Rings Model. He had taken it upon himself to build a campaign plan without any idea at the time of how to get it up the chain of command; to him “the call from heaven” was good fortune. As Air Force historian Richard G. Davis has noted, “The man and the moment met and jumped as one.”⁴⁰

Adams for his part was very uncomfortable with the Air Staff’s having any role in the planning, as were some of his colleagues in the Air Staff and all of his colleagues at TAC. He once again found Warden “ahead of his headlights” and believed the planning should be done by CENTCOM’s warfighting arm—CENTAF. When Warden briefed him on the plan, he also thought that it was too theoretical, lacking in details, and promising far too much.⁴¹

Instant Thunder

Warden produced a conceptual plan overnight, briefed General Dugan, and received minimal direction other than “do not over-promise.”⁴² When Warden first briefed Schwarzkopf in Tampa on August 10, the commander-in-chief expressed immense enthusiasm. Warden had deliberately called his plan “Instant Thunder” to highlight that it was the opposite of the failed “Rolling Thunder” of Vietnam – a disjointed, gradual campaign plan for interdiction designed to demonstrate political resolve rather than strategic and military results. Schwarzkopf liked the analogy and emphasized that he wanted an air option that could be executed on short notice, and that it should be coherent, independent of ground forces, and strategic in focus. He specifically rejected a suggestion by one of the generals at the meeting that TAC take over the planning.⁴³ Schwarzkopf later recalled, “I felt a hell of a lot better after I left the briefing room than when I entered it. Warden turned on the proverbial light bulb.”⁴⁴ The commander-in-chief may not have believed that Saddam Hussein would withdraw in six to nine days as a result of bombing 84 target-sets, but by his own admission, prior to the meeting he had no plan; after the meeting he had something. He told Warden to return in a few days with a plan that would be ready for execution.

During the subsequent week Warden presented his concepts to General Powell, who endorsed further planning despite his skepticism to what air power could achieve, and directed Warden to put together a short version of the plan that Powell would present to the vice president and possibly the president.⁴⁵ The major directive from Powell was to add focus on tanks in the field in addition to strategic attacks in Baghdad. Warden also briefed the Air Force leadership, keeping both Generals Dugan and Loh abreast; they ran top cover and endorsed Warden’s concept.⁴⁶ Loh told Warden that “this is the number one project in the Air Force... you can call anybody, anyplace that you need for anything.”⁴⁷ Warden took those words literally.

TAC was very uncomfortable with the process, content, and man in charge. General Russ and his chief planner,



Deptula and Warden reviewing targets in Checkmate spaces, August 11, 1990. (Photo from Deptula collection.)

Brigadier General Thomas R. Griffith, did not appreciate the offensive leadership-centric approach. They found that the plan was “too violent” and that it did not have enough “tactical perspective.” TAC also considered the Five Rings Model an “academic bunch of crap.” Russ was especially concerned about the fact that Instant Thunder went from “peace to all-out war with no intervening steps.”⁴⁸ They decided to develop an alternative plan: a gradual escalatory option that focused on Iraqi forces in Kuwait and the ability to demonstrate resolve. Russ recalled after the war:

*One of the things you learn as TAC commander is to be sensitive with the Army and other services... I had a gut feeling that there was a group of hair-on-fire majors in Washington that were going to win the war all by themselves. They were going to have the Air Force win the war... I have been in the Joint arena too long watching these things, and everybody has to do something.*⁴⁹

But Warden had the momentum. His initial Instant Thunder slides found their way to the National Command Authorities (NCA) on August 14, and Schwarzkopf presented Powell with thoughts on an offensive air plan whose focus and target-sets closely resembled Warden’s strategy. Importantly, both Powell and Schwarzkopf accepted the idea of going after Saddam Hussein and his leaders from the opening moment of war: an element missing from both the doctrine and the contingency options at the time. The following day Powell reviewed the concept with Secretary of Defense Cheney, who approved it.⁵⁰ Schwarzkopf’s option for a substantial offensive air campaign, developed by War-



In Checkmate spaces on August 13, 1990, building the Instant Thunder brief for Schwarzkopf. Dave Deptula (left), and Warden. (Warden’s exec was cropped due to space limitations. (Photo from Deptula collection.)

den’s group, provided the Bush administration with the extra confidence that resulted in rather aggressive rhetoric as early as mid-August.⁵¹

Throughout the week that followed the first briefing to Schwarzkopf, Warden’s directorate continued to develop Instant Thunder and engaged in an extraordinary effort to gather information from all possible sources. According to the registration book, more than 400 people came to Checkmate between August 10 and August 17, to provide input or gather information. Unhappy with the support from the Air Staff’s intelligence section, Warden’s team consulted the National Intelligence Council as well as key members of the CIA. They cut through the bureaucratic quagmire to finish the plan for Schwarzkopf, and in the process turned informal networking into a veritable art form. Warden deliberately sought “open planning” to include broad input rather than “closed planning” by a few in secrecy.

Warden’s credibility with Schwarzkopf was evident when he briefed him the second time on August 17. Schwarzkopf quickly brushed aside the general who provided opening remarks, “I want to hear the Colonel.”⁵² He was delighted with the planning effort: “This is what makes the U.S. a superpower. This uses our strengths against their weaknesses, not our small army against their large army... Our air power against theirs is [the] way to go—that is why I called you guys in the first place... You have got me so excited with this.”⁵³

After the briefing Schwarzkopf pointed at Warden and said, “I am sending you to Riyadh, to Horner—to brief him. To hand off [the plan]. My intention is to continue to plan, to refine it to [the] point of execution.”⁵⁴ TAC’s alternative plan never saw the light of day.⁵⁵ Warden decided to bring



Col. Warden at Andrews AFB before departure to Saudi Arabia to brief Instant Thunder to Gen Horner. (Photo from Deptula collection.)

along his three key planners: Lieutenant Colonels Bernard E. Harvey and Ronald Stanfill, in addition to Deptula who had been instrumental in developing and voicing Instant Thunder. The plan now included targets, attack routes, timing, special operations, strategies, deceptions, commander's intent—"the whole nine yards."⁵⁶

In theater, Lieutenant General Chuck Horner, the Ninth Air Force (TAC) and CENTAF commander, did not share Schwarzkopf's enthusiasm for Instant Thunder or indeed for any plan developed in Washington, let alone for John Warden. He had received an early version of the plan from TAC per fax and his immediate response was "do with this what you will. How can a person in an ivory tower far from the front, not knowing what needs to be done (guidance), write such a message? Wonders never cease."⁵⁷ He had then received a briefing on the essence of Instant Thunder from Colonel Steven G. Wilson, initiated by Adams to give Horner the best possible situational awareness of the Air Staff's planning efforts.⁵⁸ Horner remained unimpressed; his views mirrored those espoused by Russ and Adams. Besides, his mandate for the moment was "defense": prevent Iraq from going further.

Warden gave Horner the same briefing on August 20 that he had presented to Schwarzkopf, but it went badly from beginning to end. In Horner's mind Warden lectured him on basic air power, ignored the ground forces, and did not respond well to his questions. Horner sent the colonel back to Washington, but he recognized that Instant Thunder had some useful components. Although Horner did not believe in "victory through air power," he did appreciate the target-sets: "a solid piece of work" in which the Checkmate

team could take pride. He acknowledged that Instant Thunder "contained elements of brilliance" and that Warden "had a way to rack and stack the targets so we could relate their importance to overall political objectives." He appreciated that Warden had identified the political objectives and then tied the national strategy to the campaign that he laid out.⁵⁹ Still, he concluded that Warden had done an "academic study" and now CENTAF had to "make it reality."⁶⁰ In Horner's own words, he had to turn "the larva into a butterfly." He needed a campaign planner in theatre whom he could relate to and trust; Warden was not that man.⁶¹

Deptula—whom Horner thought highly of when Deptula worked for him as the 325 Tactical Fighter Training Wing weapons officer and F-15 instructor pilot—was directed to remain in Riyadh as the chief planner of CENTAF's Special Planning Group (later known as the Black Hole). Horner selected Brigadier General Buster C. Glosson, a man he knew and trusted, as his overall chief planner. When Deptula presented Instant Thunder to Glosson he acknowledged that it was "a pretty good think piece.... The briefing had only 84 targets but that was 84 more than we had planning folders and photographs for at the time."⁶² The two officers formed a very strong relationship, with Deptula's studied patience complementing Glosson's impulsive dash.

Glosson recognized immediately the urgency of developing a realistic plan and relied on Deptula to modify the Instant Thunder concept into an executable plan while he developed his relationships with Schwarzkopf and the CENTCOM staff that he knew would be key in supporting the CENTAF effort. Deptula expanded the target list with CENTCOM inputs and built force packages in a way that no Air Force planner had ever done before. His Master Attack Plan focused on achieving desired effects that he established for each of the target sets based on the Five Rings approach as opposed to the old view of focusing on target destruction. In the interests of time, and because the Checkmate team had already built all the elements required of an operational order (OPORD), Deptula removed all references to "Instant Thunder" and convinced Glosson to use that OPORD for CENTCOM air operations.

Consequently, a week after Warden's briefing, Horner reluctantly agreed to the basis for a plan that closely resembled Instant Thunder, albeit without the name. Two days later CENTAF published the first fully coordinated air tasking order (ATO), which remained the sole offensive option available to Schwarzkopf for several weeks.⁶³ Both Glosson and Deptula noted that what they did in terms of Phase I (strategic air campaign) planning after 29 August was "more of the same": they added targets and assets, but the underlying attack philosophy remained unchanged. Deptula used the essence of the Instant Thunder concept in building the initial Desert Storm air campaign plan, and later the attack plans for each day of the campaign after the initial air assault.⁶⁴ Thus, where Warden's personal incompatibility with Horner had almost doomed Instant Thunder, Deptula saved the concept and adroitly turned it into an integral part of what eventually became the Desert Storm air campaign.



