

AIR POWER

SUMMER 2018 - Volume 65, Number 2
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History

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The Air Force *Historical* Foundation

Founded on May 27, 1953 by Gen Carl A. “Tooe” 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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All members receive our exciting and informative *Air Power History Journal*, either electronically or on paper, covering all aspects of aerospace history

- Chronicles the great campaigns and the great leaders
- Eyewitness accounts and historical articles
- In depth resources to museums and activities, to keep members connected to the latest and greatest events.

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.
- Establish connections between generations.



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The Journal of the
Air Force Historical Foundation
Summer 2018 Volume 65 Number 2

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Air Power History (ISSN 1044-016X) is produced for Spring, Summer, Fall, and Winter by the Air Force Historical Foundation.

Prospective contributors should consult the **GUIDELINES FOR CONTRIBUTORS** at the back of this journal. Unsolicited manuscripts will be returned only on specific request. The Editor cannot accept responsibility for any damage to or loss of the manuscript. The Editor reserves the right to edit manuscripts and letters.

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Correspondence regarding missed issues or changes of address should be addressed to the **CIRCULATION OFFICE**:

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Periodicals postage paid at Clinton, MD 20735 and additional mailing offices.

Postmaster: Please send change of address to the Circulation Office.

This issue seems to be mainly centered on the conflict in Southeast Asia, with three articles on the subject, and one on a little-known aspect of World War II.

Our first article is an excellent piece by a new contributor, Theo van Geffen, an F-105 expert from the Netherlands, and the first part of his history of the attempts to use the Thunderchief to knock down the Thanh Hoa Bridge. It's a fascinating story, and it will be continued in a later issue.

The second article is by a long-time and recently-awarded contributor, William Head, who tells the story of Col. Robin Olds and Operation Bolo. It's a very interesting story, describing how Olds went about luring the North Vietnamese Air Force into an aerial ambush.

Our third article is from an old friend of the magazine, Darrel Whitcomb, who has a history about rescue operations during Linebacker II in 1972. As usual with Darrel, it's very detailed, and a fascinating bit of history.

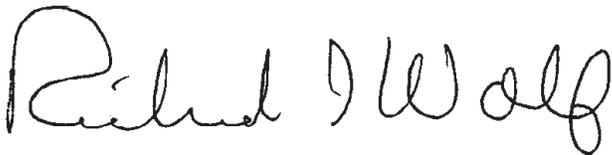
The fourth article is an article by one of our best and well-known contributors, Daniel Haulman, as he describes the trials and tribulations of the Tuskegee Airmen under two very different commanders.

As always, we include the usual accompanying book reviews, of which we have provided fourteen this issue. 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.

Additionally, we include our lists of upcoming historical conferences and events, reunions, and an In Memoriam, all starting on page 60. Finally, we close with the Mystery on page 64.

Don't miss the flyer for an upcoming air power symposium, taking place in the autumn, that is found on page 4.

The Message from the President starts on page 5. Hope you enjoy it all.



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1968.

Tet.
Hue City.
Khe Sanh.
The End of Rolling Thunder.
The air-to-ground campaign escalates.
Interdiction along the coast and on the river.
1968 was the defining year of the Vietnam War.

IN COUNTRY: THE WAR IN VIETNAM - 1968

A symposium sponsored by the five military historical nonprofit organizations:

Air Force Historical Foundation | Army Historical Foundation
Foundation for Coast Guard History | Marine Corps Heritage Foundation
Naval Historical Foundation



NOV 15-16, 2018
Marine Corps University
Quantico, VA

Call for Papers Deadline June 30
Contact: Matt Seelinger
Army Historical Foundation
matt.seelinger@armyhistory.org

May 2018 State of the Foundation

Dear Members,

Your foundation just completed a good year and looks forward with energy and optimism. Operationally and financially, the Air Force Historical Foundation largely maintained or advanced its position. Whether through publishing quality scholarship in our flagship *Air Power History*, disseminating short items of historical interest via electronic media, conducting awards and events, or behind-the-scenes work by your volunteer Board, we continue to press to keep airpower history accessible, accurate and relevant. Our resource picture remains modestly positive, with our recently-received major bequest returning gains above our projections. We hope to grow this and future major gifts to the point they routinely cover future, more robust operating expenses. To that end, we are avoiding drawing on the corpus of those funds in order to assure the existence—if not the full potential—of the Foundation for many years to come.

Reaching our potential will require reinvigorating selected past efforts, but that is not enough. We must expand our horizons with regard to organizational partnerships, enhanced collection and sharing of oral history, leveraging the formidable storehouse of scholarship in Airpower History, and other innovative ways to draw serving Airmen to be motivated by their heritage and interested in airpower history. Equally, there are individuals and companies with connections to airpower we are not yet reaching, and we should. If we are to sustain and honor the stewardship, esteem, and respect in which Foundation members hold our Air Force's history, we will need ideas and support from all, and as time and resources permit, financial and personal support from some of you.

Awards

The Foundation put together memorable award events this year. The 2017 Doolittle Award was presented in two different venues to the 432nd Wing: The first was at a wing-wide event at their home station, Creech Air Force Base, on January 18th, and the second was at the Air Force Memorial and subsequent Annual Awards Banquet on January 30th. The 432nd brought to Washington nearly sixty of its members for the event, which made it a very lively, “multigenerational” evening! Those in attendance were treated to personal, humorous, and very thoughtful remarks from our Spaatz award recipient General Richard B. Myers. We were also quite fortunate to have in attendance Keith Ferris, our Holley award recipient, who shared both a wonderful slideshow of some of his aviation art and some heartfelt remarks of thanks.

The success of these events has emboldened our Board to sustain this diversity going forward. We intend to increase our visibility via both Washington and other award presentation venues.

Social Media and Email Outreach

Continuing our initiative from last year's website upgrade, we made a strong effort to expand our outreach, and achieved over twenty percent growth in all of our current channels: e-mail, Twitter, and Facebook. This seems to be paying off with increased membership in the Associate (online) category. We have developed an ambitious slate of ideas to increase diversity of content and pace of update on the website, and your Board will be considering the best ways to economically but effectively accelerate the expansion your dedicated Foundation staff has led over the last couple of years.

JSTOR

The Foundation is most pleased to now have its 64-year history of published articles incorporated into JSTOR. JSTOR, short for Journal Storage, is a globally known resource that provides access to more than ten million sources in seventy-five disciplines, through a powerful research and teaching platform. JSTOR collaborates with the academic community to help libraries connect students and faculty to vital content while lowering costs and increasing shelf space, provide independent researchers with free and low-cost access to scholarship. Importantly for us, it also helps publishers reach new audiences and preserve their content for future generations. Over the next months we will be working to make this available through our website to interested members and researchers, thereby giving our journal a much more visible (and rightful) place in the military history community. JSTOR has the potential to provide a small but enduring income stream, permanently leveraging the value resident in Airpower History and its predecessor AFHF publications.



Financial Report

This portion of the report is reminiscent of earlier years because our financial condition remains relatively stable. Our newly established investment portfolio provides us the ability to sustain AFHF far in the foreseeable future, but is not yet in position to defray significant portions of our operating expenses. The defense industry belt tightening over the past several years has hampered sponsorship by our traditional partners, without much growth in the size of the cohort of other historically-inclined corporate donors. We ended this year with more funds than we had when it started, but this was a year of exceptional investment returns. Our operating costs were covered in large part by the income generated from investment revenues and parsimoniously reducing the size of the principal—but we do not want to continue drawing from our investments to cover ongoing expenses until they reach a size where this would be sustainable indefinitely.

Here is where we stand with two months remaining in our fiscal year:

The bottom line: Your Board is grappling with a range of ideas to enhance our value to potential members and sponsors, increase services for our membership, and energize our relationship with the Air Force to ensure we are supportive and relevant to today's and tomorrow's Airmen. If we are successful, we can make sponsorships, bequests, and annual donation more attractive. Along with making the Foundation's intellectual property better known outside AFHF, and accessible to non-members appropriately, we can not only close our current small gap, but reliably sustain the enhanced value the Foundation is capable of providing.

Your thoughts and recommendations are most welcome.

Plans for the Coming Year

Besides the rollout of JSTOR we are looking at several programs that might prove to be financially rewarding. The first is publishing a compendium of key *Air Power History* articles whose subjects have proven to be both enlightening and enduring. We believe it could be possible to market this as a text, and other interesting book ideas have been mentioned for consideration. Secondly, perhaps in partnership with a kindred organization, would be a commemorative coin from the US Mint. Numerous organizations like AFHF have successfully accomplished this. Another newly proposed initiative would involve facilitating historical exploration for small groups in airpower-relevant settings. We are looking at expansion of organizational partnerships that could drive web-savvy visitors to AFHF's electronic media and generate interest in membership. Many of these ideas could only proceed in parallel with an increase in our electronic content, which will require resources to build and maintain. Finally, we are examining our fundraising development processes for improvement. In today's economic environment, previous professional fundraising efforts may be worth re-examining.

Looking to the Future

It is no surprise to Foundation members that our organization has had to work hard for financial viability almost since its inception. Today, due to the efforts of previous AFHF leadership and the generosity of a long-time member, long-term existence is virtually assured—and we will remain an integral part of the *air power* landscape. However, this newly established solvency merely gives us the “runway” to grow into the organization envisioned by generations of Air Force Historical Foundation leaders—Spatz, Vandenberg, Foulois, LeMay, and other dedicated Airmen.

As we close this fiscal year, I am confident AFHF has what it takes to remain a thoughtful voice within the dedicated air power community. We have a historically unique and important role promoting the legacy of airmen and educating future generations to aspire to follow in airpower's legacy of valor, dedication and innovation. We must remain committed to broadening the air power community to help meet future complex national security challenges. I join the Board of Directors in determination to lead with respect for the past and faith in the future, and to keep our Foundation on the move and worthy of your interest, investment and support.

Finally, it is my honor to commend Dr. Richard Wolf, our dedicated editor, on the accomplishment of producing his 100th issue of this superb journal. His quiet, discerning service makes *Air Power History* an invaluable resource, and we are grateful for all he does.

Sincerely,

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

The Air War against North Vietnam: the Thanh Hoa Railroad and Highway Bridge (Part 1)



The first Rolling Thunder (RT) mission in the air war against North Vietnam was RT 5 and was executed on March 2, 1965. The force included twenty B-57B Canberras. The photo shows engine start of seven aircraft. The safety of personnel and aircraft does not seem to have a high priority! (Except where noted all photos USAF via the author.)

Theo van Geffen

The Thanh Hoa Railroad and Highway Bridge, over the Song Ma River, was the second largest bridge in North Vietnam. It carried Rail Line Four and Route 1A. Rail Line Four was the only rail line between the capital of Hanoi and Vinh and south of the 20th parallel. Route 1A was the main road to the south. Interdiction of the bridge was to eliminate through traffic between Hanoi and Vinh and would accordingly make transportation of supplies into South Vietnam more difficult and costly for the North Vietnamese. However, the bridge proved to be a formidable and frustrating target for the Americans as it would withstand numerous strikes by Air Force and Navy planes until it was finally downed by four Navy A-7C Corsair IIs on October 6, 1972.

When it became apparent that the U.S. share in the war in Southeast Asia would have to be increased, the Joint Chiefs of Staff (JCS) set up a working group to investigate alternatives for air operations against the Democratic Republic of Vietnam (DRV, North Vietnam). After the workgroup had looked at about 451 possible targets, a first list with 99 targets was presented on May 22, 1964 to the Commander in Chief Pacific (CINCPAC) with the request to comment. Taking his and other comments into account, the original list was modified and on August 24, 1964 a version with 94 targets, the *94 Target List*, was presented to Secretary of Defense Robert S. McNamara.

Retaliation

The 94 Target List included targets such as railroad and highway bridges, oil storage sites, railways and power plants, largely the limited industrial infrastructure of the country. Additional targets included military objectives such as air bases, barracks and ammunition storage sites. The list would serve as a guideline when the U.S. government decided to attack the country on a large(r) scale.

Two of the targets had already been attacked before the 94 Target List was presented to McNamara. As a retaliation for the supposed attacks on August 2 and 4, 1964, by North Vietnamese Swatow patrol boats against the USS *Maddox* and *C. Turner Joy* in the Gulf of Tonkin, on August 5, sixty-four U.S. Navy (USN) aircraft from the USS *Ticonderoga* (CVA-14) and USS *Constellation* (CVA-64) attacked targets in the country in Operation Pierce Arrow. They included the home of the PT boats and an oil storage site at Vinh. Two aircraft were lost, one A-1 Skyraider with its pilot, Lt (jg) Richard Sather, becoming the first naval aviator to die in the conflict, and an A-4E Skyhawk with its pilot, Lt (jg) Everett Alvarez, Jr, the first naval aviator to become a POW.

Special thanks to Colonel Vern Kulla.

In addition, the U.S. Air Force (USAF) presence in Southeast Asia was expanded with, among others, KB-50J aerial tanker, B-57B Canberra, RF-101C Voodoo, (T) F-102A Delta Dagger and F-105D Thunderchief aircraft, equipment and personnel.