Enroute to Saudi Arabia August 18, 1990, on RC-135 to present Instant Thunder briefing to General Horner. Left to right: Ben Harvey, John Warden, Dave Deptula, Ron Stanfill. (Photo from Deptula collection.)

The Black Hole and Checkmate

Warden's contribution to Desert Storm did not end with the unsuccessful briefing to Horner. When Warden returned to Washington he developed Checkmate into a reach-back agency that helped the planners in Riyadh expand and complete the air campaign.⁶⁵ Warden's resolution to continue pressing for an air campaign, despite the negative experience with Horner and lack of enthusiasm from Adams and TAC, exemplified his character: resilience under disappointment, persistence of élan, hard work, and determination even when his short-term objectives had not been fully realized. He decided that he would do everything he could to support General Horner, the man who wanted him gone from theatre before he even arrived. The role that Checkmate took during the next few months and throughout the war became just as important and controversial as the origins and contents of Instant Thunder.

Warden drew into his circle people who could assist in the planning process, including mid-level staff from government and non-government agencies as well as military officers from all four services. The handpicked group represented many disciplines and became instrumental in supplying the air planners in theater with crucial information. Warden also sought outside expertise when necessary. In the process Warden's team established itself as an alternative to the formal wartime intelligence, planning, and execution structure, creating an informal resource that significantly influenced the development of the air campaign plan. To some this was genius; to others it was another example of circumventing the proper channels.

Ultimately, the preparations for Desert Storm involved the Black Hole and Checkmate working in tandem, not least because Deptula carefully orchestrated telephone conversations between Glosson and Warden. Warden's directorate made three crucial contributions to helping the Black Hole planners complete the air campaign plan and put it into effect.

First, from late August to mid-October, Checkmate provided Deptula with data and ideas for fine-tuning and improving Phase I, the strategic air campaign plan. The plan that Powell and Schwarzkopf declared ready for execution on 13 September, and that the NCA approved on 11 October, was conceptually based on the precepts of the original Instant Thunder concept.

Second, from mid-October 1990 to mid-January 1991, Checkmate took the lead in developing the conceptual underpinnings for Phases II and III (the attack on Iraqi fielded forces in Kuwait). The air planners in theater turned the data from Checkmate into a functional plan and presented it to Schwarzkopf, who in November 1990 stated that he was immensely impressed with the overall coherence of the air effort. On that basis, Schwarzkopf decided to delay the ground offensive until air power had ensured 50 percent attrition of Iraqi tanks, artillery, and armored personnel carriers. Schwarzkopf may not have been convinced of what air power could achieve at that point in time, but he had great regard for American infantrymen and was willing to let the air forces play their best game. Glosson also drew on the data provided by Checkmate when he briefed the Joint Chiefs of Staff and the NCA on the evolving campaign plan; although Powell endorsed the

air campaign, he remained a sceptic until it had proven its true worth and then some.

Third, Checkmate kept the senior political and military leadership in Washington abreast of the air campaign and the potential offered by air power. The expertise accumulated by Warden and his planning cell made Checkmate the natural choice for senior political and military leaders when they needed information about the war effort.⁶⁶ Warden briefed Secretary of Defense Cheney in person three times, and Cheney used Checkmate to verify the information that he received from the Joint Staff; he had no equivalent resource for the ground and naval aspects.⁶⁷ After General Dugan was dismissed on September 17 (due to comments he made about the air campaign to the *Washington Post*), Warden also briefed the incoming chief of staff, General McPeak, who thought favorably of the ideas presented.⁶⁸

In retrospect, Warden's directorate made a remarkable contribution for an organization that had no official role in the war. According to Dr. Eliot A. Cohen, lead editor of the *Gulf War Air Power Survey*, Checkmate served as an interesting model of a centralized planning staff: "Although most of the work gets done in the theater, I think that it established a precedent for informal ties between Washington and the field that continues to make a difference."⁶⁹ There is an important lesson here: Warden showed moral courage in insisting that his ideas be heard, but his tenacity and his unwillingness to take "no" for an answer also drew resentment from many in the chain of command.

On Balance

Despite the negativity from Horner and the resistance of TAC, Warden's views became the baseline for theatre planning efforts.⁷⁰ According to Glosson:

*Without the work that Checkmate did, that option would never have existed. All I had to do was call [Checkmate] and say, I need this analysis done; I need you to contact this country, this contractor, I do not know enough about this... I could not have dreamed of such support... I would hope that history will be very kind to John Warden. I have told more than one group of people that the greatest compliment I can give John Warden is to say that if I had been given the task he was given and the short period of time that he was given, I would like to think that I would have been as successful as he was in covering the spectrum and placing as much thought provoking information down as he did, as quickly as he did. I cannot pay him any higher compliment... His effort was phenomenal... I question whether that could have been done anywhere else on the face of the Earth... Nobody has ever done more or better work in any shorter period of time under the constraints that they were under. The ground work in putting some conceptual ideas together and husbanding an unbelievable amount of intelligence information and focusing on critical target sets was very impressive.*⁷¹

Even Adams, who believed Warden had "a talent for trouble," was impressed:

*I gave him some initial tasking, but he was intent on building what I believed at the time to be a bigger campaign than I was willing to go with. As it grew and as circumstances changed then I became more of a supporter of what he had done. So you could say that he was a visionary or he was just hard headed... John had built a significant network of experts to really help lay out those details, and Buster Glosson used them almost every day, calling back, faxing back, or sending a message back.*⁷²

All said and done, Warden's influence on the development and execution of the Desert Storm air campaign must be seen in perspective. Warden, and his team, initiated and developed the Instant Thunder concept plan, but once the air campaign actually began Warden's contributions became few and less important because of the influx of real-time information to the Black Hole planners from other organizations and agencies, including CENTCOM itself. Although Warden provided an environment that encouraged independent thinking about the air campaign plan, others often played the primary role in turning his ideas into reality. It was Deptula who was able to mold Instant Thunder, along with his own ideas, into a plan that Horner, Glosson, and the Black Hole staff could accept. Without Deptula's conceptual insight, operational perspective, and flexibility, and his central role in planning while stationed in the war-zone with Schwarzkopf and Horner, many of Warden's ideas would never have been implemented. Glosson also played a major role. He was sufficiently clever, pragmatic, and charismatic to convert Checkmate's products into a format acceptable to Horner. Finally, although the meeting between Horner and Warden represented a clash of views, the combination of their efforts created a synergy that led to great success in a remarkably short period.

Educator: Commandant at the ACSC

In 1992, after a brief stint on the staff of Vice President James Danforth "Dan" Quayle, Warden became commandant of the Air Command and Staff College (ACSC). Secretary Rice, General Michael P. C. Carns, vice chief of the Air Force, and General Boyd, now commandant of the Air University, all believed that Warden's ideas about air power merited further exploration, that his vision of a strategic center of gravity concept of an enemy as a system had restored the USAF's sense of purpose, and that he had the necessary leadership qualities to translate the theoretical foundation into a sustainable education program. They recognized Warden's professional inclinations, his dedication to air power, his ability to look beyond immediate needs, and his willingness to bypass bureaucratic hurdles when necessary.

Warden took on the challenge of revitalizing the college, initiating many changes, some of which were the most radical since it was founded. He sought to "take the school intellectually to the level of the ACTS" to match its motto "we progress unhindered by tradition."⁷³ Warden restruc-



Gen. Charles A. Horner, CENTAF commander, and resistant to Warden's campaign plan.

ured the academic year to resemble a campaign plan, set high standards for his faculty members, made major commitments to the use of advanced technology (including purchasing personal computers for the students), and encouraged them to gain deeper understanding of their profession by reading about the history and theories underlying the formation of the Air Force.

With Warden's guidance and support, a small cadre of faculty members developed an unprecedented Air Campaign Course as the center of a new syllabus. The course, first offered as a pilot program in the second semester of 1992, covered all aspects of air and space power so that students would learn to view military operations from the national, strategic level down to the minutiae of "bombs on target."⁷⁴ It used the Five Rings model to provide both students and faculty with a framework for analyzing warfare. The reading list included classic and contemporary military history, and the college established an environment that encouraged challenges to the old axioms of military thought. Despite warnings of a heavy workload, approximately one-sixth of the students chose to enroll in the course, and in the following academic year it became the basis for the entire ACSC curriculum.⁷⁵

The air campaign pilot course left much room for improvement in organization and implementation, but most students agreed that the content and the methodology represented the right approach to training future Air Force leaders.⁷⁶ Warden soon became so influential that the ACSC was referred to not only as the "Air Campaign College," but also as the "John Warden school of air power."⁷⁷ He became the "Lord of the Rings," and was able to secure funding so that each student received a hundred books by the time he or she graduated. Many students told him years later that they still had the books and referred to

them frequently. Others sold them at used bookstores in Montgomery, Alabama.

At a more general level, Warden devoted considerable time to building a research program. He arranged for ACSC students to study topics of value to the USAF and other parts of the DoD, thereby linking the school environment with policy and decision makers. To identify research areas he drew on the network he had established in the intelligence and political communities during the run-up to Desert Storm. Some research groups also worked on classified projects for the Air Force chief of staff and the White House.⁷⁸ He also started sending faculty members to obtain PhDs to raise the standards of teaching.⁷⁹

Through these actions, Warden in many ways transformed what had been an isolated academic institution into one that received attention in the Pentagon, the Department of Defense, and various research communities. The strength of his convictions and reputation as a key planner in Desert Storm stimulated unusual enthusiasm for air power theory, strategy, and doctrine. Warden also spent considerable time hosting high-ranking visitors, and he made several trips to the Pentagon and to Congress, where he presented the new curriculum to senior officers and congressional staffers. Warden established a framework that enabled ACSC to respond to the academic needs of the students, and set the standard for the years to come.⁸⁰

Warden's ability to make so many changes resulted in no small part from the strong support he received from his superiors at the Air University: when Lieutenant General Jay W. Kelley arrived at Maxwell AFB in October 1992, he felt that Warden was "bigger than the Air University," because he received so much attention from senior officers. He later stated:⁸¹

Warden is perhaps the single most influential individual in the development of concepts regarding the employment of air power in modern times. He has stimulated thought on the subject and he has led the way in advocating air power as we have seen it employed throughout the 1990s. He is an extraordinary talented man, but there is also a challenge here. He is a rebel and a renegade, and sometimes he is so convinced that he is right that he has a hard time adjusting to other considerations. The intensity of his thinking and action provides for extraordinary command and leadership challenges for whom ever he has to report. However, he did marvelously at the Air Command and Staff College and he was a very successful commandant.

General Kelley thought it admirable that Warden pursued ideas because of conviction, even when he knew he would not benefit personally. Such integrity, Kelly reflected, was rare in the USAF.

Not surprisingly, Warden proved controversial both within and outside ACSC. He had certainly built enthusiasm for air power as a subject and was well versed in strategy and history, but some of the faculty found themselves engaged in heated debates over the validity of his theories, especially with their counterparts at the School of Ad-

vanced Airpower Studies (SAAS).⁸² Colonel Larry Weaver, who was the lead executive implementing Warden's vision, concluded that "Warden arrived like a hurricane cleaning out the ramshackle structures of the mind that had been constructed over the previous 40 years. He brought vision. He brought incredible energy. And he brought clear senior level support."⁸³

By any credible system of measurement Warden was a successful commandant: he had the vision to recognize the need for change, the ability to make the necessary improvements, and the courage to expose himself to inevitable negative reactions. Professor David R. Mets sums up the Warden legacy in the following terms:

*His real-world combat-flying experience, along with his professional studies and purposefulness, made him stand apart from the other commandants in my experience. Most of them were impressive officers, but none took such an active role in lecturing and reforming the curriculum. None of them did as much to attempt to get his charges started on a serious, personal, and lifelong program of the study of war. None of the commanders in my experience did nearly as much to move the college out of its existing ways and into new studies and procedures—with both good and bad effects, I suppose.*⁸⁴

Warden's curriculum and its emphasis on air campaign planning set a new tone that has, in part, survived. Indeed, some of Warden's key concepts—parallel warfare, inside-out operations, bombing for functional effect, and his Five Rings targeting scheme—have since become common currency within the Air Force. One thing is certain: unlike their predecessors of the late 1980s, Air Force captains or majors today can explain fairly eloquently what air power brings to warfighting and how air assets can be employed.

The John Warden Controversy

Given Warden's contributions to air power thought and the most successful air campaign in modern times, should he have been promoted to general? When the Brigadier General Promotion Board of 1992 met at Andrews AFB on November 4–10 it was already evident that Warden had several strong backers and detractors.⁸⁵ Secretary Rice had made it clear that he thought Warden should be promoted: in his letter of guidance to the board he stated that there should be room for intellectual leaders among general officers, and although Warden's name was not mentioned explicitly many knew that Rice thought very highly of Warden. Rice had also sent the board a clear signal by naming Warden the ACSC commandant: the assignment was considered a brigadier general slot because no ACSC commandant had retired in the rank of colonel since 1959.⁸⁶ In addition, Warden had received strong personal endorsements from Vice President Quayle and from General Carns.

However, several factors worked against him. Some defined Warden by what they considered an unsuccessful tenure as wing commander: fair or not, it became a very convenient argument for those who wanted to downplay

his credentials. It was also common knowledge among the fighter pilots that Generals Horner, Russ, Adams, Glosson, and others did not believe Warden deserved promotion. All of the negative points could have been overcome if the chief of staff had endorsed Warden as his top candidate: Dugan might have done so, but the then-current chief, McPeak, did not. It is unclear how McPeak viewed Warden, but he pointedly did not want to champion him.⁸⁷

Warden received an unusual combination of very high and very low scores during the voting, and when the votes were tallied he was not among the group recommended for promotion. As the rules allowed, one member of the board requested that they reconsider Warden's case. He expounded on Warden's contribution to the 1991 air campaign and to the development of a coherent and unified air power theory. He maintained that Warden had managed to introduce a new way of using air power that had possibly saved thousands of lives. Besides, the officer argued, the Air Force needed his vision and courage. Another officer strongly opposed promotion; emotions ran high, but the recount did not change the outcome.

Warden's curriculum and its emphasis on air campaign planning set a new tone that has, in part, survived

In retrospect, one officer who served on the 1992 board stated that Warden's retiring as a colonel after making such a substantial contribution to Desert Storm "suggests the marginal status of air power theorists in the contemporary Air Force," while another recalled that "the Air Force has low tolerance for outside-the-box thinkers." Some said his air power advocacy was counter to the joint thinking that they were encouraged to promote. Others argued that he circumvented the chain of command if he believed it was in the service's best interest, something that called the hierarchy itself into question. One general noted that the Air Force as an institution "did not want to acknowledge that John Warden had as big an influence as he did on the Desert Storm air campaign specifically and air power in general—promotion to brigadier general would have been acknowledgement of his contribution." One board member recalled that there was a "determined effort to prevent Warden from getting promoted."

At the next promotion board in September 1993 Warden was once again the topic of intense debate, but the result was the same. In conclusion, Warden's experience illustrates that advancement in the military world depends on many factors other than professional insight, contribution to military victory, and originality of thought.

In a notable sign of support, General Ronald R. Fogleman, who had succeeded McPeak as chief of staff in October 1994, "went out of his way to travel to Maxwell" to attend Warden's retirement ceremony on June 30, 1995. Fogleman believed that "the USAF had made a mistake by not promoting Warden, and he hoped that by attending he would send a signal to the younger officers that the USAF encouraged officers to think outside the box."⁸⁸

The controversy over Warden has remained years after his retirement, not least because so many books have acknowledged his contribution and those appraisals often came at the expense of TAC, portraying the latter as an incompetent institution, captive of the U.S. Army, and unable to think holistically about air power strategy. General Wilbur L. Creech, the commander of TAC from 1978 to 1984 and one of the most influential airmen in the recent history of the USAF, took issue with what he characterized as “myths which emerged from the Gulf War success.”⁸⁹ Creech vehemently denied that Warden had played a major role in the success of the air campaign: he claimed that all Warden did was answer Schwarzkopf’s call “to do some targeting.” Creech also challenged the implications that TAC did not know how to apply strategic air power. Eighteen years after his own retirement, prompted by the book that Halberstam wrote in 2001 (quoted at the opening of this article) an emotional Creech wrote to senior leaders in all the military services, encouraging a “counter-battery fire” to “set the record straight.” In the process, several high-ranking USAF officers attempted to denigrate Warden’s contribution.

Prospects

Warden’s contribution to air power thinking extends far beyond any specific conflict; he offered a far broader perspective on how air power can serve the nation’s interests. By linking specific categories of targets to stresses in the enemy system as a whole, and by daring to suggest that air power be used for offense rather than merely defense, he constructed the framework on which others could build. Fundamentally, in the context of air power Warden broke the momentum of the Cold War Fulda Gap mentality. He established the space and the intellectual sanctuary in which the potential of air power could be creatively considered, and this, in turn, contributed to its being effectively used. The individual ideas that underlie his theory of “systemic paralysis” were not unprecedented, but Warden correlated them, added new insight, formulated them, and knew how to apply them in time of war. His true achievement is that he took a series of single-set ideas and gathered them into a coherent theory; matched the theory to the new technology that could implement it; and had the strength of character and the opportunity to push the theory through a huge bureaucracy, despite serious opposition, at a critical point in time. According to Secretary Rice:

Warden’s book, The Air Campaign, was a thought provoking work at a time when the USAF as an institution needed to think about air power in new ways. It was an important input to the articulation of an expanded role for airpower in Global Reach - Global Power, published by AF leadership in June, 1990. Warden’s way of thinking, augmented by a handful of senior and junior officers, led to the development of the air campaign plan for the 1991 Gulf War. That campaign in turn demonstrated for the first time the Global Reach - Global Power principles in action. Warden culminated his active duty career by leading the education of sev-

*eral hundred high-potential Air Force officers, some of whom went on to general rank. That contribution solidified his role as an intellectual leader who educated the next generation of Air Force officers.*⁹⁰

To understand Warden’s impact it is important to appreciate the symbiotic relationship he enjoyed with Deptula, who went on to become a three-star general and is currently the Dean of the Mitchell Institute of Aerospace Power Studies. Deptula influenced not only Desert Storm, but also Northern Watch and the air portions of Allied Force, Enduring Freedom, and the takedown of Saddam Hussein in 2003.⁹¹ Although for various reasons the air commanders were not always allowed to execute air campaigns as they wished, all presented Warden–Deptula like arguments: focus on leadership rather than on tanks and artillery, effects rather than destruction, and parallel attacks against centers of gravity. Their major imperatives—to challenge the traditional way of conducting war and the need to understand that strategic war may have little to do with the enemy’s military forces—have earned increasing acceptance throughout the military services, but a change may be occurring with the counter-insurgency operations that began in earnest in Afghanistan and Iraq. Those war efforts seem to be, in large measure, a throwback to the ground-centric AirLand Battle, with the Army dictating targets and weapons loads to support ground commanders all the way down to squadron level. This return to yesteryear thinking can be traced to Operation Anaconda and the debacle that ensued.⁹² Recent years have also seen attempts by military leaders to counter the theory of effects-based operations and other air-centric strategies.⁹³

Warden’s contribution to air power thinking extends far beyond any specific conflict

Conclusion

The schism that twenty-six years after Operation Desert Storm still separates John Warden from his peers, his superiors, and the Air Force is the simple fact that Warden has always and without fail remained faithful to ideas above all else while the rest have remained faithful to each other. This simple fact drove several influential senior leaders in the Air Force to marginalize Warden’s contribution and deny him any opportunity to serve at flag rank. Warden’s ideas, over time, became acceptable to some of his strongest critics, but the man was not. While his intellect, strength of character, integrity, and deeply engrained work ethic won him admiration from many senior leaders, others condemned him as a maverick with no respect for authority and rank. Even as he responded to Schwarzkopf’s initial call for a strategic option, Warden encountered fierce opposition from senior officers in the Air Force who disagreed with his strategic concept and resented his role in the planning effort. He turned a peacetime planning cell,

Checkmate, into a wartime hub that made a difference, but senior Air Force leaders have since made various attempts to shut that division down or at least neutralize its influence.