JCS 14

One of the targets on the 94 Target List was JCS 14.00, the highway and railroad bridge across the Song Ma River. It was situated some 18 kilometers inland, 4.6 kilometers north of the city of Thanh Hoa and 120 kilometers south of Hanoi. The bridge was the longest one below the 20th parallel and an important link in the country's transport system. The original bridge, built by the French, was destroyed by the Viet Minh in 1945. With Chinese aid, the North Vietnamese started to build a new bridge in 1957, which was opened by Ho Chi Minh in 1964. The bridge was called *Hàm Rồng*, "the Dragon's Jaw". It was 162 meters long, almost seventeen meters wide, positioned fifteen meters above the fast flowing river and it consisted of two steel spans. In the middle, the spans rested on a massive pier of reinforced concrete with a diameter of almost four meters and at each end on land abutments of similar reinforced concrete of about 1.20 meters which were firmly anchored in the hill slopes on both sides of the river. Centrally situated on the bridge was a 3.6 meter wide railway section with one line, a narrow-track of one meter wide, and with on both sides of it, cantilevered, a concrete road of 6.6 meters wide. The bridge would prove to be one of the most frustrating targets for the Americans and at the same time a proof of tenacity for the North Vietnamese.

Flaming Dart

Although the JCS urged U.S. civilian leaders, on several occasions prior to 1965, to attack targets in North Vietnam, permission was not granted. Attacks by the Viet Cong (VC) on Bien Hoa Air Base (November 1, 1964) and against the Brink hotel in Saigon (on Christmas Eve) resulting in dozens of dead and injured people and the loss and damage of a number of aircraft and helicopters did not change the

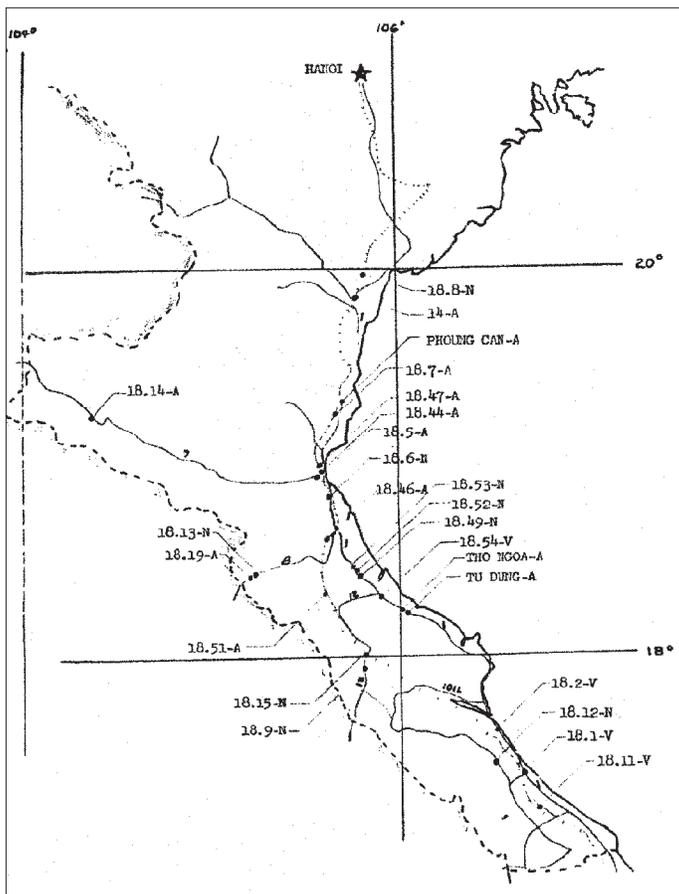
Theo van Geffen has been an aviation journalist and historian since 1977. He is from Utrecht, The Netherlands. His focus is the history of the F-105 Thunderchief and the units it flew with, and of the Air War in Southeast Asia. Mr. van Geffen has flown in USAF aircraft like the B-1B Lancer, EC-130E ABCCC, Century fighters F-101B Voodoo, F-105F, and F-106B Delta Dart, F-15B/D Eagle and the F-16B Fighting Falcon. He was the first program speaker at the THUD-OUT at Hill AFB on February 25, 1984 and one week later he became the last F-105 back seater ever while flying the next to last flyable F-105F to Little Rock AFB. He is the responsible editor for the Foreign News Department of Onze Luchtmacht, the official magazine of the Royal Netherlands Air Force Association.

U.S. position. Only after the VC attack of February 7, 1965, on a military complex in Pleiku (eight deaths and 11 aircraft destroyed), President Lyndon B. Johnson authorized a retaliatory attack on February 8, Flaming Dart I. Twenty-nine Navy A-4C/E Skyhawks, supported by twenty other aircraft including four F-8E Crusaders for flak suppression, struck JCS 33, the Dong Hoi Army Barracks. One A-4E was lost. Twenty-six South Vietnamese Air Force (VNAF) A-1H Skyraiders, supported by twenty-nine USAF aircraft, struck JCS 39, Chap Le Barracks for the loss of one VNAF A-1H.

This did not prevent the Viet Cong, however, from attacking a U.S. military complex in Qui Nhon on February 10, resulting in thirty killed and twenty-two injured personnel. As a retaliation, the president authorized Flaming Dart II on February 11. Of the seven targets proposed by the JCS, Secretary McNamara submitted three for approval to President Johnson, the Thanh Hoa Bridge and two barracks. Johnson objected to the Thanh Hoa Bridge because it was too far north; however, he authorized the attack on the barracks in Chanh Hoa (JCS 24) and Vu Con (JCS 32). The former target was struck by seventy-one Navy A-1H and A-4C/E aircraft, supported by twenty-six other aircraft. Three aircraft were lost, two A-4s and one F-8. JCS 32 was struck by twenty-eight VNAF A-1Hs which were supported by thirty-eight USAF aircraft. No aircraft were lost, although eighteen A-1Hs were damaged.

Rolling Thunder

On February 13, President Johnson also approved a course which included three specific components. One of them was to carry out, in cooperation with the VNAF, a limited air attack program against selected military targets in North Vietnam which, for the time being, were situated south of the 20th parallel. The program was called Rolling Thunder and was under the direct control of Washington. Targets were selected during Tuesday lunches in the White House conducted by President Johnson with a small number of key advisors. After the National Security Council, in its meeting on February 18, had decided in favor of a new round of air attacks against North Vietnamese targets, the JCS sent an execution order to the Commander in Chief, Pacific Command (CINCPAC) for such attacks on February 20, Rolling Thunder (RT) 1. Due to various causes, including a coup d'état in Saigon and inclement weather conditions, RT 1 through 4 were cancelled, resulting in the first mission in the program, RT 5, being flown on March 2. The goal was twofold: first, the Xom Bang Ammunition Depot (JCS 64) and second, the Quang Khe Naval Base (JCS 74A). JCS 64 was struck by forty-four USAF aircraft from the Royal Thai Air Base (RTAB) near Korat (no F-105s were stationed yet at RTAB Takhli), including twenty-four F-105Ds and twenty B-57Bs. They were supported by an additional thirty-four aircraft: sixteen F-105Ds and eight F-100D Super Sabres for flak suppression, eight F-100Ds for MIG/RESCAP and two RF-101Cs for reconnaissance. The thirty-six Thuds of the 12th and 67th Tactical Fighter



The map shows where until June 1, 1965 the first twenty-seven bridges in North Vietnam had been attacked during Rolling Thunder. Two of the bridges had been 'revisited' after they had been repaired after an earlier strike. The Thanh Hoa Bridge (JCS 14) is the next to most northerly bridge.

Squadron (TFS) were complemented by Captain Willy Koenitzer's "C" flight of the 469th TFS which was TDY to Kadena from McConnell AFB (KS) and forward deployed to Korat. The strike F-105s dropped 192 M-117 general purpose bombs and the flak suppression aircraft dropped eighty M-117 and forty-eight CBU/2A bombs. Lt. Col. Robinson Risner, commander of the 67th, led the F-105D suppression aircraft while Major James Mathews, Assistant Operations Officer for the 67th, led the F-105D strike aircraft.

JCS 74A was struck by twenty VNAF A-1Hs, which were supported by twelve flak suppression aircraft, sixteen for MIG/RESCAP, and two for reconnaissance (all USAF). Although seventy to eighty percent of the two targets were destroyed or damaged, one VNAF A-1H, three flak suppression F-105Ds of the 67th TFS and two flak suppression F-100Ds (613th, TDY to Da Nang from England AFB, LA and 428th TFS, TDY to Takhli from Cannon AFB, NM) were lost while AAA damaged seven flak support F-105D, three flak support F-100D, and three strike B-57B aircraft. Two F-100D pilots were shot down, 1st Lt. J. Cullen (428th TFS) was rescued by an HH-43B Huskie, and 1st Lt. Hayden Lockhart (613th TFS) was captured. He became the first USAF "guest" of the North Vietnamese and was released in February 1973. The tactics used by the flak suppression aircraft to deliver the CBU/2As had proven to

be poor, as they were delivered using a low, straight and level pass, which left the aircraft exposed and in an extremely vulnerable position to the ground fire: the CBU's would suppress it after the aircraft had passed the site.

April 3, 1965

At the end of March, the U.S. ambassador to South Vietnam, Maxwell Taylor, visited the U.S. and, among other things, told Secretary McNamara and the JCS that he was convinced that it was necessary to move the next phases in the air campaign further north. He also stated that the prestigious bridge near Thanh Hoa would have to be destroyed. In addition, Taylor believed that the MiG-17 Fresco model As at Phuc Yen Air Base near Hanoi, were insufficiently able to impede Rolling Thunder operations.

RT 9 was scheduled for the April 2-8, period with attacks on four fixed targets, including the first three highway and railroad bridges at Thanh Hoa, Dong Phong Phuong and Dong Hoi. The scheduled mission on the 2nd had to be canceled due to marginal weather conditions and a shortage of KC-135A tankers.

Planning for RT 9A against the Thanh Hoa Bridge was accomplished on April 2. During the briefing, the strike force was doubled to insure the destruction of the bridge, thus postponing the strike until April 3, with the receipt of the execution order.

RT 9A included the bridges at Thanh Hoa and Dong Phong Phuong (JCS 18.8). USAF aircraft attacked the first bridge and the USN attacked the second one. The Navy aircraft came from Carrier Air Wing (CVW) 21 on the USS Hancock (CVA 19) and CVW-15 on the USS Coral Sea (CVA 43). For the first time since Rolling Thunder began, North Vietnamese MiG-17s came into action. They hit a Navy Combat Air Patrol F-8E, forcing its pilot to make an emergency landing at Da Nang Air Base. Another F-8E was hit by anti-aircraft artillery (AAA). In addition, the Navy lost two strike A-4C Skyhawks.

The initial attack plan on the bridge at Thanh Hoa was planned and coordinated by the 67th TFS, the "Fighting Cocks", which was stationed at Kadena (Okinawa), but was assigned on temporary duty (TDY), at Korat. Besides being the mission commander, Lt. Col. Risner also acted as a kind of Forward Air Controller (FAC). He arrived over the target before the main strike force and, among others, evaluated the effectiveness of each strike and re-directed subsequent strikes. Sixty-nine USAF aircraft were involved in the attack. The 67th and 354th TFS (TDY from McConnell) at Korat and the 36th TFS at Takhli (the 36th had been the very first F-105 unit at that base) sent a total of forty-six F-105Ds; twenty-one F-100Ds (weather reconnaissance, MIGCAP, RESCAP, and flak support) and two RF-101C Voodoos (pre- and post-strike photo reconnaissance) came from bases in South Vietnam. Ten KC-135A Stratotankers flew out of Kadena for in-flight refueling. Of the Thunderchiefs, thirty-one were used for the attack itself and 15 for flak support. A total of 254 M-117 bombs and 266 2.75-in. rockets were expended. Weather was clear with five to seven miles visibility.



The first attacks against the Dragon's Jaw were flown on April 3 and 4, 1965. F-100D Super Sabres flew in the MIGCAP and support role for the F-105D strike force. The photo shows F-100Ds of the 416th TFS which had just arrived at Bien Hoa Air Base after a Temporary Duty (TDY) assignment at Da Nang AB.

The result: preliminary Bomb Damage Assessment (BDA) indicated that the southern roadway was damaged enough to prohibit vehicular traffic, but the bridge was not down (the 94 Target List ordnance requirements for thirty percent damage were 270 M-117 bombs). One flak support Super Sabre of the 613th TFS was lost with the pilot, 1st Lt. G. Smith, being KIA, while three F-105Ds were damaged (two strike and one flak support), including Risner's F-105D, forcing him to divert to Da Nang.

April 4, 1965

As the Thanh Hoa Bridge was neither destroyed nor had a span dropped, a re-strike was ordered for the next day, RT 9AX (in a separate mission, RT 9B, twenty VNAF A-1Hs, supported by twelve F-100Ds, attacked the bridge at Dong Hoi. One VNAF A-1H was damaged). This time, sixty-eight USAF aircraft were involved, forty-eight F-105Ds (strike) from the 36th, 67th and 354th TFS, eighteen F-100Ds (MIGCAP, RESCAP, and weather reconnaissance) and two RF-101Cs (photo reconnaissance). Ten Kadena KC-135As accomplished in-flight refueling. This time no flak support had been deemed necessary. Sixteen of the Thuds were equipped with two AGM-12Bs each, while the others each carried eight M-117 bombs. Weather was 15,000 scattered with visibility five miles in the haze. As the previous day, Lt. Col. Risner was mission commander and coordinator as Steel 01. He had a tremendous job because of the haze and the fact that the pilots of the F-105Ds which were each configured with two AGM-12Bs, had to make two runs onto the bridge as each Bullpup had to be launched and guided individually. The result: this time the bridge was severely damaged with both the northern and southern roadways heavily cratered and large chunks of concrete missing. Bombs had also blasted right through the railroad

into the river. The eastern span was sagging but had not gone down. Extensive repairs would be required to make the bridge passable for rail traffic and the roadways would never be restored to their former capability.