Warden's strength seems to have been his Achilles heel: he refused to accept bureaucratic boundaries and did not hesitate to bypass the established chain of command to advance his ideas through the system. Drawing chiefly on his own intuition and convictions, he constantly devised unusual solutions to problems, ignoring existing alternatives. He was an F-15 pilot, he had been a wing commander, and he played a significant role in conceiving a

new approach to the conduct of warfare, but the fighter community did not consider him one of their own. He helped restore air campaign planning and theory to the forefront of the Air Force agenda and encouraged a new generation of Air Force officers to think about air power, but still today the very mention of his name elicits an immediate response among airmen, often positive, sometimes negative, but never neutral. That is the price for constantly thinking in new ways, taking on "established wisdom," and seeking change, but the bottom line is that Warden remains the symbol of the renaissance in aerospace thinking that took place in the 1990s and continues to this day. ■

NOTES

- 1 Letter from Gen. Schwarzkopf to Col. Warden, author's collection. See also General H. Norman Schwarzkopf with Peter Petre, *It Doesn't Take a Hero* (New York: Bantam Books, 1992), pp. 369-371.
- 2 Colin Powell with Joseph E. Persico, *My American Journey* (New York: Ballantine Books, 1995), p. 460.
- 3 David Halberstam, *War in a Time of Peace: Bush, Clinton and the Generals* (London: Bloomsbury, 2002), pp. 47-49.
- 4 See for example, Eliot A. Cohen, et al., *Gulf War Air Power Survey: Volume I. Part I: Planning* (Washington D.C.: Government Printing Office, 1993), p. 226; United States Department of Defense, *Conduct of the Persian Gulf War: Final Report to Congress* (Washington D.C.: Government Printing Office, 1992), p. 89; Michael R. Gordon and General Bernard E. Trainor, *The Generals' War: The Inside Story of the Conflict in the Gulf* (New York: Little Brown and Company, 1995), pp. 75-102; and Rick Atkinson, *Crusade: The Untold Story of the Gulf War* (London: Harper Collins Publishers, 1994), pp. 56 and 63. Warden's contribution is also acknowledged by the official USAF historians: Diane T. Putney, *Airpower Advantage: Planning the Gulf War Air Campaign 1989-1991* (Washington, D.C.: Air Force History and Museum Program, 2005); Richard G. Davis, *On Target: Organizing and Executing the Strategic Air Campaign Against Iraq* (Washington D.C.: Air Force History and Museums Program, 2002); and Richard P. Hallion, *Storm over Iraq: Air Power and the Gulf War* (Washington, D.C.: Smithsonian Institute Press, 1992).
- 5 For further details and references, see John Andreas Olsen, *John Warden and the Renaissance of American Air Power* (Washington D.C.: Potomac Books, 2007). This article builds on the author's research and on material from the "Desert Story Collection:" a series of interviews with senior USAF officers, conducted by Lt. Cols. Suzanne B. Gehri, Edward C. Mann, and Richard T. Reynolds in 1991 and 1992. The author is in the possession of all transcripts. See also Col. Richard T. Reynolds, *Heart of the Storm: The Genesis of the Air Campaign Against Iraq* (Maxwell Air Force Base, Alabama: Air University Press, 1995).
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- 8 Maj. Gen. Perry M. Smith (ret.), *Desert Story Collection*, June 18, 1992, p. 4.
- 9 Gen. Charles Donnelly, "Foreword," in John A. Warden III, *The Air Campaign: Planning for Combat* (Washington D.C.:

- Brassey's 1988), xvii. The Air Force Association pronounced it "one of the most influential books of the decade" in 1989.
- 10 Richard P. Hallion, *Storm over Iraq*, pp. 116-118.
- 11 Lt. Gen. Michael Dugan was the deputy chief of staff for plans and operations (XO) from March 1, 1988 to April 30, 1989; during the occupation of Kuwait the position belonged to Lt. Gen. Jimmie V. Adams. Maj. Gen. Charles G. Boyd was the Director of Air Force Plans (XOX) from May 22, 1988 to August 14, 1989; during the occupation of Kuwait the position was held by Maj. Gen. Robert M. Alexander.
- 12 Richard G. Davis, *On Target*, p. 60.
- 13 John A. Warden, "Global Strategy Outline," May 1988, in author's collection. The next iteration of the concept was "Centers of Gravity: The Key to Success in War", presented in March 1990 at a symposium at the National Defense University.
- 14 See also John A. Warden, III, "The Enemy as a System," *Airpower Journal*, Vol. IX, No. 1, Spring 1995, pp. 40-55.
- 15 For a comparison between the thinking of John R. Boyd and John A. Warden, see John Andreas Olsen, "Boyd Revisited: A Great Mind with a Touch of Madness," *Air Power History*, Vol. 63, No 4, Winter 2016.
- 16 Warden, *Desert Story Collection*, October 22, 1991, p. 21.
- 17 Maj. Gen. David A. Deptula, interview with author, June 3, 2005.
- 18 Davis, *Decisive Force*, p. 9.
- 19 Gen. William L. Kirk (ret.), interview with author, March 9, 2004.
- 20 Col. John B. Piazza (ret.), interview with author, April 1, 2003; Warden, interview with author, December 2, 2004; Col. Lonnie Dale Turner, interview with author, April 17, 2003.
- 21 Col. John B. Piazza, "The Air Legion: A Close Encounter with Bureaucratic Politics," National War College, December 1990, p. 1.
- 22 Gen. Merrill A. McPeak, interview with author, June 22, 2004. See also Merrill A. McPeak, "For the Composite Wing," *Airpower Journal* 4, no. 3 (Fall 1990): pp. 4-12.
- 23 Gen. Larry D. Welch (ret.), interview with author, April 30, 2004.
- 24 Secretary of the Air Force Donald B. Rice, interview with author, July 17, 1999.
- 25 Maj. Gen. Ronald J. Bath (ret.), interview with author, January 18, 2005.
- 26 Col. John A. Warden with comments from Maj. Phillip S. Meilinger, "Global Airpower and Power Projection," April 6, 1990, unpublished paper, p. 6.
- 27 The 28-page document "A View of the Air Force Today" was made available to the author. For an abstract and commentary, see Carl H. Builder, *The Icarus Syndrome: The Role of Air Power Theory in the Evolution of the U.S. Air Force* (New Brunswick:

- Transaction, 1993), pp. 3–15.
28. Col. David A. Deptula, *Global Reach—Global Power: Changing the Face of The Air Force*, paper presented to the National War College, 1993, p. 5.
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 30. Lt. Col. Deptula, “Global Reach—Global Power: A Brief History,” August 15, 1991, in author’s possession.
 31. Hallion, *Storm over Iraq*, p. 120.
 32. Deptula, *Global Reach—Global Power*, p. 10.
 33. USAF Planning Document, *Global Vigilance, Global Reach, Global Power for America*, 2015, http://www.af.mil/Portals/1/images/airpower/GV_GR_GP_300DPI.pdf.
 34. Halberstam, *War in a Time of Peace*, p. 49.
 35. Gordon and Trainor, *The Generals’ War*, pp. 75–76; Schwarzkopf, *It Doesn’t Take a Hero*, p. 313.
 36. Reynolds, *Heart of the Storm*, p. 24.
 37. Gen. John M. Loh (ret.), *Desert Story Collection*, September 26, 1991, p. 3.
 38. Gen. Michael J. Dugan, USAF (Ret.), interview with author, February 24, 2004; and correspondence with author, August 26, 2017.
 39. Dugan, interview with author, February 24, 2004.
 40. Davis, *On Target*, p. 59.
 41. Adams, *Desert Story Collection*, February 3, 1992, and interview with author, June 19, 2004.
 42. Dugan, correspondence with author, August 26, 2017.
 43. Reynolds, *Heart of the Storm*, p. 57; and Alexander, *Desert Story Collection*, June 3, 1992, p. 26.
 44. Schwarzkopf, interview with author, May 25, 2004.
 45. Warden, *Desert Story Collection*, October 22, 1991, p. 71.
 46. Davis, *On Target*, p. 73.
 47. Warden, *Desert Story Collection*, May 30, 1991, p. 114.
 48. Reynolds, *Heart of the Storm*, p. 102.
 49. Russ, *Desert Story Collection*, December 9, 1991, p. 23.
 50. Davis, *On Target*, p. 71; Reynolds, *Heart of the Storm*, p. 74.
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 52. Col. Stephen Cullen (ret.), interview with author, January 4, 2005.
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 63. Cohen, *Gulf War Air Power Survey: Command and Control*, pp. 164–167; Cohen, *Gulf War Air Power Survey: Planning*, p. xiii.
 64. Desert Storm ended up with four phases. Phase I: Strategic Air Campaign (Instant Thunder); Phase II: Air Superiority in the KTO; Phase III: Battlefield Preparations; Phase IV: Ground Offensive Campaign.
 65. Alexander, *Desert Story Collection*, May 30, 1991, p. 45.
 66. *Ibid.*
 67. Maj. Gen. John L. Barry, USAF (Ret.), correspondence with author, January 6 and 8, 2006.
 68. Lt. Gen. Robert M. Alexander, USAF, (Ret.), interview with author, June 28, 2004.
 69. Eliot A. Cohen, correspondence with author, January 15, 2006.
 70. Adams, *Desert Story Collection*, February 3, 1992, p. 12; Alexander, *Desert Story Collection*, June 3, 1992, p. 67; Maj. Gen. John A. Corder, *Desert Story Collection*, February 4, 1992, p. 51; and Maj. Gen. Perry M. Smith (ret.), *Desert Story Collection*, June 18, 1992, p. 51.
 71. Glosson, *Desert Story Collection*, May 29, 1991, pp. 122–123; and June 4, 1992, pp. 5, 9, 28, and 115.
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 74. “Air Campaign Course Syllabus, Spring 1993,” as of November 10, 1992.
 75. Carpenter and McClain, “Air Command and Staff College Air Campaign Course,” pp. 72–83.
 76. “Air Command and Staff College Academic Year 1992–1993: End of Course Critique,” Prepared by Office of Evaluation July 1993.
 77. Professor Grant T. Hammond, discussion with author, May 15, 2002.
 78. Col. Larry Weaver, USAF (Ret.), discussion with author, April 12, 2002.
 79. Phillip S. Meilinger, correspondence with author, August 28, 2017.
 80. Professor Richard Muller, correspondence with author, September 2005.
 81. Lt. Gen. Jay W. Kelley, USAF (Ret.), interview with author, January 9, 2006.
 82. Col. Dennis M. Drew, USAF (Ret.), correspondence with author, May 7, 2003. A counter to Warden’s view is Robert A. Pape, *Bombing to Win: Air Power and Coercion in War* (Ithaca, New York: Cornell University Press, 1996).
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 84. David. R. Mets, *The Air Campaign: John Warden and the Classical Airpower Theorists* (Maxwell AFB, Alabama: Air University, 1988), p. 69.
 85. For Board composition and more details, see Olsen, *John Warden and the Renaissance of American Air Power*, pp. 268–273. Board proceedings are not releasable but the author interviewed many off the record.
 86. Dr. Donald B. Rice, correspondence with author, March 3, 2006.
 87. Gen. Merrill A. McPeak, interview with author, June 22, 2004
 88. Gen. Ronald R. Fogleman, USAF (Ret.), interview with author, March 10, 2004 and February 20, 2006.
 89. Gen. Wilbur Creech, USAF (Ret.), letter, August 2, 2002, in author’s collection. For a wider perspective, see James C. Slife, *Creech Blue: Gen. Bill Creech and the Reformation of the Tactical Air Forces, 1978–1984* (Maxwell AFB, Air University Press, 2004).
 90. Donald B. Rice, correspondence with author, March 3, 2006.
 91. Col. Merrick E. Krause, USAF (Ret.), “Airpower in Modern War,” *Air & Space Power Journal*, May–June 2015, p. 46. See also Abraham Jackson, *America’s Airman: David Deptula and the Airpower Moment* (Maxwell Air Force Base, Ala.: Air University Press, June 2015).
 92. David A. Deptula, “How to defeat the Islamic State,” *The Washington Post*, June 5, 2015.
 93. See for example Gen. James N. Mattis, U.S. Marine Corps, “Memorandum for U.S. Joint Forces Command,” a critical assessment of effects-based operations, published by Department of Defense August 14, 2008. See also Alan Stephens, “Fifth-Generation Strategy,” in John Andreas Olsen (ed.) *Airpower Reborn: the Strategic Concepts of John Warden and John Boyd* (Annapolis, Maryland: Naval Institute Press, 2015), pp. 128–155.

The Last Fighter Pilot: The True Story of the Final Combat Mission of World War II. By Don Brown with Captain Jerry Yellin. Washington, D.C.: Regnery History, 2017. Photographs. Maps. Bibliography. Pp. xxxiii, 222. \$25.99 ISBN: 978-162157-506-1

Captain Jerry Yellin flew combat in P-51 Mustangs with the VIIth Fighter Command's 15th FG, 78th FS on Iwo Jima during 1945. Early on August 15 (local time), with enemy surrender pending, Yellin's unit took off to attack airfields in the Tokyo area. In the meantime the enemy accepted the terms of the Potsdam Declaration and the planes were recalled. The message was not received, however, and the attack went ahead. Yellin concluded that the convergence of the surrender and the mission made his the last combat action of the war, thus the slogan the Last Fighter Pilot. Not just the usual combat chronicle, this book shares Yellin's feelings about combat, losing friends, and facing the enemy. The text flows along in a lively, readable, and descriptive style but leaves his emotional reaction to the war unresolved. A great concluding chapter would have related Yellin's postwar grapple with what he eventually concluded was PTSD.

The author of four books, including the autobiographical *Of War and Weddings*, Yellin maintains a website, writes a blog, and makes personal appearances regarding his wartime experiences. Co-author Don Brown, a former Navy JAG officer and special assistant U.S. attorney, has over a dozen works to his credit, among them *Call Sign Extortion 17*.

Brown researched numerous official records to recount VII Fighter Command strategy and tactics in detail. There are a lot of particulars about combat aircraft and plenty of harrowing detail on air combat, the Banzai attack of March 26, 1945 on Iwo Jima, and the loss of twenty-seven fighter pilots in the storm of June 1, 1945. However numerous errors crept in. B-29s are described as "gray-colored" and even "single-engined." A brief history of the global strategic bombing offensive provides context, but critical decisions are ascribed to General LeMay. This may fool novice readers but not anyone acquainted with air-war history. Unit designations are written out – "Seventy-Eighth Fighter Squadron." While perhaps in line with official practice, standard usage is the digits – 78th FS.

This book is a nice addition to Seventh Air Force historiography, most recently told in Lee and Stewart Fern's *Wings Over the Pacific* (2017) and Maj. Peter S. H. Ellis' *Hale's Handful . . . Up from the Ashes* (2015). Readers will find this memoir a nice accompaniment to Ken Rust's classic *Seventh Air Force Story* (1979), Clive Howard's *One Damned Island After Another* (1981, reissued 2014), and John W. Lambert's *Pineapple Air Force* (1990).

A tenuous two-week cease-fire preceded the formal surrender in Tokyo Bay, during which occasional inci-

dents occurred. *The Last Fighter Pilot* thus is the latest of many claims over the years to be the last combat action of the war. For instance, the family of the 20th Combat Mapping Squadron's Staff Sergeant Anthony J. Marchione, killed by enemy fighters on an Aug. 18 mission in a 386th BS B-32, considers him as the last person to die in World War II combat. In a sense all such claims are correct.

In the final analysis this book has its distractions but remains a valuable memoir of late-war combat—one of the last we'll see—and is well worth the price.

Steve Agoratus, Hamilton. N.J.



Eyeing the Red Storm: Eisenhower and the First Attempt to Build a Spy Satellite. By Robert M. Dienesch. Lincoln: University of Nebraska Press, 2016. Appendix. Endnotes. Bibliography. Index. Pp. xvi, 279. \$34.95 ISBN: 978-0-8032-5572-2

Declassification of the Corona reconnaissance satellite program in 1995 resulted in a spate of historical studies, beginning with the Central Intelligence Agency's (CIA) own volume, edited by Kevin Ruffner, *CORONA: America's First Satellite Program* (1995). In relatively short order, other scholarly accounts appeared. Among the most noteworthy were *The Corona Project: America's First Spy Satellites* (1997) by Curtis Peebles; *Eye in the Sky: The Story of the Corona Spy Satellites* (1998) by Dwayne A. Day, John M. Logsdon, and Brian Latell; and *Secret Empire: Eisenhower, the CIA, and the Hidden Story of America's Space Espionage* (2003) by Philip Taubman. All four of these volumes, with varying levels of explanation, traced the programmatic roots of Corona back to WS-117L, the first U.S. Air Force satellite program.

In his quest for a dissertation topic at Canada's University of New Brunswick, graduate student Dienesch decided to delve more deeply into the WS-117L story. He collected details from several hundred published sources—mostly secondary books and articles—and drew a substantial quantity of primary supporting documentation from various archives, including the Columbia Center for Oral History, Dwight D. Eisenhower Presidential Library, Library of Congress, National Archives and Records Administration II, RAND Corporation, and George Washington University's Space Policy Institute. The fruits of Dienesch's laborious research appeared in his 2006 doctoral thesis, "Reach for the Sky Partner: The Development of Spy Satellites during the Eisenhower Administration."

A decade later, this splendid example of historical scholarship has become more readily available as this

published book. In it, Dienesch first argues that achieving a space-based photoreconnaissance capability bore significance, not simply for purposes of military intelligence, but across President Eisenhower's entire policy for enduring and winning a decades-long cold war against the Soviet Union. Essentially, Eisenhower knew a reliable means of continuously surveilling Soviet activities would disprove exaggerated claims regarding the size and strength of Soviet bomber and long-range missile forces; such knowledge would "allow the government to balance defense spending by silencing the shrill calls of the military and its [political] supporters for larger budgets." Dienesch believes the president, over the long term, wanted to use satellite reconnaissance to "strongly counterbalance undue military influence over the political leadership" [81].

The second part of *Eyeing the Red Storm* focuses on the evolution of the WS-117L satellite program itself from 1954 to 1960. Despite being severely hampered by the near absence of financial and political support, and calling for "a level of technology not yet available in a reliable form" [136], WS-117L proved essential for Corona's success. Dienesch has no doubt that "without the WS-117L development program CORONA would have been beyond reach in 1958–1959" [159]. He explains clearly how the WS-117L film-readout satellite—Program II—proved too technically challenging and, in 1957–1958, a film-return version—Program II-A—emerged as a near-term option. In February 1958, Eisenhower decisively ordered separation of Program II-A from WS-117L. He demanded independent, accelerated development of the II-A satellite, which became Corona under CIA oversight.