One Thunderchief was damaged and three lost, with two pilots (354th TFS) being killed and one captured (67th TFS). What surprised the USAF most, however, was that two of the lost Thunderchiefs (354th TFS) had been shot down by North Vietnamese MiG-17s. The aircraft, 91754 (flown by Major Frank Bennett) and 91764 (Captain James Magnusson) formed numbers 01 and 02 in the first element of Zinc flight, which also consisted of Captains Dick Pearson (03) and Vern Kulla (04). Their configuration consisted of two 450-gallon fuel tanks and eight M-117s. Zinc was part of the second attack wave. Due to a delayed rendezvous with their KC-135A, Zinc arrived 15 minutes late at the orbit point. Risner told Zinc to remain there as another flight was already engaged in flying to the target. Argon flight, also flying in the orbit area, passed about 2,000 feet under Zinc. Risner warned all pilots that MiGs had been spotted and that everybody had to be on the alert.

Race track

Captain Kulla, Zinc 04 pilot recounted:

The weather was quite hazy and cloudy and it proved difficult to get aircraft at the target. Risner told us to stay about 16 kilometer south of it until it would be our turn. We did so in a tactical formation, in a race track at an altitude of about four kilometer and at a speed of 600 kilometer per hour. We flew about 900 meter behind Zinc Lead and 02. As we had just been refueled by a KC-135, we were pretty heavy. It seemed to me we had flown the race track 4-5 times



Lieutenant Colonel Robinson Risner, commander of the 67th TFS, acted as a kind of Forward Air Controller during the April 3 and 4 missions against the Thanh Hoa Bridge. On March 22, his F-105D was damaged by anti-aircraft artillery in such a way that he had to eject over the Gulf of Tonkin. The Colonel was rescued by an HU-16B Albatross. Later, on September 16, he was not that lucky. While on his 55th combat sortie, his Thunderchief was hit while attacking an SA-2 site near Thanh Hoa. Once more Risner tried to reach the Gulf of Tonkin, but four miles from the coast he was forced to eject, was taken prisoner and became a guest of the North Vietnamese government until February 12, 1973 when he was released. Risner is on the right.

when we were southbound again on the west side of it. Once we had leveled out, Dick and I suddenly saw two MiG-17s at our 7 to 8 o'clock and at a distance of less than 400 meter coming out of the haze behind Zinc 01 and 02 who were flying left of us. The Fresco As were silver and had Chinese roundels. Dick Pearson called Lead and 02 and told them Break left, Break left. In the meantime Major Bennett, followed by Major Magnusson, had begun to turn to the north within the race track. As there was no reaction, I repeated Break left, Break left. But once more, no reaction. In the meantime, the two MiG-17 pilots had started firing at the two F-105Ds with their 23/37mm cannons. Bennett's aircraft was hit in the rear of his aircraft and Magnusson's behind the cockpit. When both realized they were being attacked, they jettisoned their fuel tanks and armament and hit the afterburner. Pearson and I did the same. Dick broke

sharply and I followed him. The two MiG-17s had disappeared in the meantime in the clouds and haze.

According to Vern Kulla, the reason the two pilots had not heard the calls was that the receiver of the F-105 had a "white spot". When you would find yourself in the cockpit-bottom position, you could hear them but they could not hear you. Pearson was able to talk to Bennett after he had been hit. Bennett informed Pearson he would fly eastward, to the Gulf of Tonkin and then to try to reach Da Nang. It was decided that Pearson would accompany Bennett and Kulla would fly with Magnusson.

Da Nang

According to Capt. Kulla:

I tried to contact Magnusson but it seemed that his receiver did not work. He was able to call me, however, and told me he was losing control of his aircraft and wanted to reach the Gulf of Tonkin to eject. I picked him up when he flew above the water almost at stall speed, but could not see if he was injured although I noticed that his Thud was heavily damaged. Due to my fuel level I was forced to leave him and fly to Da Nang. There were F-100Ds in the area, however, with enough fuel which started to look for Magnusson. To the east of Da Nang I joined Pearson and Bennett above the Gulf before the latter was forced to use his ejection seat. His engine had finally quit. Pearson and I then landed at Da Nang.

According to his account, nobody had seen the two F-105Ds hitting the water nor one of the parachutes. It was possible that Magnusson's aircraft was hit so badly behind the cockpit that the ejection seat had been damaged. The USAF assumed almost immediately that both pilots had been killed.

MIGCAP

It was true that there were eight F-100Ds operating as MIGCAP, but they were flying further north than Zinc flight, closer to the target. The MiGs were not noticed by them because they flew in the haze and clouds. The Fresco As were the surprise of the day. Although Vern's impression was that the North Vietnamese pilots were well trained, he was also convinced that there had been a lot of luck on their part. For example, the fact that the MiGs were directed by combat controllers on the ground in such a way that the North Vietnamese pilots showed up exactly behind Zinc 01 and 02, as there would not have been enough time to maneuver themselves behind the two Thunderchiefs. "They came out of the haze, adjusted their gun sight, fired and disappeared into the haze and all of this in a time span of only 6-10 seconds," Vern stated. According to him, the North Vietnamese intentionally did not send one of the MiGs to the first element and a second to the other one because the aircraft flew in the haze and clouds. They had to fly in close formation to avoid the risk of a collision. Only when they came out of the haze, each North Vietnamese



One of the two Thunderchiefs that got shot down on April 4 by North Vietnamese MiG-17s was F-105D 59-1764 of the 354th TFS with Captain James Magnussen. The aircraft is being shown at Yokota Air Base (Japan) in November 1964 in the colors of the 469th TFS. The 354th relieved the 469th TFS, obtained its Thunderchiefs and was reassigned to Korat Royal Thai Air Base. (Photo courtesy of Yukio Enomoto.)

pilot had a short opportunity to take enough distance to fire at “his” aircraft.

Beep, Beep, Beep

Capt. Kulla recounted, “After the landing at Da Nang it had become clear that because of pulling 7-8 Gs during the maneuvering and going to supersonic, the bomb doors had opened. Fortunately maintenance personnel were able to get under them and to push the doors again in position”.

Kulla stated that after the landing at Da Nang he had been quite frustrated and agitated:

The F-105 had a button to test the landing gear. One of the first things they taught you when checking out in the aircraft was that when you tested the landing gear, you had to be sure that it was the right button because it was situated just above the “panic button” that allowed you to jettison everything from the aircraft, like fuel tanks and armament, at one time. So what happened when I saw the MiGs and called Break? After I, without looking, pushed the button to jettison my tanks and bombs, I heard Beep, Beep, Beep. I had used the button to test the landing gear! I then swiftly corrected my mistake.

At Da Nang both pilots were debriefed and the F-105s refueled. Then the flight back to Korat was initiated. Out there, Pearson and Kulla were debriefed by intelligence personnel. They were surprised the North Vietnamese aircraft had operated so far south. In addition, they did not believe the aircraft had carried Chinese national markings. “But”, as Vern said, “I’m sure because the Chinese roundel contains only a star and the North Vietnamese roundel a star but with a bar on either side.”

The North Vietnamese input had probably consisted of seven MiGs of the 921st Fighter Regiment from Noi Bai Air Base near Hanoi, of which five were decoys and two were those that followed Zinc 01 and 02. Bennett’s F-105 was claimed by Trinh Hanh and Magnusson’s by Le Minh Huan. In Hungarian author István Toperczer’s book *MiG-17 and MiG-19 Units of the Vietnam War*, Trinh Hanh stated that Thunderchiefs had shot down three MiG-17s that day, resulting in the loss of the three pilots, including Le Minh Huan. The USAF confirmed the loss of three F-105Ds, but did not claim a single MiG-17. They did, however, claim a “probable” MiG-17 by an F-100D flown by Captain Don Kilgus of the 416th TFS. He and other pilots were convinced that the MiG-17 involved had been downed.



One day prior to the first attack against the Dragon's Jaw, on April 3, an RF-101C Voodoo of Detachment 1, 33rd Tactical Group at Tan Son Nhut Air Base made this photo. Clearly shown are the hills on both sides of the shores of the Song Ma River where the North Vietnamese had situated a lot of anti-aircraft artillery (AAA) sites.

A total of 137 aircraft participated directly in the attacks on the Than Hoa Bridge on April 3 and 4. Three F-105Ds and one F-100D were lost and four F-105Ds were damaged, including Risner's. The North Vietnamese claimed to have shot down a whopping forty-seven U.S. aircraft while capturing "many" pilots.

The surprising F-105D losses inflicted by North Vietnamese MiG-17s, prompted the USAF to deploy Airborne Early Warning and Control EC-121D Super Constellations and F-4C Phantoms to Southeast Asia.

3rd and 4th Strikes

RT 14 was planned for the period from May 7 to 13. However, as a result of instructions from Secretary McNamara, it was terminated on the 12th for an indefinite period 'to observe the reaction of the rail and road transportation system in North Vietnam' (RT operations were resumed on May 18). Prior to this termination, the USAF was tasked on May 7 to re-strike the Thanh Hoa

Bridge. This was just after the North Vietnamese had succeeded in making the bridge operational again for rail traffic. A total of sixty-four aircraft participated in RT 14A, thirty-eight F-105Ds (twenty-eight strike, eight flak suppression and two weather reconnaissance), two EC-121Ds escorted by twelve F-104C Starfighters and twelve F-4Cs for RESCAP/MIGCAP. All four TDY F-105 squadrons participated: the 44th and 354th TFS from Korat and the 35th and 563rd TFS from Takhli. One strike F-105D was lost. Major R. Lambert's Thud of the 354th TFS was hit by AAA in the right wing root during his dive bomb run. He was able to reach the Gulf of Tonkin, where he ejected and was rescued by an HU-16B from Da Nang Air Base. In addition, two strike F-105Ds were damaged. The twenty-eight F-105Ds dropped a total of 224 M-117s. Although the eastern approach was severely cratered, the bridge itself was moderately damaged on the eastern section and the section of the truss and abutment.

However, as of late May, some changes were implemented through lessons learned in the previous strikes



One day after the second attack against the Thanh Hoa Bridge (April 5), an RF-101C of the 33rd Tactical Group took this photo. It shows the bridge was damaged, but not down.

and their losses. The primary change drastically reduced the number of participating aircraft: operating without MIGCAP and flak support. On the other side, improved weaponry was to be utilized, including the AGM-12C Bullpup and the M-118 3,000-pound bomb.

The 4th strike against the bridge took place in RT 16A1 on May 31. It was stated that once more good progress had been made by the North Vietnamese on repair of the bridge itself and the approaches. Although three attacks were launched, only one (four F-105Ds) hit the target while two were diverted to their secondary due to weather. The four Thunderchiefs dropped thirty-two M-117s, inflicting light to moderate damage to the bridge abutment. However, one of the F-105s was lost due to flak. Its pilot, 1st Lt. Robert Peel, who was TDY to the 35th TFS from the 4th TFW (Seymour Johnson AFB, NC), ejected and was captured.

Analysis

On August 6, Pacific Air Forces (PACAF) published Working Paper 27, *An Analysis of Air Strikes Against Bridges in North Vietnam*. It analyzed the first twenty-seven bridge strikes in North Vietnam during the period April 3 through June 1, 1965, to determine the degree of success in destroying bridges. The damage measure of merit was the collapse of at least one span. The Dong Phong Phuong Railroad and Highway Bridge (JCS 18.8) were considered two separate missions, because the North Vietnamese accomplished major repair between strikes, while—as compared to the first strike—a different span was dropped.

The USAF attacked twelve of the bridges, the USN twelve (JCS 18.8 twice) and the VNAF four. Destruction had been achieved in all cases, with one big exception: the Thanh Hoa Railroad and Highway Bridge despite the 103 F-105D sorties while expending 32 AGM-12Bs and some



Even 3,000 pound M-118 bombs did not bring the Thanh Hoa Bridge out of balance. The first eight M-118s utilized in the Rolling Thunder Campaign were dropped on July 28, 1965, by Teak flight of the 12th TFS while attacking the Thanh Hoa Bridge.

690 M117 bombs. To destroy the other eleven bridges, the USAF used 179 F-105D sorties, expending approximately 1,150 M117s and 28 AGM-12Bs. The US Navy used 131 A-1Hs and 258 A-4C/Es and the VNAF 50 A-1Hs, although it should be noted that in a strike on one of the bridges, USAF F-100Ds were also utilized. The average number of F-105Ds (carrying an average load of three tons each) the USAF used to strike the 12 bridges was 22.7 and 15.4 with the Thanh Hoa Bridge excluded. The Navy used an average of 32.4 aircraft with smaller bomb loads because of operations from carriers, and the VNAF 21.5 (about 2.5 tons of weapons), including the F-100Ds. It should be noted that the Navy also used 28 AGM-12Bs and three AGM-12Cs. The conclusion was among others that the USAF used fewer aircraft per bridge with an eighteen percent higher ordnance tonnage delivery than the USN.