Without question, Dienesch managed to research and write a first-rate history of the WS-117L program at a time when relevant documentation remained classified. Some readers of *Eyeing the Red Storm*, might be puzzled, however, by his failure even to acknowledge the appearance of additional primary and secondary material during the years between completion of his doctoral dissertation and its submission to University of Nebraska Press. In 2007, for example, the National Reconnaissance Office released a massive amount of declassified WS-117L documentation, making it available to researchers online. While that collection likely contains nothing to undermine Dienesch's historical analysis, it undoubtedly holds some crystalline details, perhaps even a gem or two he might have used to reinforce his narrative.

Dr. Rick W. Sturdevant, Deputy Director of History, HQ Air Force Space Command



Bailout over Normandy: A Flyboy's Adventures with the French Resistance and Other Escapades in Occupied France. By Ted Fahrenwald. Philadelphia, PA: Casemate Publishers, 2012. Photographs. Maps. Pp 286. \$19.95 Paperback ISBN 978-1-61200-474-7

In *Bailout over Normandy*, Mustang pilot Lieutenant Ted Fahrenwald tells his story of being brought down by ground explosion over Normandy and his subsequent "odyssey through German-occupied France." This is a true "there I was" veteran's story told in the first person.

As a young 22-year-old pilot, Fahrenwald was assigned to the 352d Fighter Group, the "Bluenosers," stationed in Bodney, Norfolk, England. On June 8, 1944 (two days after D-Day), Fahrenwald's P-51 was mortally wounded when a truck in a convoy he was strafing exploded. Shortly after he realized he wouldn't be able to make it back to England, the Mustang's engine froze. Fahrenwald quickly hit the silk and parachuted into German-occupied Normandy.

Shortly after parachuting, Fahrenwald was met by Maquis French resistance movement members. What followed was time on the run from the Nazis while waiting for Allied forces to liberate their hiding location. When the Maquis are nationalized into the Free French Army, Fahrenwald was "drafted" into the Maquis. This would be short lived as he set out with a fellow aviator in search of Allied forces and return to service in England.

On the run and trying to pass themselves off as displaced Frenchmen, Fahrenwald and his fellow airman were captured by German Forces. Once interred in a temporary prison camp in France waiting further relocation to Germany, Fahrenwald immediately began planning his escape. While on a work release party, he was able to escape and begin an extremely tense journey through heavily fortified German-held territory. After staying with a French couple, he was finally liberated by American Forces. But his expectations of a quick trip back to England were thwarted by Allied attempts to detain him to make sure he wasn't a spy. Finally, after evading the German military for months, he did return to England.

Bailout over Normandy is an absolute page turner. The story is constantly filled with suspense as Fahrenwald struggles to return to England and to flying. Death and the risk of capture by the Germans literally lurk behind every hedgerow, every stand of trees, and every checkpoint. Fahrenwald is an absolutely superb story teller. The book flows at an amazingly quick pace and includes a map to help readers orient themselves to his location.

Fahrenwald wrote his memoir sometime after he returned from the war. While he kept in contact with various Maquis and French people who helped him avoid

capture, he never returned to Europe. After writing this humble, yet amazing, memoir, Fahrenwald locked it away and went on with his life. Readers owe a great deal of thanks to his daughter, Madelaine. After her father's death in 2004, she worked to get the manuscript published. Her editing was light so as to keep her father's intent and style. What results is a well written story. Certainly, other veterans' "there I was" manuscripts are either sitting on a shelf or waiting to be told by our ever-dwindling group of veterans. All of their stories need to be preserved and shared; they are a legacy of the Greatest Generation.

Having reviewed multiple World War II memoirs, I believe Fahrenwald's *Bailout over Normandy* is certainly one of the absolute best. Aviation fans looking for stories of flying will quickly discover that the title tells the focus of this work: BAILOUT. That is where this story truly begins. Fans of escape and evasion stories will certainly enjoy the book. It is an absolute winner and now occupies an honored location on my bookshelf. We can thank the Fahrenwalds for sharing the story with the world.

Lt Col Daniel J. Simonsen, USAF (Ret), Bossier City, La.



America's First Rocket Company: Reaction Motors, Inc. By Frank H. Winter. Reston Virginia: American Institute of Aeronautics and Astronautics, 2017. Figures. Endnotes. Index. Supporting Materials. Pp. xx, 303. \$39.95 Hardcover ISBN: 978-1624104411

We need an occasional reminder that the history of rocket development and manufacturing in the United States did not begin with Wernher von Braun and his associates from Peenemünde, most of whom came to America under Operation Paperclip in late 1945. By then, the U.S. military already had contracted with at least two home-grown companies—Reaction Motors, Inc. (RMI) and Aerojet Engineering Company—that had jumpstarted and substantially improved rocket-engine production. As Frank Winter explains in *America's First Rocket Company*, four American Rocket Society members founded RMI in December 1941 and, three months later, obtained its first government contract for a liquid-propellant, jet-assisted-take-off (JATO) unit.

Over the next 30 years, as an independent enterprise and as a division of Thiokol Chemical Company after April 1958, Reaction Motors built increasingly powerful rocket engines to propel U.S. military missiles and experimental aerospace planes. The company's rocket engines powered Convair's experimental MX-774 test missile, predecessor of the Atlas ICBM, in the late 1940s. From the Gorgon family of missiles that originated officially in 1943, to the Bullpups that evolved during the

late 1950s and early 1960s, RMI supplied the propulsion systems. It did the same for the Navy's surface-to-air Lark, the Air Force's area-defense anti-aircraft Bomarc booster, the Army's short-range Lance, and a host of other small missiles.

With its sights set on designing rocket engines to propel craft ever faster, higher, and farther, RMI developed an engine in 1948 for the Viking sounding rocket and, thereby, staked a claim to spaceflight. From the XLR-11 power plant that enabled Captain Chuck Yeager to break the sound barrier in the X-1 on 14 October 1947, to the XLR-99 engine that boosted X-15 pilots to hypersonic velocities in the early 1960s, RMI celebrated a string of engineering triumphs. Finally, a trio of equidistantly placed Reaction Motors Division (RMD) Vernier engines slowed several Surveyor spacecraft for lunar soft landings during 1966–1968.

Even the most perfunctory scan of annotations in *America's First Rocket Company* reveals the remarkable depth and breadth of the author's research. Winter, curator emeritus of rocketry at the Smithsonian's National Air and Space Museum (NASM), not only mined a host of documentary gems from that institution's RMI/RMD and other archived files, but also gleaned additional insights by firsthand examination of actual RMI/RMD technological artifacts in the NASM collection. As any meticulous scholar should, he integrated additional information from personal interviews or correspondence with aging company employees, photographs, non-NASM archives, and carefully selected secondary sources—books, professional journals, magazines, and newspapers. The result is a spectacularly detailed, technical history commemorating the 75th anniversary of RMI's founding.

Some readers might recall that Winter and the late Frederick Ordway III previously published *Pioneering American Rocketry: The Reaction Motors, Inc. (RMI) Story, 1941–1972* in the American Astronautical Society History Series. While a substantial amount of overlap exists between that volume, which appeared in 2015, and *America's First Rocket Company*, the latter "contains both new information and new perspectives" presented "in a more condensed form and more popular tone" [xviii]. With these two books, Frank Winter has added immeasurably to our historical understanding of U.S. rocketry and has unquestionably established himself as the authority on the place of RMI/RMD in that history.


Dr. Rick W. Sturdevant, Deputy Director of History, HQ Air Force Space Command



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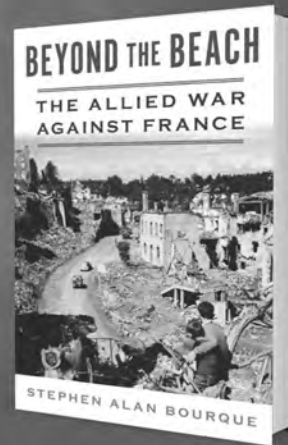
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A Shau Valor: American Combat Operations in the Valley of Death, 1963-1971. By Thomas R. Yarborough. Havertown PA: Casemate Publications, 2016. Maps. Photographs. Notes. Bibliography. Index. Pp 311. \$32.95 ISBN: 978-1-61200-354-2 (978-1-61200-355-9 digital)

Yarborough previously published *Da Nang Diary*, an account of his experiences as a forward-air controller during two tours and more than 600 missions during the Vietnam War. Besides a 28-year career in the Air Force, he also taught history at Indiana University. Blending his personal experiences with an academic approach combining primary and secondary sources, he has chronicled repeated American attempts to control the A Shau Valley, a remote and inhospitable region in the north-west corner of what was South Vietnam.

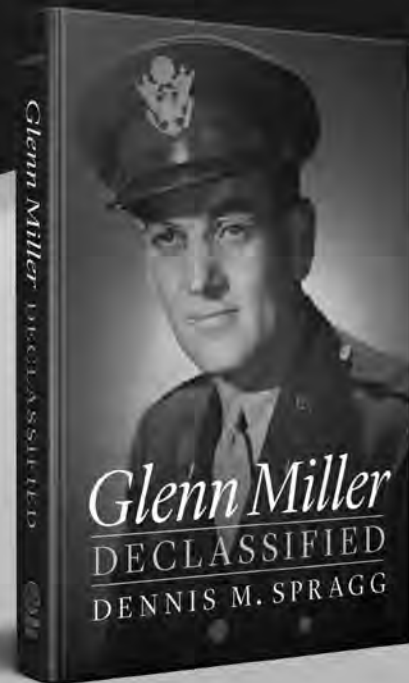
Proceeding in chronological order, Yarborough breaks down U.S. Army and Marine activity in the valley on a year-by-year basis. He points out the valley's strategic significance to all concerned as a principal supply route leading from the North Vietnamese "trunk lines" in off-limits Laos to the northern and central lowlands of South Vietnam. Perhaps because the Ho Chi Minh Trail network was politically "out of bounds" in neutral Laos and Cambodia, U.S. decisionmakers felt compelled to attack this critical line of communication once it entered South Vietnam. They would be hard pressed to find a more difficult place in which to operate with ether air-assisted special forces or conventional ground units.