New weapons

Remarkably, the commander of PACAF (CINCPACAF) stated in a May 14 message to 13th Air Force "Thanh Hoa Railway and Highway Bridge" that PACAF

was concerned that too many bombs had already been wasted concentrating on abutment and aiming at the end of the bridge. Battle Damage Assessment (BDA) showed many craters from bomb misses were up to 700 feet away from the end of the bridge. Also, it was recommended to hold off on further strikes on the bridge until the improved version of the Bullpup, the AGM-12C could be provided. (Yet, on May 31, four F-105Ds struck the bridge with thirty-two M-117s). At such time as missiles and pylons would arrive, PACAF recommended the first test of the weapon be on the Thanh Hoa Bridge. 13th AF was requested to comment. CINCPACAF regarded the missile as the optimum weapon in the battle against the Thanh Hoa Bridge in view of its pin point accuracy, stand-off capability and the fact that with the increase of flak defenses, there would be less risk in attacks. The C-version had a four times heavier explosive load (1,000 pounds) than the AGM-12B. Planned introduction was July 1, 1965, but the F-105Ds needed to be modified to carry the new missile.

In May, Project Blue Haze was enacted whereby a team visited Southeast Asia and found that certain hard-

ware, technical orders, and procedural changes were required to cure some of the problems and increase the reliability of the AGM-12B.

The System Package Plan (SPP) for the AGM-12C called for an operational date of October 1965. However, in early June, the Chief of Staff of the Air Force (CSAF) advised all interested commands of his desire to expedite the initial operational capability of the AGM-12C with the following target dates and specific objectives:

July 1, (1) five PACAF F-105Ds be modified at Kadena to launch the AGM-12C; (2) fifty AGM-12C missiles to be in place; (3) improvised procedures and technical data to be available; and (4) an assistance team composed of Air Force Systems Command, Air Force Logistics Command and Tactical Air Command personnel to be available.

July 15, (1) completion of modification of fifteen additional F-105Ds; (2) 150 additional missiles to be in place; and (3) updated technical data and Aircraft Ground Equipment (AGE) to be available.

In addition to the aircraft modification, PACAF directed that six live verification launches had to be accomplished on the Okinawa range prior to deploying the AGM-12C to SEA.

Finally, on August 16, the first SEA operational launches of the AGM-12C were scheduled with an additional fifteen launch attempts through August 30.

Modifications of the first five aircraft were completed on July 14 and the series of verification launch tests on August 12. Previously to these tests, four live tests had been accomplished at Eglin AFB, Florida on June 25. Results of both series of tests were reported as successful.

The first four AGM-12Cs were expended on August 16, in RT 27C4 by two F-105D pilots (Captains Cromack and Carey) of the 12th TFS, destroying the Tho Trang Railroad Bridge in North Vietnam. RT 27C4 involved a total of thirty-one F-105Ds (one had ground aborted) on armed reconnaissance and strikes against ferries, bridges, etc. In addition to the four AGM-12Cs, a total of 186 M-117s and 285 2.75-in. rockets were expended. The Navy had preceded the USAF in the use of the AGM-12C on June 1, when three missiles were fired at JCS 18.8 (Dong Phong Phuong Bridge) with one being observed collapsing the southern span.

On July 28, in RT 24C6, Teak flight of the 12th TFS struck the Thanh Hoa Bridge. This marked the first combat drops of the M-118 3,000-lbs General Purpose bomb. Teak 01-04 each dropped two M-118s while Teak 05 was equipped with camera pods to film the attack. Teak 01-03 used the toss bomb computer and Teak 04, dropped manually. Four 12th TFS Thuds (Oak flight) with two M118s each also struck the bridge on August 2 (25C4). Oak 04,

Captain Robert Daughtrey, was hit by AAA after his bomb run, ejected three miles east of the target, and was immediately captured.

Navy

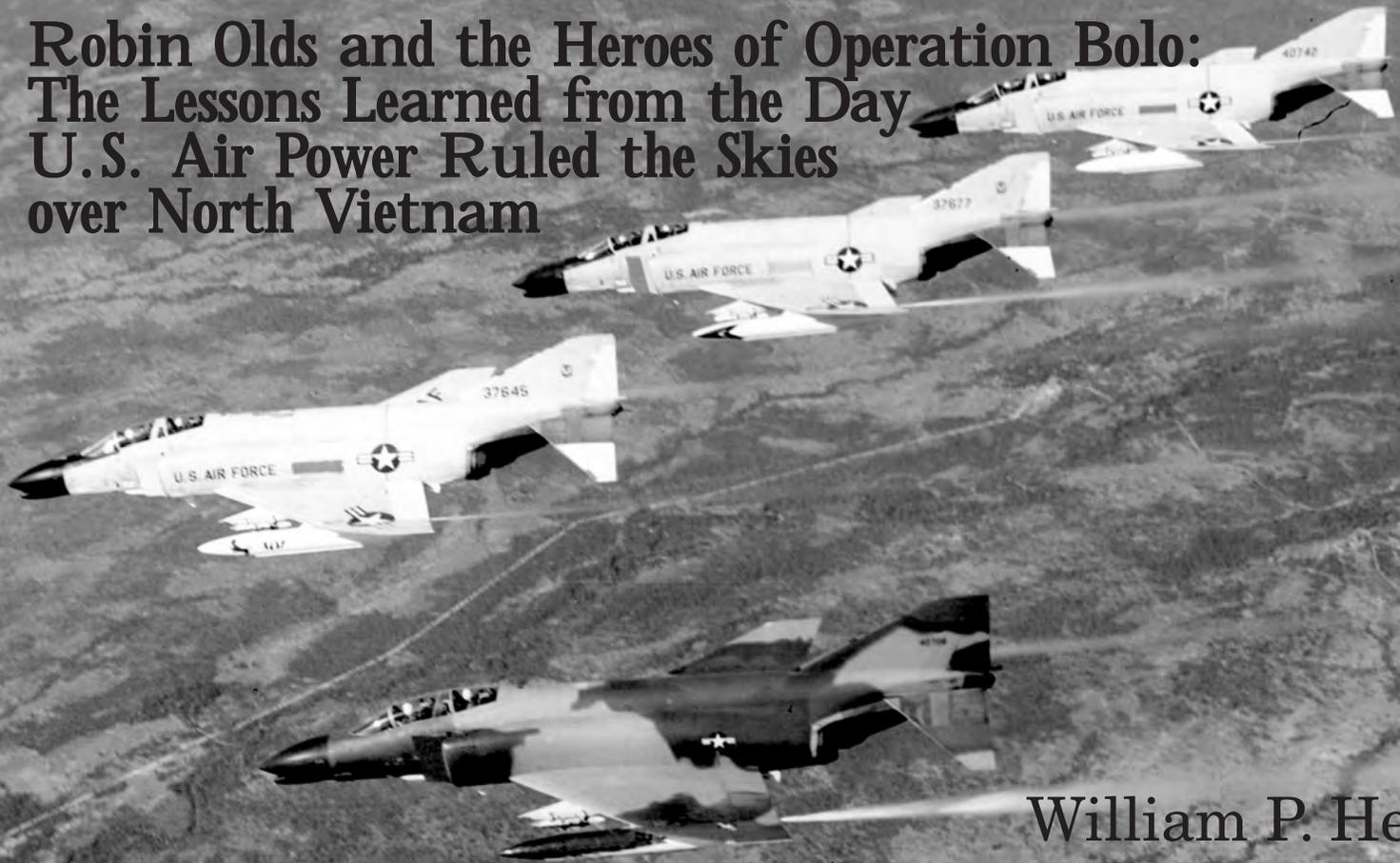
The Thanh Hoa Railroad and Highway Bridge was not only a target for the Air Force, but also for the Navy. Its first mission against the bridge was executed on June 17. In the next year, the USN would strike the bridge some twenty-four times with small strike forces of usually two to four aircraft. A total of sixty-five aircraft were used on those missions. For instance, on July 10, 1965, the Navy struck the bridge in RT 22C2 with six A-6A Intruders of Attack Squadron (VA) 75 and five A-4E Skyhawks of VA-72/86 of CVW-7 on the USS Independence (CV 62) which operated on Yankee Station in the South China Sea. The aircraft used radar bombing, utilizing the Intruder's instrument bombing capability, expending sixteen Mk-84 and nine Mk-83 bombs, and eight 5-in. Zuni rockets. VA-75 was the first squadron to deploy with the A-6A and to operate the aircraft in a combat environment. The next day an Independence RA-5C Vigilante, escorted by two F-4B Phantoms, flew a bomb damage sortie. The results must not have been regarded as successful because two days later aircraft from the USS Independence flew another mission against the bridge.

The Navy regarded the prospects of radar bombing successful enough that CINCPAC on December 16, requested and received approval from the JCS to use the A-6A in radar bombing to strike their authorized targets at night and in bad weather. These missions would be in addition to the normal strikes authorized under visual conditions. Four days later, six Navy A-6As struck JCS 82, the Uong Bi Thermal Power Plant, at night through radar bombing, using 2,000-lb bombs.

The bridge's position did not really change in 1965: damaged, sometimes not passable, but not down. North Vietnam's reaction did not change either. After every attack all possible manpower would be used to make it reusable. Pontoon bridges were also constructed for use when the bridge was not passable. In addition, AAA, MiG, and later SAM threats were rapidly expanded while a more sophisticated radar-controlled environment was capable of providing speed, altitude, azimuth, and range of U.S. aircraft to gunners and pilots.

The U.S. would not give up efforts to bring the bridge down in the years to come; the North Vietnamese their efforts in preventing the U.S. from doing so. One of the secret projects the USAF was considering in late 1965, to get the bridge down, was the use of high explosive floating mines to be dropped up river over the Song Ma. The operation was called *Carolina Moon* and will be the subject of the second part of the article. ■

Robin Olds and the Heroes of Operation Bolo: The Lessons Learned from the Day U.S. Air Power Ruled the Skies over North Vietnam



William P. Head

USAF F-4C Phantom jet fighters, the same kind that downed seven communist MiG-21s over the Red River Valley in North Vietnam on Jan. 2.

In the early morning of January 2, 1967, F-4 *Phantom IIs* of the 8th Tactical Fighter Wing (8 TFW) waited on the tarmac at Ubon Royal Thai Air Force Base (RTAFB) for orders to launch a mission over Phuc Yen Airfield in North Vietnam. It was a meticulously planned operation that sought to deceive Northern air assets into engaging Air Force F-4Cs which they had generally sought to avoid. As time dragged on, the crews waited for the weather over the target area to clear to begin what became known as Operation *Bolo*.

Background

The story of this famous event began in 1965, when the 8 TFW arrived in Thailand. That first year, they shot down six MiGs, a rarity since, most often, enemy MiGs avoided combat with F-4s. MiGs engaged slower U.S. combat aircraft such as the F-105 *Thunderchiefs* which could fight off older MiG-17s or, later, MiG-19s. When the enemy received MiG-21 *Fishbeds* in the mid-1960s, the risk increased.¹

In March 1965, President Lyndon Baines Johnson initiated a tightly controlled air campaign against the North Vietnamese. The Air Force and Navy conducted this large-scale, offensive air operation mainly against the Northern capital of Hanoi and the major port city of Haiphong. Designated Operation *Rolling Thunder*, it grew in intensity during 1965 and 1966.

The President sought to have this sustained bombing campaign increase the “quotient of pain” on the enemy to the extent it would persuade the North Vietnamese regime to cease support for the Communist insurgency in the South and negotiate a peace settlement. At the very least, they hoped it would halt or slow the flow of Communist men and materiel into South Vietnam.²

Rolling Thunder sorties targeted Northern industry, storage facilities, transshipment points, lines of communication, and, later, air defenses. Air Force and Navy aircraft struck at the core of the Hanoi’s infrastructure, with ever increasing frequency, aiming to destroy its capacity to make war. As effective as these raids proved to be on the infrastructure, the enemy survived with ever growing resupplies of essential materials from the Soviet Union and the People’s Republic of China (PRC). The largest portion of missions was flown by the F-105Ds referred to as “Thuds.” They operated from bases in South Vietnam and Thailand.³

To counter America’s air war, Communist leaders worked to bolster and expand their air defenses. Chinese and Soviet leaders dispatched powerful, modern air defense systems to their Communist cousins in order to challenge U.S. air



An early USAF McDonnell RF-4C-22-MC Phantom II in a protective revetment

superiority. The major aspects of these defenses was a network of early warning radars and surface-to-air missile (SAM) sites, armed with the deadly S-75s, better known as SA-2 *Guideline* missiles. They defended high value targets with an array of Anti-Aircraft Artillery (AAA) that ranged from 100mm radar-directed guns to rapid fire 23 mm, multi-barrel, automatic cannons and heavy machine guns. They also, gradually, built up their MiG interceptors.⁴

The Competing Air Forces

As U.S. aircraft attacks gained momentum, officials in Hanoi sought to construct a fighter-interceptor force using aircraft, equipment, and pilot training afforded them by their Soviet and Chinese allies. In February 1964, the Vietnamese People's Air Force (VPAF) received its first jet aircraft. They were Soviet-built, Mikoyan-Gurevich (MiG)-17s, also known in China as J-5s. At first, they were stationed at bases in the PRC. These aging fighters made up the 921st *Sao Do* or *Red Star Fighter Regiment* (921

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FR) and comprised the VPAF's first operational jet fighter unit. While the MiG-17 was an upgrade from the VPAF's propeller fighters, they were not comparable to U.S. fighter aircraft. They were a post-Korean War design that flew at subsonic speeds and did not possess air-to-air missile capability. They were very maneuverable, and armed with "powerful 23 and 37 mm cannons, it was a force to be reckoned with in close air combat." From 1964 to 1966, the PRC and Soviets further upgraded the VPAF's aircraft by sending Hanoi supersonic MiG-19 or Chinese J-6 fighters. Things changed in 1966, when the Soviets sent them MiG-21 interceptors. By mid-1966, the 921 FR was flying "the second generation MiG-21PF all-weather variant, equipped with short range air-to-air guided missiles." More than 10,000 of these quality fighters were built for 50 different nations.⁵

Throughout the early days of the air war, VPAF crews conducted defensive operations in order to preserve these precious air assets. Their MiG pilots generally engaged only slower, bomb-laden, American fighter-bombers employing "hit and run" tactics over friendly territory. They consistently shunned contact with powerful F-4 fighters. Even though U.S. airpower enjoyed an advantage in terms of numbers and quality, the VPAF's tactics proved effective in shooting down many F-105s, thus "reducing bombing effectiveness and diverting U.S. combat aircraft resources from strike missions to defend against the MiG threat."⁶

The American military entered the war possessing weapon systems and equipment which had been aimed at fighting a war against the Soviet Union in Europe. U.S. doctrine, tactics, and training were designed for a "Cold War" battle. As one author put it, "The U.S. defense posture was optimized to deter or defeat Soviet aggression in the form of nuclear attacks on the continental United States or a large-scale invasion of Europe with conventional/tactical nuclear weapons. As a consequence, the U.S. was not well prepared to fight a long-term, counter-insurgency campaign in the jungles of Southeast Asia."⁷

Initially, given these circumstances, instead of inventing new weapons, they adapted their tactics to the unique aspects of this kind of war. Various types of aircraft were employed as air superiority and/or air interdiction fighters, including the supersonic F-100, F-102, and F-104s. Finally, the Air Force introduced the F-4 *Phantom II*s and the Navy F-8 *Crusader*. They proved very effective against VPAF fighters. The other heavily used U.S. aircraft was the F-105 fighter-bomber. While they scored a significant number of aerial victories against MiGs, armed with a powerful internal 20 mm Vulcan cannon and, on occasion, air-to-air missiles for self-defense during strike missions up North, they also had weaknesses. Most early *Rolling Thunder* sorties were flown by F-105s stuffed to the gills with ordnance. They were the largest U.S. fighters ever built and capable of carrying a nuclear payload. When they carried such a massive payload, they were hard to maneuver. While they could deal with the earlier model MiGs, the MiG-21s feasted on the slower F-105s until they dropped their bombs. Even then, on the way back, they were low on fuel and could not afford to expend fuel in a dogfight.⁸



Robin Olds, Commander, 8 TFW.

Among the other problems faced by U.S. pilots were rules of engagement (ROEs) which hampered their freedom of action. Specifically, Americans could not fire on targets beyond their visual range or attack airfields for fear of harming Soviet advisers. During these early days, American pilots were plagued by unreliable air-to-air missiles. More than 50 percent malfunctioned, and less than 15 percent hit their targets. In addition, these fighter pilots received less training in air-to-air combat maneuvers. Thus, unlike the Korean War, when U.S. pilots scored a 10-to-1 kill ratio during jet dogfights, during Vietnam the air combat ratio shrank dramatically! This occurred, even though they received the best fighter of war, the F-4. It did not have an internal gun. Later, gun pods were attached under the fuselage, but by late 1968, fighter combat had effectively ended until 1972. The lack of a gun accentuated their problems during air-to-air combat. In short, new tactics and new leadership were needed. These soon arrived in the person of leaders like Robin Olds and in tactics like those used in Operation *Bolo*.⁹

The 8 TFW and the Arrival of Colonel Olds

By the time *Rolling Thunder* was in full swing in mid-1966, the air war over Vietnam had fallen into a routine involving pre-authorized strikes from the White House. Air Force crews stationed in Thailand and Navy Alpha aircrews stationed on carriers of Task Force 77 in the South China Sea attacked targets in North Vietnam mostly the same way, every time. Air Force Close Air Support (CAS) missions were flown by a variety of aircraft stationed at



Young Robin Olds in front of P-51 "Scat V".

many different locations. Starting in June 1965, this included B-52 *Arc Light* raids against ground targets. Most Air Force attacks against infrastructure and industrial targets were launched from bases in Thailand. Initially, many Air Force and Navy service members assumed they were fighting an enemy without sophisticated weapons and developed some bad habits. Being predictable was the worst of these.¹⁰

In September 1966, these flaws began to be repaired with the arrival of Colonel Robin Olds as the new commander of the 8th TFW. Having served in Europe during World War II, he became an ace by shooting down thirteen German aircraft. Olds was a no-nonsense professional who told his pilots he was going to perfect flying his F-4 nicknamed "Scat XXVII" and, within a few weeks, he would be able to outfly them all. Being an ace gave him credibility; fulfilling his promise to become the best pilot in the wing made him their undisputed leader. Eventually, his daring and ability to think outside the box made him a legend.¹¹

Olds had graduated from West Point in June 1943 where, at 6'2" and 205 pounds, he was an All-American football player. During the 1942 Army-Navy game, he had both front teeth knocked out but kept on playing. Upon graduation, he was commissioned a 2nd Lieutenant in the Army Air Forces and was assigned to a P-38 Lightning squadron where he flew his famed "Scat II" aircraft. On 25 August 1944, he scored his first of 13 kills when he shot down two German aircraft, the second while gliding with two dead engines. Eventually, he scored five kills in the P-38 before transitioning to P-51 *Mustang* fighters nicknamed "Scat III through VII." When the war ended, he was

22 years old and had been credited with 13 aerial victories and 11 ½ more aircraft destroyed on the ground. Even though he tried to get a combat assignment, Olds did not fly combat in the Korean War but continued his service in the Air Force. In 1963, he became the commander of the 81st TFW stationed at Royal Air Force (RAF) base Bentwaters, United Kingdom. It was here that he became life-long friends with Daniel “Chappie” James who, at the time, was his deputy commander. In 1975, James would become the first black 4-star general in the Air Force. James would also serve with Olds in the 8 TFW.¹²

The unit which Olds came to is, today, known as the “Wolfpack.” However, it was not so highly regarded before Olds led them to the stunning 1967 victories over North Vietnam. In World War II, the 56th Fighter Group assumed the moniker “Wolfpack” for having shot down more than 660 German aircraft. In turn, the 8th Fighter Group, from which the 8 TFW evolved, recorded 446 aerial victories in the Southwest Pacific Theater during World War II. It had no relationship with the 56th FG or the nickname “Wolfpack.” It was not until its pilots flew in Operation *Bolo* that they would claim the name “Wolfpack.”¹³

Olds was an old-school dogfighter, a blood-and-guts pilot who, according to one author, “pulled more Gs on his way to the bathroom than most mortal men ever dared to experience in their entire lives.” In World War II, he had already fought his way out of every tight spot conceivable from “a swirling flak-covered World War II air battle” to a nearly fatal dive in his P-38. Married to a movie star and supermodel, Olds “was a charismatic, hardcore air warrior who knew the importance of keeping his interviews short, his inverted barrel rolls tight, and his machine gun bursts controlled, accurate, and as fatal as a mouthful of napalm.”¹⁴

In September 1966, the 8 TFW and American airmen at Ubon RTAFB were short on flying and dogfighting skills and seemed to lack any purpose. From the beginning, Col. Olds was determined to right his new ship, and he started by learning to fly the new F-4Cs better than anyone in the unit. To assure success, he looked for help from his trusted and skilled deputy, Chappie James. It was James’ job to clean up all the messes. Very soon, it became clear James and Olds expected their Wing to be the best in Southeast Asia. At first, some of the men privately called them “Blackman and Robin.” This nickname, eventually, became a term of affection and respect by the Wing. Both leaders embraced it as a badge of honor. As the time came to really go to war with the VPAF, Olds warned his pilots that these pilots were not “slouches” and insisted his guys be better.¹⁵

Existing Tactics & Weapon Systems

About the same time Olds arrived to take command of the 8 TFW, the air war over North Vietnam changed. Until that time, the primary danger for Air Force and Navy aircraft bombing targets in the North were SAMs and AAA. This changed when the Air Force integrated QRC-160 or AN/ALQ-71 Electronic Countermeasure (ECM) pods on the F-105s. These pods proved highly effective in jamming

and confusing the Communist radar systems which controlled the SAMs and AAA flak. To counter this problem, leaders in Hanoi increased the number of MiG fighter sorties. While MiG-17s had only minimal success against the Thuds, the MiG-21PF *Fishbed* fighter-interceptors preyed on the less agile F-105s, which were configured for bombing missions against ground targets. Ground-controllers vectored the Soviet-built *Fishbeds* into flights of F-105s, “making maximum use of both cloud cover and the almost benevolent American rules of engagement” to shoot down Thuds at an alarming rate. Enemy tactics called for the MiG-21s, which carried heat-seeking missiles, to strike these formations before they were over their assigned targets. Needing to lighten their loads in order to maneuver, the F-105s prematurely jettisoned their bombs. The VPAF considered this a successful mission. If they could down a few Thuds as well, all the better.¹⁶

The goal of U.S. airpower, from the outset, was to attain complete air superiority by eradicating enemy air forces and conducting long-range bombing operations. The VPAF’s goal was to preserve their high value targets by selectively engaging U.S. bombing aircraft. U.S. air planners, as they had late in World War II, employed long-range fighters to provide cover for the slower, more vulnerable bombers. In this regard, F-4s provided the same defensive protection to the F-105s that P-51s had for B-17s over World War II Europe. Late in 1966, F-4s, loaded with bombs and missiles, were fitted in between units of Thuds in four- or five-minute intervals. Plans called for the F-4s to drop their bombs and engage the enemy if an F-105 were attacked. After they ran off the MiGs, they led the Thuds to their targets. If the enemy did not commit fighters, F-4s released their ordnance at the same time as the Thuds. In spite of this improved tactic, the VPAF downed 325 F-105s from early 1965 to late 1967 — most by SAMs and AAA.¹⁷

The VPAF interceptors were comprised of heavily armed, subsonic MiG-17s and, eventually, sixteen modern delta-wing MiG-21s. It was not until February 1969, that MiG-19s were used in the air defense network. While the *Fishbeds* were about half the size of the *Phantom IIs*, they were nimble and effective, high-speed, nearly all-weather fighters. The VPAF versions were fitted with two cannons and two Atoll infrared homing air-to-air missiles which were similar to the American AIM-9B *Sidewinder*. Flying at higher altitudes, the MiG-21 employed their rapid acceleration and turning capability to outfly the F-4s. At lower altitudes, the *Phantoms* used their powerful engines to effect vertical maneuvers that countered the enemy’s turning capability. The MiG-21s rapidly lost momentum in low-altitude turns. In order to protect these precious few air assets, the MiG-21s only operated in optimum situations, normally stalking U.S. strike packages from the rear, firing a missile and, then, bugging out. However, if they had to fight, the MiG-21s proved to be a daunting opponent.¹⁸

The F-4s were a next-generation jet fighter that Defense Department officials envisioned acting as a fleet defense aircraft. Once in service, its versatility allowed it to serve in numerous roles including Reconnaissance, Fast



Olds' first wife, Hollywood star Ella Raines.