Yarborough emphasizes the incredibly inhospitable terrain and the absolutely miserable weather that time and again negated the American advantage of close air support and also disrupted helicopter operations. In fact, if one ever wanted a case study on the limits of vertical airlift, this is where to go. Despite the extraordinary bravery of the individual American soldier, Marine, and airman, collectively they seldom had a chance for success.

In many respects, the inability of U.S. commanders to come to grips with the significant advantages enjoyed by the North Vietnamese (internal lines of communication, far superior topographical intelligence, superior numbers, tactical and strategic initiative) reminds one of simple arrogance. Parallels with some of America's poorest planning and execution from World War II—for example, the battle for Peleliu in the Southwest Pacific and the assault on the Hürtgen Forest in Germany—come to mind. Ultimately, American forces prevailed in these battles, but the strategic gains proved negligible, just as in the A Shau.

Whether it was repeated insertions of special recon-

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naissance teams with very mixed results or the deployment of division-size units, the Americans time and again would depart with the North Vietnamese once again asserting their tactical and strategic superiority. Like so much that happened in Southeast Asia, the United States failed to define victory. In many ways, the A Shau served as a microcosm of the entire conflict. To permanently control the valley required deploying far more troops than the political climate would ever allow.

While the narrative naturally focuses on ground operations, close air support operations (including details of numerous lost aircraft) receive their just due. Several pages are devoted to the actions of Major Bernard E. Fisher, flying a Douglas A-1E Skyraider in support of a special forces base in March 1965. Fisher became the first Air Force flyer in the Vietnam War to receive the Medal of Honor after he rescued a member of his flight, Major "Jump" Myers, who had crash landed near the primitive runway.

Steven D. Ellis, Lt Col., USAFR (Ret), docent, Museum of Flight, Seattle



PROSPECTIVE REVIEWERS

Anyone who believes he or she is qualified to substantively assess one of the new books listed above is invited to apply for a gratis copy of the book. The prospective reviewer should contact:

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MODERN WAR STUDIES

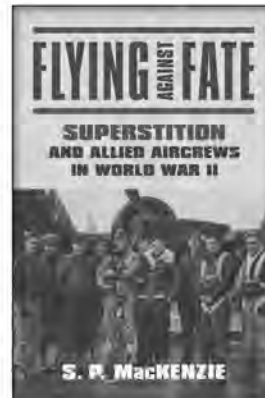
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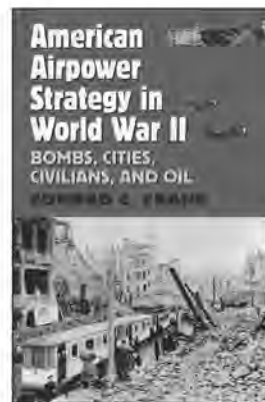
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Coming Up



Compiled by
George W. Cully

January 4-7, 2018

The **American Historical Society** will hold its 132nd annual meeting at the Marriott Wardman Park Hotel in Washington, DC. The meeting theme will be “Race, Ethnicity, and Nationalism in Global Perspective.” For details, visit the Society’s website at <https://www.historians.org/annual-meeting/future-meetings>.

January 8-12, 2018

The **American Institute of Aeronautics and Astronautics** will host its annual Science and Technology Forum at the Gaylord Palms Hotel in Kissimmee, Florida. The gathering serves as a platform for eleven specialist events. For more information, see their website at <http://scitech.aiaa.org/Program/>.

February 21-23, 2018

The **Air Force Association** will host its annual Air Warfare Symposium at the Rosen Shingle Creek Hotel in Orlando, Florida. For additional words, see the Association’s website at www.afa.org.

March 1-2, 2018

The **Center for the History of Physics** will host a symposium entitled “To Boldly Preserve: Archiving for the Next Half-Century of Space Flight” at the American Institute of Physics in College Park, Maryland. For more information, email toboldlypreserve@gmail.com.

March 13-15, 2018

The **American Astronautical Society** will host its annual Robert H. Goddard Memorial Symposium in Greenbelt, Md. This year’s theme is “Future Space: Trends, Technologies and Missions.” For more information, see the Society’s website at <http://astronautical.org/events/goddard/>.

April 5-8, 2018

The **Society for Military History** will host its 85th annual symposium in Louisville, Kentucky. The theme of this year’s gathering is “Landscapes of War and Peace.” For additional info, see the Society’s website at <https://www2.eventtrebels.com/er/CFP/OnlineSubmissionEMailLogin.jsp?CFPID=749&Submit=Re>

set&Token=Y2GSDUHMKDATLDM4F96XJYZHSA.

April 12-14, 2018

The **Organization of American Historians** will hold its annual meeting at the Sacramento Convention Center in Sacramento, Calif. This year’s theme is “The Forms of History.” For registration, see the Organization’s website at www.oah.org/meetings-events/2018/.

April 16-19, 2018

The **Space Foundation** will host its 34th annual Space Symposium at The Broadmoor Hotel in Colorado Springs, Colorado. The Foundation bills this event as the world’s premier gathering of space professionals. For registration and other info, see the Foundation’s website at www.spacesymposium.org/.

April 18-21, 2018

The **National Council on Public History** will hold its annual meeting at the Renaissance Las Vegas Hotel in Las Vegas, Nevada. The theme of this year’s meeting is “Power Lines.” For details, see the Council’s website at <http://ncph.org/conference/2018-annual-meeting-2/>

April 24-28, 2018

The **Army Aviation Association of America** will hold its annual Army Aviation Mission Solutions Summit at the Gaylord Opryland Hotel in Nashville, Tennessee. Get details on registration at the Association’s website at <http://www.quad-a.org>.

April 30-May 3, 2018

The **Association for Unmanned Vehicle Systems International** has scheduled Xpotential 2018, its premier annual symposium and exhibition to be held at the Colorado Convention Center in Denver, Colorado. For more information, see the Association’s website at <http://www.auvsi.org/events/xpotential/auvsi-xpotential-2018>.

May 14-17, 2018

The **American Helicopter Society International** will host its 74th annual Forum and Technology Display in Phoenix, Arizona. This year’s theme is “The Future of Vertical Flight.” For

details, see the Society’s website at <https://www.vtol.org/annual-forum/forum-74>.

May 17, 2018

After a thirteen-year restoration effort, the **National Museum of the United States Air Force** will put the famed B-17F Memphis Belle – the first USAAF heavy bomber to complete 25 combat missions over Europe and return to the U.S. — on public display at the museum in Fairborn, Ohio. For more details, see the announcement at <http://www.nationalmuseum.af.mil/Upcoming/Press-Room/News/Article-Display/Article/1052156/b-17f-memphis-belle-to-be-placed-on-public-display-on-may-17-2018-at-national-m/>.

July 4-8, 2018

The Womens’ Aviation Association, better known as **The Ninety-Nines**, will hold its annual convention in Philadelphia, Pennsylvania. For more details as they become available, see their website at <https://www.ninety-nines.org>.

July 17-21, 2018

The **International Committee for the History of Technology** will hold its 45th annual meeting in Saint-Étienne, France. Registration and program details can be found at their website: <http://www.icohtec.org/annual-meeting-2018.html>.

Readers are invited to submit listings of upcoming events. Please include the name of the organization, title of the event, dates and location of where it will be held, as well as contact information. Send listings to:

George W. Cully
3300 Evergreen Hill
Montgomery, AL 36106
(334) 277-2165
E-mail: warty@knology.net

Colonel John Schlight, USAF (Ret.) 1926-2017



Col. John "Jack" Schlight, USAF (Ret.) passed away peacefully on September 4, 2017 at the age of 90. Jack was born in Brooklyn, New York in 1926. He graduated from Bishop Loughlin High School in 1944. That same year he joined an order of Benedictine monks in Newton, New Jersey as a postulant.

He started college at the monastery of St. Paul's in Newton, then in 1945 joined St Vincent's Abbey in Latrobe, Pennsylvania, a larger Benedictine school, for his final two years. In the Benedictine order Jack was known as Frater George. The order encouraged him to seek an advanced (Master's) degree in philosophy at Fordham College in New York City in 1949. Jack left the Benedictine order in 1952 to join the Air Force, moving from spiritual to more "worldly" service to mankind.

While stationed in Japan he met and married Ellen Mahood. He served as a navigator in the Korean War and as a historian and author in Vietnam. Jack was hon-

ored to be chosen as a professor for one of the first classes to attend the newly established Air Force Academy campus in Colorado Springs, Colorado.

In 1961 Jack left Colorado to attend Princeton University where he attained his PhD in history. He then returned to the Air Force Academy as a professor of history until 1973 when he relocated to the Washington, D.C. area to join the faculty at the National War College. Jack also held a position as a Professor of History at George Washington University.

Following his tenure at the National War College, Col. Schlight moved on to be the Deputy to the Chief of the Office of Air Force History. He retired from the United States Air Force with the rank of Colonel in October, 1989, and while in retirement was active in historical research and writing as a contract historian to a number of government history offices.