Forward Air Control (FAC), *Wild Weasel* radar jammers, aerial bombardment and interdiction and, most significantly as an air superiority fighter. The earlier model F-4Cs were only armed with missiles making air-to-air combat awkward. After urging by Air Force pilots, these and later models were fitted with gun pods under the fuselage.¹⁹

From the beginning of *Rolling Thunder* to late 1966, the magnitude and ferocity of the air combat over Vietnam grew. One troubling example took place on December 2, 1966, better known as "Black Friday." On that date, the U.S. lost five Air Force and three Navy aircraft to SAMs and/or AAA. The Air Force lost three F-4Cs, one RF-4C, and an F-105, while the Navy lost one F-4B and two Douglas A-4C *Sky Hawks*. As if this was not enough, the VPAF radically increased fighter missions in the last quarter of 1966. Because the ROEs prohibited the U.S. from attacking airfields for fear of killing Russian and Chinese "advisers," the crew members of the 8 TFW gradually became discouraged. While they tried to fight back, this would prove difficult since the MiG-21s refused to engage the Americans. To quote Col. Walter Boyne, "The reluctance of the MiG-21s to engage did not mean that the North Vietnamese pilots were lacking in either courage or skill. At the time, the U.S. estimated that there were only 16 MiG-21s in the theater, and the enemy had to employ them selectively to maximize their utility."²⁰

Olds Plans to Shake Things Up

At this point, Olds, had been contemplating a plan to lure the VPAF MiG-21s into an engagement with his F-4



General Robert Olds receiving the Flying Cross on May 12, 1938.

fighters by making their ground controllers think the F-4s were bomb-laden F-105s. He believed he could mimic the Thuds call signs and communications to force an engagement between the 8 TFW's F-4s and their VPAF's MiG-21 counterparts.²¹

As alluded to earlier, before he could bring the plan to life, he had to first prove himself to his men. As he recalled when he first arrived on September 30, 1966, his pilots treated him very much like the "new boy on the block." At that point, the 8TFW was not the famous "Wolfpack" it became. Col. Olds was not a young man at forty-four, but at a robust 6'2" he did have the bearing of a movie star like Clark Gable or John Wayne. He was married to the beautiful model and film star Ella Raines. Moreover, he was the son of the legendary Maj. Gen. Robert Olds who had been one of the most important generals in the pre-war Army Air Corps. His father had died of a heart attack on April 28, 1943. The Colonel's reputation was bolstered by his status as a World War II ace. In spite of the many dangerous exploits he experienced flying over Germany, Olds later remarked, "he never flew one mission over Germany that was as tough as any mission over Hanoi."²²

After World War II, his career had been detoured by his deserved reputation as a "maverick." This was, at least in part, due to his passionate arguments against 1960's Air Force training. He candidly advocated intensive training in the same dogfighting tactics he had learned in Europe. When the Korean War broke out, he desperately tried to get back into the fight. Unable to do so, he continued in his role as a teacher of aerial combat tactics. At a time when U.S. airpower and its personnel, even its fighter aircraft, were adapting to fight a nuclear war, Olds urged his superiors to train new fighter pilots in the fundamentals of strafing, dive-bombing, and other conventional warfare methodology. His theories were increasingly needed in the 1960s with the advent of brushfire-style conflicts. This included Indochina where it soon became clear the skills he advocated were necessary for victory.²³

From the moment Col. Olds arrived, he tried to convince his superiors of the efficacy of his ambush plan. He first pitched it to Pacific Air Force (PACAF) commander,



Col. Robin Olds (left) and Capt. John Stone after OPERATION BOLO. Three other 8th Tactical Fighter Wing officers, 1st Lt. Joseph Hicks, 1st Lt. Ralph Wetterhahn and Maj. James Covington, also worked on planning the mission details.

Gen. Hunter Harris Jr. The General blew it off. Still convinced his plan would work, in early December 1966, at a cocktail party in the Philippines, Olds presented it to Seventh Air Force (7 AF) commander, Gen. William W. “Spike” Momyer. As Boyne describes the event, “After a few polite remarks, Olds said, ‘Sir, the MiGs are getting pesky’ and went on to describe ways to bring them to battle.” Momyer did not seem to show much interest and, at length, broke off the brief encounter by walking away. Olds was crestfallen concluding “he had blown a good opportunity.”²⁴

To Olds’ amazement, Gen. Momyer had been listening. Less than a week later, the General directed Olds to come to Saigon to discuss the proposal. Momyer directed Olds to develop a formal plan, one that avoided attacks on VPAF airfields. On December 13, Olds and four of his officers began framing Olds’ plan calling for F-4s to pretend to be F-105s. During the first meeting, he provided specific guidelines to his planners. These included not attacking enemy airfields, preventing MiG-21s from returning to their base once engaged, and having F-4s orbiting these airfields in order to cut them off from escape routes into China. The planning group was comprised of Capt. John B. Stone, Lt. Joe Hicks, Lt. Ralph F. Wetterhahn, and Maj. James D. Covington. They operated under the tightest security. The airmen scheduled to fly the mission were not briefed until December 30.²⁵

It took a mixture of Olds’ inspiration and the younger officers’ in-theater experience to breathe life into the scheme. After a protracted effort to flesh out the details, they developed specific plan components that included “force structure, refueling points, and altitudes, ingress and egress routes, radio communications, flak suppression, electronic countermeasures, and all the other details the mission required.” The planners reasoned once the enemy fighters were engaged, they would have to land within fifty-five minutes, so they decided to have each F-4 flight arrive five minutes apart to assure the best chance to grap-

ple with the enemy aircraft. They also decided to strike from two directions. This called for the “West Force” of seven flights of 8 TFW F-4Cs departing from Ubon RTAFB and four flights from the 366 TFW, Da Nang AB, South Vietnam, or the “East Force,” attacking in a different direction to confuse the enemy.²⁶

It was brilliant plan, but it had a lot of moving parts, with the entire mission dependent on the MiGs taking the bait and coming up to fight. Drawing in the MiGs would not be easy, since the VPAF ground controllers general did not send up MiGs unless they were 100 percent sure of some success. Weather was also a potential issue. If the ground controllers were convinced cloud cover would seriously impact the bombing accuracy of American fighter-bombers, they would probably not send the MiG-21s up to confront them. In addition, the VPAF realized U.S. targets were located near their best integrated air defense system (IADS) at that time. This having been said, the usual F-105 disadvantages, including the ridiculous ROEs and limited approach routes which, ironically, had the potential to lure the Communists into a false sense of security. In the air war, their standard operating procedures had proved so successful, they gradually fell into a false sense of invincibility. In short, they presupposed that if things were not broken, there was no reason to try to improve their processes and tactics.²⁷

At the Core of the Deception

This intricate sting operation was ultimately scheduled for January 1 or 2, 1967. The final components of this ruse involved the inclusion of an electronic “Trojan Horse” designed to conceal the F-4 signature and project a simulated image of bomb-laden F-105 Thunderchiefs.

Olds’ planning, having anticipated all the key factors, was confident the F-4Cs would deceive the enemy fighters. Armed with four AIM-7E *Sparrows* and four AIM-9B *Sidewinders*, if the enemy did fall for the deception, the VPAF would be up against a formidable foe! Toward the end of the planning process, in an effort to enhance the probability of success, Maj. Gen. Donavon F. Smith, Chief of the Air Force Advisory Group in Vietnam, recommended the F-4Cs carry the same QRC-160 ECM pods then being used by the F-105s. While this was a brilliant idea, obtaining the pods proved difficult and required a yeoman effort by Air Force logistics personnel that extended across Vietnam and, even, back to the U.S. Even so, they eventually obtained the necessary numbers and attached them to each Phantom II’s fuselages.²⁸

Another potential advantage the Americans enjoyed, one that Col. Olds hoped would be the key to success, was that the first three flights to reach the combat zone would be allowed “missile free” firing options. As Col. Boyne pointed out, “For a few precious minutes, the Americans would know exactly where all friendly aircraft were. Any other aircraft could be assumed to be hostile and be fired upon without visual identification.” This afforded the Air Force crews the elements of “surprise, isolation from counter fire, and, most of all, time to let the missile do what



Colonel Robin Olds, Commander, 8th TFW, mastermind behind Operation "Bolo." He, personally, shot down one MiG-21 with two AIM-9s while flying an F-4C Phantom. During Vietnam, he was credited with four kills. He already was a WWII Ace with 13 victories.

it was designed to do under the most favorable conditions, without excessive gravity (G) forces to trouble the missile systems."²⁹

Pulling Strike Preparations Together

On December 22, 1966, Olds traveled to Saigon where he briefed Gen. Mommyer on the plan. The General eagerly authorized it without a single alteration. Everyone agreed to launch the mission on January 1, 1967, if possible, or as soon after as practical. The final force makeup included 96 fighters with 56 being F-4Cs, 24 F-105s, and 16 F-104s. It also was comprised of support aircraft, specifically KC-135 tankers, EB-66s ECM aircraft, and EC-121 *Big Eye* ISR aircraft as well as numerous rescue forces. Like the conductor of a symphony orchestra, Stone was mainly concerned about timing. Each instrument in his elaborate symphony needed to play its part at just the right moment. To prevent the MiGs from landing, Stone wanted a flight of F-4Cs flying over each airfield every five minutes for the entire duration of the operation. The MiGs would either be shot down or run out of fuel; escape was out of the question. For three days prior to the mission, aircrews received special briefings for Bolo.³⁰

As the planning ended, the maintenance crews began to work non-stop. During the last two days before H-Hour, they toiled for nearly twenty-seven hours straight, preparing for the operation. As one senior member of the ground

crew put it, "They made us clean every aircraft, take everything off, every rack, bomb, missile, everything!" In turn, Olds and Stone told the crews nothing about the mission and expected the ground crews to load the ECM pods on the aircraft with little prior training. This puzzled some of the sustainment personnel since, in those days, "the only time you flew ECM on an F-4 was if you were flying with nuclear weapons." This was due to the fact the pods ran on the F-4's nuclear circuitry. Finally, the colonel directed the crews to perform a GWM-4 test of those circuits. This was a test run normally done only in the event of nuclear war. The ground guys began to ask each other "What the hell's going on?"³¹

On December 31, Olds canceled leave for all members of the 8 TFW, even deferring the wing's New Year's Eve party. As anticipation of the mission grew, bad weather rolled in over Hanoi threatening to postpone the scheduled launch. On January 1, Robin Olds delayed the mission for twenty-four hours. Most of the flight crews were annoyed at having to remain sober on New Year's Eve. At one point, many of the 8 TFW's pilots, briefly including Olds, went to the bar to party. Late that night, around "zero dark thirty" Olds, at Stone's recommendation, decided the mission would launch the next morning. Generally the calmest man "in the outfit," Stone threw up his dinner of liver and onions outside the briefing room. Without sleep and with no food in his stomach, Stone would go up the next day and shoot down a MiG.³² The truth was that Olds had little choice but to launch since he only had the QRC-160s "on loan" for seven days.³³

The last aspect of the preparation, as was normally the case, evolved from the computers at 7 AF formulating code names to be assigned to each flight, target, and route. This was standard operating procedure. However, with timing such a critical issue, the technicians had to be very meticulous in selecting the code names. The F-4C flights were given the names of cars. For example, Olds led Olds Flight and Chappie James led Ford Flight. The location of MiG air fields were given the names of American cities. Thus, Phuc Yen, northwest of Hanoi, was designated "Frisco," and Gia Lam, south of Phuc Yen, was "Los Angeles." Olds, was not pleased with the names of the flights wanting, instead, to designate the F-4C flights' names similar to those most often used by the F-105 flights. During the pre-mission briefing, Olds directed his pilots to use first names for their radio calls.³⁴ As this final pre-flight briefing ended, Colonel Olds closed by saying "All right you Wolf Pack, let's go get them."³⁵

As H-Hour drew closer, it became clear to everyone involved how important the mission was. At the last minute, ground crews spent precious hours checking and re-checking each aircraft and system. One particular issue proved to be the placement of the QRC-160s. The sway braces on the F-4C were in the same place they were on the F-105, so crew members reinforced the pod so it fit securely. The one thing no one could control was the weather. Inclement weather and poor visibility over Ubon RTAFB and the target delayed the takeoff but, as it began to clear, Olds gave the order to launch. It was at this point that all the plan-

ning, gathering of resources, and constant training of pilots and crews were on the line. The success of the mission would now come down to an intense, thirteen-minute dogfight. To quote Col. Boyne, "The historic battle would be fought in a slice of sky that ranged from 10,000 to 18,000 feet in altitude and within a 15-mile radius of Phuc Yen airfield."³⁶

Once airborne, Olds' flight, flying in a fluid-four formation at 480 knots, meticulously carried out the planned ruse by imitating the F-105 flight profile. Once they arrived over the Red River, they increased speed to 540 knots and formed into the QRC-160 pod formation. This increased their separation to roughly 1,500 feet, with each aircraft moving up and down, in order to jam the enemy's acquisition radar. Once over the target, Olds Flight continued the feint for three minutes hoping the VPAF would come up through the cloud cover to engage them.

Olds Flight had arrived over Phuc Yen, precisely as scheduled, at 1400 local time. But where were the MiGs? As it turned out, the North Vietnamese ground control crews had delayed the MiG launch by 15 minutes due to the undercast which topped out at 7,000 feet. Colonel Olds, naturally unaware of this fact, was left with the decision to continue or cancel the mission.³⁷

A flight of F-4Cs

Olds' instincts served him well. He delayed cancelling the mission and, as Olds Flight passed over Phuc Yen airfield to the southeast, they made a 180-degree northwest turn. Briefly, there seemed to be indications there were enemy aircraft aloft. Olds 3 had appeared to pick up the sign of an enemy aircraft moving away from them. Olds knew that Ford Flight, led by Col. James, was due over the target soon and decided to abort the missile-free option. Instead, he had his unit make another 180-degree turn. As Ford Flight arrived over the target five minutes after Olds' unit, the first MiG-21s broke through the clouds. Col. James, in Ford 1, immediately alerted everyone that a MiG-21 was headed toward the Olds Flight. Olds quickly turned in order to confuse the MiG's aim. He, then, attacked another MiG which crossed his line of sight at his 11 o'clock. It was about a mile away and flying low.³⁸

Ironically, Col. Olds had never flown a mission over the Hanoi area. It was also his first engagement with a MiG. Now, as he closed in on the MiG-21, he and his Weapon Systems Officer (WSO), Lt. Charles Clifton, armed his F-4 for a *Sparrow* attack and fired two *Sparrows* and a *Sidewinder*. To his consternation, none of them tracked correctly. Suddenly, there were MiGs everywhere. Olds quickly used the F-4C's tremendous power to roll in behind one of the other MiG-21s. He fired two *Sidewinders* with the first one blowing the right wing off the MiG. As it spun to earth, Olds waited to see the pilot eject. He never did. It was the first kill but not the last. As Olds later admitted, in his excitement, he almost "went Winchester" and fired all of his missiles trying to get his first MiG.³⁹

Olds 2, piloted by 1st Lt. Ralph Wetterhahn, a key member of operational planning group, swept in behind

another MiG-21. Supported by his backseater, 1st Lt. Jerry K. Sharp, he fired two *Sparrows*. The second one struck the MiG just in front of its stabilizer and blew it up.

Simultaneously, Olds 4, flown by Capt. Walter S. Radeker III and his WSO 1st Lt. James E. Murray III, spotted a *Fishbed* on the tail of Olds 3. As he scrambled to support his fellow airman, he had difficulty getting a solid tone on his *Sidewinder*. He fired anyway, and the missile guided directly to the MiG's tail and sent it spinning into the undercast. Within moments, Ford Flight was also engaged as two MiGs swept in on Ford 3 and 4 but overshot them. As the enemy aircraft broke out of this run, the pilot spotted, and pressed an attack against Col. James in Ford 1 also flying past him. At this point, Capt. Everett T. Raspberry and 1st Lt. Robert W. Western, in Ford 2, engaged one of the MiGs as it broke into a left turn. Raspberry rolled out on the MiG's six o'clock. He fired a *Sidewinder* that exploded in its tailpipe.⁴⁰

Next to arrive on site was Rambler Flight. Captain Stone, the lead mission planner and senior operations officer, was in Rambler 1, along with his WSO, Lt. Clifton P. Dunnegan Jr. As they scanned the skies over Phuc Yen airfield, Stone spotted two MiGs, flying roughly 4,000 feet below and two miles away. He swooped in on them and, even though he could not guarantee a lock on the enemy aircraft, he fired three *Sparrows*. The second missile impacted on the second MiG's wing root, and the pilot ejected.⁴¹

As Stone was involved in this part of the fight, 1st Lts. Lawrence J. Glynn Jr. and his backseater Lawrence E. Cary, in Rambler 2, had been positioned on the Rambler lead's wing. As Rambler 1's missile destroyed the fifth MiG, Glynn locked onto a MiG-21 and fired two *Sparrows*. The second one struck the MiG-21's wing root scattering aircraft debris and slightly damaging Rambler 2. As the MiG plummeted to earth, Glynn saw the pilot eject and his parachute open. This was rapidly followed by a kill by Maj. Phil Combies and Lt. Lee Dutton in Rambler 4. Dutton locked onto a MiG-21, and Combies methodically tracked the fighter firing two *Sparrows*. Missile number two impacted in the tail section. The enemy pilot's parachute deployed so swiftly, Combies believed he must have ejected as soon as saw the missile fired.⁴²

This was the seventh and final confirmed kill of the day. Combies and Dutton had fired four *Sidewinders* at a second MiG, witnessing two detonate below the enemy's tailpipe and seeing the other two tracking well. However, before they saw an explosion, they received a message from another American aircraft, "F-4C, I don't know your call sign, but break right." As it turned out, the alert was supposed to be for Stone. The break meant Rambler 4 could only claim a probable kill. In the after action report, Maj. Herman L. Knapp, in Rambler 3, also claimed a probable kill. By the time the remaining flights arrived, the surviving MiGs had retreated to safety, and no more dogfighting action took place. As the American's returned to base, it became clear they had won a great victory. The sweep had done what it had been designed to do. Within thirteen minutes, the "Wolfpack" air crews had shot down seven con-



The 8 TFW Commander and Vice Commander.

firmed and, probably, nine, of the VPAF's sixteen best interceptors.⁴³

Despite minor problems caused by the overcast weather, the mission had succeeded. The mission had, in just fifteen minutes over the target and thirteen minutes of combat, downed the seven North Vietnamese MiG-21s. Of equal significance, the Air Force flights had not lost a single plane or pilot. Four days later, another ruse, this time mimicking an F-4 reconnaissance flight, shot down two more MiG-21s. These devastating losses reduced MiG activity for three months. In less than a week, Olds swept the North Vietnamese Air Force from the skies.⁴⁴

The tables below summarize the Air Force kills on 2 January 1967. They provide data/ information regarding the unit, aircraft, pilot, WSO, weapon used, aircraft downed, and call sign.

F-4Cs from the 8 TFW claimed the following victories on January 2, 1967⁴⁵

Sqdn	Pilot	WSO	WPN	Victim
555	R. Wetterhahn	J.Sharp	AIM-7	MiG-21
555	W. Radeker II	J. Murray III	AIM-9	MiG-21
555	R. Olds	C. Clifton	AIM-9	MiG-21
555	E. Raspberry	R. Western	AIM-9	MiG-21
433	P. Combies	L. Dutton	AIM-7	MiG-21
433	J. Stone	C. Dunnegan	AIM-7	MiG-21
433	L. Glynn Jr.	L. Cary	AIM-7	MiG-21

Operation Bolo Tally Board⁴⁶

Sqdn	A/C Cmdr	Pilot	Wpn	Call Sign
555	R. Wetterhahn	J.Sharp	AIM-7	Olds 02
555	W. Radeker II	J. Murray III	AIM-9	Olds 04
555	R. Olds	C. Clifton	AIM-9	Olds 01
555	E. Raspberry	R. Western	AIM-9	Ford 02
433	P. Combies	L. Dutton	AIM-7	Rambler 04
433	J. Stone	C. Dunnegan	AIM-7	Rambler 01
433	L. Glynn Jr.	L. Cary	AIM-7	Rambler 02

What do the Results Mean?

As the first three flights departed the area, they observed the MiGs were gone. The four remaining flights, specifically, Lincoln, Tempest, Plymouth, and Vespa, arrived to find the battle was over. In turn, crews from the 366 TFW were diverted along the coast near Haiphong. After examining the weather and determining it was too bad to continue their part of the original mission, they decided not to continue the western part of the operation. *Bolo* had come to an end. When Olds and his men returned to Ubon RTAFB, the entire base population was waiting at the airfield to welcome them back. As the pilots and WSOs deplaned, they were hoisted on the shoulders of their ground crews. The celebration lasted well into the night. Senior leaders at the 7 AF, especially Gen. Momyer, were deliriously happy with the results. Officially, twelve F-4Cs had engaged fourteen MiG-21s and shot down seven, with no losses. Perhaps most impressive, of the fourteen crew members who scored kills, only Glynn had previously ever seen, much less engaged, a MiG-21 in air combat. The old style training Olds had long advocated had paid off. Despite the American's lack of aerial combat experience, and unfamiliarity with MiG-21s, they knew how to employ basic vertical maneuvers in order to shoot down the best the VPAF had to offer.⁴⁷

As noted, Operation *Bolo* proved so effective, four days later, leadership approved another ruse. In this case, they mimicked an F-4 reconnaissance flight. Once again, the MiGs came up to fight only to be bloodied again. This time, while only two MiG-21s were shot down, the collective effect was to keep the interceptors grounded for most of 1967 as U.S. aircrews bombed key targets in North Vietnam.⁴⁸

As for aerial dogfighting, the F-4C proved to be an excellent fighter and, under most circumstances, better than the MiG-21. While later analysis would indicate the lack of an internal cannon or machine guns on the F-4s was a considerable disadvantage, at least in this case, the AIM-7E *Sparrow* and AIM-9B *Sidewinder* were adequate even if not always 100 percent reliable weapons. Of significance, one should note that only ten Phantom IIs fired their missiles. Of the eighteen *Sparrows* launched, only nine accurately guided to the target. However, these missiles did destroy four MiGs. In turn, of the twelve *Sidewinders* fired, seven guided correctly, blowing up three MiGs.⁴⁹

In addition, the QRC-160 ECM pods performed well, and the enemy really was fooled. To be sure, the MiGs presence over the combat area probably made ground personnel reluctant to fire either SAMS or AAA. The fact they fired only five SAMs and shot only a light burst of 85 mm AAA clearly indicates these were fired randomly since they believed they were fighting F-105s and not F-4Cs. *Bolo* also verified the value of the WSOs or, what the crews called, the "Guy in the Back" (GIB). They kept their radars locked and, in spite of the constant sharp maneuvers, "kept their heads on a swivel watching out for enemy aircraft and SAMs."⁵⁰

An Official Analysis of Olds' Brain Child

After Operation *Bolo*, staff members in the 7AF Tactical Air Analysis Center wrote a working paper that asserted the main reason for the mission's success could be largely attributable to "overall planning and development of mission strategy and tactics, which accurately anticipated and fully exploited enemy reaction, and the attention to detail in the planning phase with particular focus on total force interaction in relation to both position and timing." That is, "An intensive training program for 8 TFW combat aircrews which emphasized every facet of total mission to include missile capabilities, aircraft and missile procedures, MiG maneuverability, radar search patterns, MiG identification, flight maneuvering and flight integrity, radio procedures, fuel management, tank jettison procedures etc." Lastly, it was comprised of a "High degree of discipline, both ground and air, displayed by all participants." In short, the operational success "was also the result of both leadership and tactical skills. Robin Olds had them both—and they are still the natural embodiment of the fighter pilot."⁵¹

Soon after his return Olds, in typical style, described the mission as follows, "The deliberately planned fighter strike went just as we'd planned. The MiGs came up, the MiGs were aggressive, we tangled, they lost!"⁵² The mission demonstrated to his pilots that Olds' skills had not diminished. He had been their leader in name and, now, he was in fact. Being a great leader, he made sure every airman who had been part of the operation, from flying and planning, to sweeping up the hanger, received full credit for their contributions. Following the unhappy days of 1966, *Bolo* raised Air Force morale both in Southeast Asia and America. Ultimately, the VPAF's three-month stand-down allowed both sides to analyze the data they had gathered from this engagement.⁵³

The media darlings of the mission were, naturally, the men who had shot down enemy aircraft. These included Olds, Everett, Wetterhahn, Raspberry, Combies, Glynn, and Stone. Seven kills in one day was a record for the 8 TFW. Other than Olds, who conceived the plan and led his pilots into harm's way, Stone suffered under that greatest pressure, since he had planned the lion's share of the mission. In spite of being a captain, he flew lead for the Rambler Flight and was the first in his unit to engage and down an enemy MiG.

He had had no sleep and had flown on an empty stomach. Rather than elation, when he got back over Ubon RTAFB, he was so totally spent he decided not to bother executing the usual victory roll. He figured there was no need to press his luck. While the guys on the ground broke out bottles of champagne for every air crew member, Stone retired to his bed.⁵⁴

Beginning with Operation *Bolo*, the air kill numbers over Vietnam began to improve. According to one source, "Stone's *Bolo* plan helped raise the Air Force kill ratio from 2.6 to 1, when Olds came on board, to 15 to 1 by the end of January 1967." In addition, Olds' passion for dogfighting had been rekindled. Following this first kill, he wanted



Brigadier General Robin Olds — A World War II Ace and Air Force Cross recipient, he gained widespread fame and respect as the aggressive commander of the 8th Tactical Fighter Wing during the Vietnam War. (Shown here as a colonel.)

more, which he would get—four to be exact, making him a triple ace with seventeen. According to his biography, he began to "read every damn combat report written by any outfit that went to Route Pack 6." He wanted to understand, "what the hell was happening up there."⁵⁵

To be sure all this dedication paid off, and the 8 TFW had truly won the moniker "Wolfpack." As their success in air-to-air combat grew, so did their fame and, eventually, other units began to call them "Wolfpack." During the war, the 8 TFW had recorded 38.5 confirmed MiG kills to lead all other wings in the Air Force. Today, the Wing still claims the nickname.⁵⁶

After this victory, the restriction on attacking enemy airfields was lifted, and the enemy's air threat was reduced further. Even so, improved VPAF tactics and air defenses would cause U.S. air losses to persist and reduce the U.S. kill ratio. At the war's end, one would be hard pressed to say that America had dominated the skies over North Vietnam.