During his distinguished academic career Jack wrote numerous articles for military journals and contributed chapters to a number of books and textbooks on military history. He authored five scholarly books on military history. Jack's passion for medieval history inspired him to write a book on Henry II followed by another on medieval military history. Jack and Ellen lived in the Riverside Gardens neighborhood of Alexandria for 35 years prior to moving into The Fairfax. Once at The Fairfax Jack immersed himself into his many interests, including co-authoring a book on the creation of The Fairfax community and working in the library. He wrote many book reviews for the Fairfax's newspaper, *The Flambeau*, enjoyed and appreciated by many of the residents. Often a "lonely liberal" amongst a more conservative community he and Ellen thrived at The Fairfax and they leave many devoted friends. Jack was preceded in death by his beloved wife of 61 years, Ellen Louise Mahood Schlight, their youngest daughter Gretchen Marie Schlight Maloney and his brother Robert Schlight. He is survived by his three children Nora Mary Rowny (Kendre), Julia Elizabeth Bunnell, and John Andrew Schlight (Melody); seven grandchildren; Grayson Rowny, Benjamin Rowny, Jonathan Rowny (Katya), Lily Rowny, Alexander Bunnell, Nicole Schlight Santos (Jose) and Rebecca Schlight. He also leaves three great-grandchildren; Anissa Rowny, Alexi Rowny and Daniel Santos.

Reunions

Strategic Air Command Airborne Command and Control Association (SAC ACCA) Sep. 12–15, 2018, Courtyard by Marriott, Omaha South, Bellevue at Beardmore Event Center, Bellevue, NE. Contact:

Norma Kathman
402-250-7065
norkath@cox.net

6th Air Reserve Transportation. Sep. 21-23 2018, Fairborn, OH. Contact

Ken Byrd
105 Moultrie Lane
Aberdeen NC 28315
(703) 623-2538
kabyrdconsulting@aol.com

12th TFW (MacDill AFB, Cam Ranh AB, Phu Cat AB), **389 & 480 TFS** (Da Nang), **555th TFS** (1964-1966), **12th FEW/SFW** (Bergstrom AFB & Korea) Apr 4-7, 2018, Tucson, AZ. Contact ;

E J Sherwood
480-396-4681
EJ12TFW@cox.net

38th Tactical Recon Sqdn. Oct 3-6, 2018, Dayton/Fairborn, OH Contact:

Greg Hartley
4304 Beaumont Ct,
Fairfax, VA 22030
571-238-6273
pghartley@hotmail.com

91st Bomb Group Memorial Assn.

May 16-19, 2018, Dayton, OH Contact:

Mick Hanou
607 Blossom Ct,
Pleasanto, CA 94566
925-425-3220
mhanou@comcast.net

302nd Buckeye Wing Assn. Aug 16-18, 2018, Fairborn, OH. Contact:

Jerry Millhouse
6715 Yorkcliff Pl,
Dayton, OH 45459
937-433-3156
jmillhouse@aol.com

401st Bomb Group. May 15-19, 2018, Dublin, OH. Contact:

Dale Anderson
P.O. Box 2718
Gig Harbor, WA 98335
540-583-5212
danavy1970@gmail.com

548th Recon Technical Grp. Jul 12-14, 2018, Fairborn, OH. Contact:

Cecil Brown
2459 S Old Oaks Dr,
Beavercreek, OH 45431
937-426-0948
cecilb211@ameritech.net

610th Military Airlift Support Sq. August 23-25, 2018, Fairborn, OH. Contact:

Harold Mitchell
354 Sussex Cir,
Vacaville, CA 95687
707-447-3536
mitch610mass@aol.com

4950th Test Wing/Aria 328 Memorial.

May 6, 2018, Fairborn OH. Contact:

Bob Beach
1616 Ridgeway Drive
Springfield OH 45505-4023
(937) 325-6697
ariabob@woh.rr.com

Cold War Eagles (Edwards AFB). Jul. 31- Aug. 4, 2018, Dayton, OH. Contact:

Chandra Hightower
PO Box 104
Wilberforce, OH 45384-0104
(937) 376-3990
ccllns793@gmail.com

Sampson AFB Veterans. May 22-24 2018, Fairborn OH. Contact:

Hal Fulton
2833 Mara Lona
Wooster OH 44691
(330) 264-5200
fasu@aol.com

PTC-68H (Moody AFB). Jun 7-9, 2018, Fairborn, OH. Contact:

Tom Crowley
9168 Woodstream Ln,
Dayton, OH 45458
937-885-5286
tj-bj@woh.rr.com

C-7A Caribou Assn. Sep 5-9, 2018, Fairborn, OH. Contact:

Patrick Hanavan Jr.
12402 Winding Branch,
San Antonio, TX 78230
210-479-0226
pathanavan@aol.com

Guidelines for Contributors

We seek quality articles—based on sound scholarship, perceptive analysis, and/or firsthand experience—which are well-written and attractively illustrated. The primary criterion is that the manuscript contributes to knowledge. Articles submitted to *Air Power History* must be original contributions and not be under consideration by any other publication at the same time. If a manuscript is under consideration by another publication, the author should clearly indicate this at the time of submission. Each submission must include an abstract statement of the article's theme, its historical context, major subsidiary issues, and research sources. Abstracts should not be longer than one page. Manuscripts should be prepared according to the Chicago Manual of Style (University of Chicago Press). Use civilian dates (month, day, year) and either footnotes or endnotes may be used. Because submissions are evaluated anonymously, the author's name should appear only on the title page. Authors should provide on a separate page brief biographical details, to include institutional or professional affiliation and recent publications, for inclusion in the printed article. Pages, including those containing illustrations, diagrams or tables, should be numbered consecutively. Any figures and tables must be clearly produced ready for photographic reproduction. The source should be given below the table. Notes should be numbered consecutively through the article with a raised numeral corresponding to the list of notes placed at the end. Submissions may be submitted either by mail or via email. Email is generally the norm. While Microsoft Word is the most common, any word processor may be used. Photographic illustrations are greatly appreciated. There is no restriction on the file format used. There is no standard length for articles, but 4,500-5,500 words is a general guide. Manuscripts and editorial correspondence should be sent to Richard Wolf, Editor, c/o Air Power History, 3043 Sunny Ridge Drive, Odenton, MD 21113, e-mail: airpowerhistory@yahoo.com.

F-15 Gathering of Eagles 45. Jul 27-29, 2018, Fairborn, OH. Contact:

Donna Friedman
2508 Cedronella Dr,
Chapel Hill, NC 27514
919-382-7271
donnafriedman26@gmail.com

Ploesti Raid - 75th Anniversary. Jul 31 - Aug 2, 2018, Fairborn, OH. Contact:

Blaine Duxbury
16323 Meadowlands Lane
Westfield, IN 46074
317-697-9584
bdux@aol.com

List provided by:

Rob Bardua
National Museum of the U.S. Air Force
Public Affairs Division
1100 Spaatz Street
WPAFB, OH 45433-7102
(937) 255-1386

History Mystery Answer



On May 13th, 1942, the B-17F "Hell's Angels" (#41-24577) became the first heavy bomber to complete 25 combat missions in the European Theater. "Hell's Angels" was assigned to the 358th Bomb Squadron, 303rd Bombardment Group (H) and flew from RAF Molesworth. After completing her twenty-fifth mission, "Hell's Angels" remained in theater until 1944, and flew a total of forty-eight missions without any injured crewman or abort. "Hell's Angels" returned to the United States in January 1944, to tour various war factories. Unfortunately after the war, "Hell's Angels" was sold for scrap in August 1945.

The second heavy bomber to complete 25 combat missions was aircraft #41-24485 "Memphis Belle." The "Memphis Belle" was assigned to the 324th Bomb Squadron, 91st Bombardment Group (H) and flew from RAF Bassingbourn. She became the first aircraft to complete 25 missions and RETURN to the United States. As an interesting side note, a replacement crew flew her on her 25th mission. After her 25th mission, piloted by her primary aircraft commander, Capt Robert Morgan, "Memphis



Belle returned to the United States for a War bond tour. After touring the country on a war bond tour, then Major Robert Morgan completed a second combat tour; this time in the Pacific flying the B-29 Superfortress. The "Memphis Belle" survived the scrap heap and is currently being restored at the National Museum of the Air Force. To coincide with the 75th anniversary of her completing her 25th mission, the "Memphis Belle"™ will be placed on exhibit at the Air Force museum. To learn more about early period of the European Airwar, "Hell's Angels" and "Memphis Belle" visit these Air Force Websites:

Bombing the European Axis Powers by Richard G. Davis: https://media.defense.gov/2010/Oct/27/2001330220/-1/-1/0/davis_bombing_european.pdf

THE ARMY AIR FORCES In World War II, Volume 2 "Europe: Torch to Pointblank" by Wesley Craven and James Cate: <https://media.defense.gov/2010/Nov/05/2001329887/-1/-1/0/AFD-101105-006.pdf>

303rd Bomb Group and "Hell's Angel": <http://www.303rdbg.com> & <http://www.nationalmuseum.af.mil/Visit/Museum-Exhibits/Fact-Sheets/Display/Article/195966/boeing-b-17f-memphis-belle/>

"Memphis Belle Exhibit" Opening Events May 2018: <http://www.nationalmuseum.af.mil/Upcoming/Boeing-B-17F-Memphis-Belle-Exhibit-Opening-May-17-2018/>



Test your knowledge of Airpower history by trying to answer this quarter's history quiz. Since the goal is to educate and not merely stump readers, you should find the multipart question, challenging but not impossible. Good Luck

In May, 1943, two B-17s (from two separate Bomb Groups) were the first heavy bombers to complete twenty-five combat missions in the European Theater. Both aircraft flew their first combat mission in November of 1942. The first B-17 flew its first combat mission to St. Nazaire, France on November 17, 1942. Ten days earlier, on November 7, 1942, the second of the aircraft flew its first bombing mission to Brest, France. The two aircraft completed their 25th bombing mission within two weeks of each other in May 1943. Both aircraft flew missions to France, the Netherlands and Germany. One of the aircraft eventually gained more fame and was featured in a 1944 documentary.

Name the two aircraft. For a bonus question, name the bomb group for the each aircraft and the primary aircraft commander for the second aircraft.



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