Years Later, the Aftermath

In the years following the famous air battle, neither VPAF officials nor any official reports or sources ever completely confirmed U.S. claims. Most conceded they lost five MiG-21s that day. Some even admitted a sixth MiG-21 crashed, and the pilot was forced to eject when he ran out of fuel. Given the time between launch and the crash, one can reasonably assume the fuel loss was the result of combat damage from an air-to-air missile striking on or near the fuel tank. Whether the number was five or seven, clearly, the 8 TFW had won a great victory on that day. This engagement, combined with the follow up mission on January 6, 1967, forced the VPAF MiGs to stand down from January through April.⁵⁷

In spite of the great Air Force victory, the war was far from over nor had this one mission laid the ground work



F-4 Phantom II – MiG Killer

for overall victory. As it turned out, the VPAF proved to be a developing force that learned important lessons from the mistakes they had made that January. Instead of giving up, their pilots and experts studied, tested new theories and weapons, and trained more and better pilots in order to return to the fight. Between late April and late November 1967, the numbers indicate the upgraded VPAF enjoyed increasing success. During 1967, MiGs downed thirty-two U.S. aircraft, including sixteen F-105D/Fs, two RF-101Cs, one A-1E and eight U.S. Navy aircraft.⁵⁸

As for the F-4C/D Phantom IIs of the 8th and 366th TFW, their crews continued to fight a running battle with the MiG-21s in order to protect the F-105s. During 1967, they shot down thirty-six out of the fifty-nine MiGs claimed by the Air Force Phantom pilots. Of this number, twenty-three of the Wolfpack's pilots claimed thirty-two kills. In addition, Thud pilots from the 355th and 388th TFWs shot down another twenty-three. These victories came at a great price. All totaled, thirteen F-4C/Ds were downed by VPAF MiGs. The vast majority of Americans who went down were captured or killed. Many spent long and brutal years in North Vietnam's infamous "Hanoi Hilton" prison. On the other hand, if a Northern pilot survived a missile strike and could eject, he would live to fight another day. In retrospect, if Operation *Bolo* had not been so successful, the overall air-to-air combat numbers would not have been as good as they were.⁵⁹

The Kills Controversy

One of the great controversies of the Vietnam War was the number of aerial kills. During the war and for many years after, both sides official count of casualties and aircraft shot down dramatically varied. Perhaps that is something to be expected in such a protracted conflict. The advances in technology, weapons, strategic thinking, and tactics constantly evolved, throughout, in an effort to gain the upper hand. During *Rolling Thunder* and *Linebackers I and II*, the VPAF consistently plunged into the waves of Air Force, Marine Corps, and Navy strike aircraft, ultimately claiming a total of 266 kills. By the end of war,

leadership awarded seventeen VPAF pilots the status of "Ace." In turn, American officials admitted to the loss of eighty-nine aircraft in air-to-air engagements. At the same time, they reported 195 aerial victories for a kill ratio of 2.2:1. They designated just two American pilots and three WSOs Aces. The logical explanation for the small number of downed enemy aircraft can be attributed to the few MiGs which fought U.S. fighters and the shorter in-theater service time Americans experienced. Robin Olds spent one week short of a year overseas.⁶⁰

Seeing Things from the Other Side

While most students of the Vietnam War are very familiar with the exploits of Robins Olds and the 8 TFW, the North Vietnamese had renowned pilots of their own. One of the most famous was Capt. Nguyen Van Coc of the 921st Fighter Regiment. He was the top scoring fighter ace of the Vietnam War. As it turned out, on January 2, 1967, luck was with him and some of the other VPAF pilots that day. On January 2, 1967, those who ejected survived and returned to combat. This mirrored just how resilient and resourceful the Communists were. They learned important lessons from their defeat and reshaped their tactics, training, and overall strategies so, by the end of the war, they were fighting the U.S. on nearly an equal footing.⁶¹

Captain Nguyen was born in 1943 in the Bac Giang province of French Indochina north of Hanoi. At five years old, his father and uncle, both members of the Communist Viet Minh national independence movement, were executed by the French. To save her family, Coc's mother relocated them. As a consequence of this move, Coc spent the rest of his childhood near Chu Air Base, where he became fascinated by military aviation. When he turned 18, Coc enlisted in the VPAF. This proved to be an ironic twist since he had never even driven a car. Once he completed initial flight training in Haiphong, he trained as a fighter pilot in the Soviet Union for four years. Upon his return home, he briefly flew a MiG-17. Soon, he returned to the USSR and learned to fly a MiG-21. In December 1965, he began flying MiG-21 combat sorties with the



VPAF's Capt. Nguyen Van Coc.

921st Fighter Regiment. He and his comrades faced long odds in those early days. They were outnumbered and outclassed in their efforts to blunt the massive U.S. air offensive known as *Rolling Thunder*. With only a few pilots, the VPAF had no "rotation" program like their American counterparts who were allowed to able to return home after 100 combat missions. Coc and his fellow pilots literally "flew till they died."⁶²

Following the disaster of January 2, Captain Coc returned to the skies over Vietnam, eventually, downing seven U.S. Air Force and Navy aircraft. Among his victims were three F-4s, three F-105s, and a single F-102. He was also credited with shooting down several AQM-34 unmanned drones. All of his air-to-air victories were achieved with the K-13 infrared guided missile. When Johnson halted the bombing campaign in October, 1968, Coc became a flight instructor. The next year, he was awarded the Huy Hieu medal for his aerial victories and recognized as a Hero of the Vietnamese People's Armed Forces. After the war, he remained in the Air Force, retiring in 2002 as Chief Inspector with the rank of lieutenant general.⁶³

Of course, the war did not end on January 2. Operation *Rolling Thunder* would not end until November 1, 1968. By then, Olds had departed the theater but not before he downed three more MiGs. On May 4, he shot down one over Phúc Yên and two weeks later, on May 20, he downed two MiG-17s after they had shot down his wingman during a huge dogfight melee.

What the USAF Should Have Learned: Olds' Career After *Bolo*

The thirteen kills in World War II brought his total to seventeen confirmed kills. According to Olds, throughout the remainder of his tour, he was reluctant to shoot down enemy aircraft for fear he would be sent home as a "publicity asset" under orders from Secretary of the Air Force Harold Brown. In addition, the Air Force awarded Olds a fourth Silver Star for leading a three-aircraft, low-level

bombing strike on March 30, 1967, and the Air Force Cross for an attack on the Paul Doumer Bridge in Hanoi on August 11. His final combat mission over North Vietnam took place on September 23, 1967. All totaled, Olds flew 259 combat missions which included 107 in World War II and 152 in Southeast Asia, 105 of those over North Vietnam. The Air Force retired his Vietnam era F-4C "Scat XXVII," or F-4C-24-MC 64-0829 and put it on display at the National Museum of the United States Air Force, Wright-Patterson AFB, Ohio.⁶⁴

While he was in Southeast Asia, Olds had grown a trademark handlebar mustache. It was waxed and well cared for. He had grown it since it was a common superstition among airmen that growing a "bulletproof mustache" was good luck. He also grew it as "a gesture of defiance" since, as he put it, "The kids on base loved it. Most everybody grew a mustache." In short, "It became the middle finger I couldn't raise in the PR photographs. The mustache became my silent last word in the verbal battles...with higher headquarters on rules, targets, and fighting the war." Once he returned to the U.S., the mustache had to go. During his first meeting with General John P. McConnell, Chief of Staff of the Air Force (CSAF), McConnell stuck a finger under his nose and said, "Take it off." Olds replied, "Yes, sir."⁶⁵

Beginning in February 1971, Olds began his last duty assignment as Director of Aerospace Safety, Office of the Inspector General, HQ Air Force. In December of that year, this office became a part of the Air Force Inspection and Safety Center which was a new, separate operating agency located at Norton Air Force Base, California. In this role, Olds directed the formulation of policies, standards, and procedures for Air Force accident prevention programs and dealt with work safety education, workplace accident investigation and analysis, and safety inspections. For the most part, this was a tedious job for a man with Robin Olds' skills and abilities. He did have one job that helped get his juices flowing again.

In the fall of 1971, Olds' former West Point classmate and, then, Air Force Inspector General Lt. Gen. Louis L. Wilson, Jr., sent Brig. Gen. Olds to Southeast Asia to examine the readiness level of Air Force pilots. During his trip, Olds visited all the Air Force bases in Thailand, even flying several unauthorized sorties. In his report, he told the new CSAF Gen John D. Ryan, a former SAC general and bomber pilot, often at odds with the tactical fighter community, they "...couldn't fight their way out of a wet paper bag." This, he argued, was due to the fact there was a basic lack of interest or understanding of air-to-air combat by fighter crews since it was not a fundamental aspect of their training. He warned his superiors that if aerial combat resumed in the future, losses would be severe. This upset Ryan who disagreed.⁶⁶

Olds' remarks proved prophetic. When Operation *Linebacker I* began in May 1972, and Air Force and Navy fighters again took to the offense in the skies over North Vietnam, it was Navy and Marine Corps fighters, whose pilots had trained in dogfighting tactics at their TOPGUN program, who had the lion's share of success. As Olds pre-

dicted, by June, the Air Force's fighter forces were mired in one-to-one kill-loss ratio. A frustrated Olds went to the new Inspector General, Lt. Gen. Ernest C. Hardin, Jr., and offered to take a voluntary reduction in rank to colonel, so he could return to operational command and fix things. The offer was rejected, and Olds decided to leave the Air Force. He officially retired on June 1, 1973.⁶⁷

Some Final Observations

When Olds died on June 14, 2007, he was a month short of his 85th birthday. In many ways, he had lived a life right out of a 1950s Hollywood movie. He was a football star at West Point, a fighter ace in World War II and, by the time he reached Vietnam, a legend who married a beautiful movie starlet. However, he was not without his flaws. In the political world of senior military officers, he was too outspoken. He did not suffer fools gladly and, at times, drank too much. A dedicated pilot, who spent his life in the tense and singular world of combat, he eventually divorced his first wife because he was gone so much, and she could not adapt to military life. Olds and his comrades, who had learned the art of dogfighting and perfected the tactics of air-to-air combat, either continued to develop these maneuvers or were on the outside looking in during Korea. Olds was one of the latter.

From the end of the Korean War to the U.S. entry into the Vietnam War, it seemed everything changed. It started with the need for speed. In the late 1950s and early 1960s, U.S. fighter aircraft development saw each new version gain speed and altitude capabilities. Aerospace companies built new fighters, such as the F-105, large enough to carry nuclear bombs and, F-4s which could fly at nearly twice the speed of sound. By the time Olds arrived to command the 8 TFW, he hardly recognized the fighter Air Force. He learned to fly the F-4C which did not have an internal gun.

He had to use often unreliable rockets that required a unique kind of talent to hit the enemy and, too often, a lot of luck!

When Olds returned home, he advocated a return to old school dogfighting and fitting fighters with guns. Later, senior officials sent him back to Vietnam to evaluate Air Force performance. In his usual, gruff style, he warned them that if they did not make these recommended changes, the results would be disastrous. It seems obvious he was right. All too often, how you break the bad news or make suggestions has the greatest impact. Olds was not a politician; he was a talented fighter pilot to whom air-to-air tactics were almost second nature, and the ones that were not were easy to learn. To tell senior generals that everything they had prepared for during the Cold War was of little real value did not sit well with them.

When Olds retired, it appeared his theories might be forgotten, but fellow airmen like Chappie James remembered and, when they were promoted they made compelling cases for major revisions in fighter training and design. First, the Air Force established the "Red Flag" school which, like the Navy/Marine's Top Gun school, perfected fighter techniques and found ways to make U.S. pilots the "best of best!" They also built a new generation of fighters including the F-14, F-15, and F-16 fighters. By the 1990s, when U.S. pilots returned to combat, this time in the skies over Iraq and Serbia, their improved skills overwhelmed their opponents.

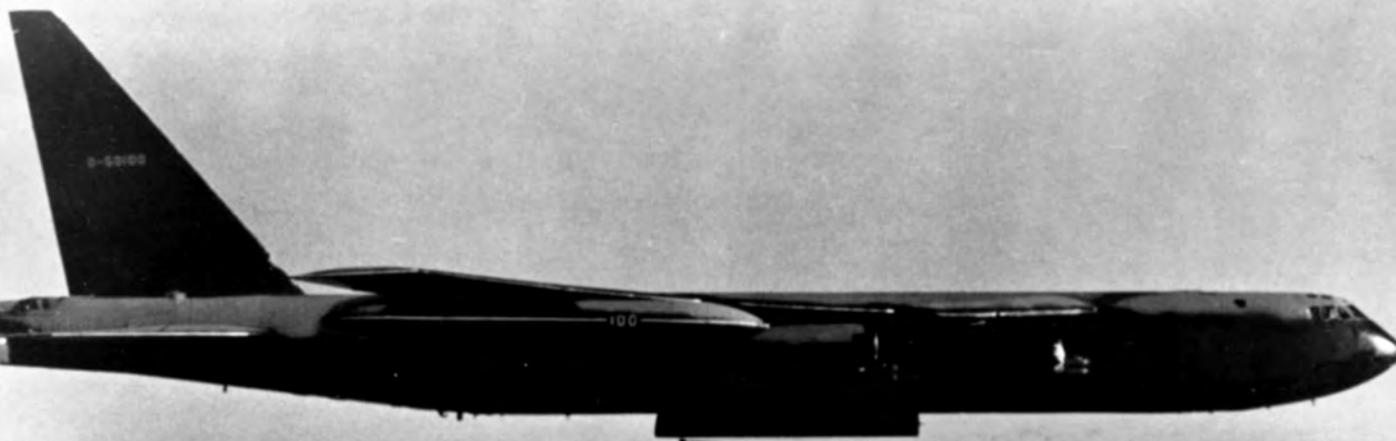
An airmen in every sense of the word, he led seven flights of F-4s over Phu Yen airfield and dealt the VPAF its greatest defeat of the war. It was such an important watershed victory that it is still studied by Air Force fighter pilots to this day. In many ways, the ability of today's airmen to fly and fight came from that cloudy day over Hanoi on January 2, 1967, and from one dynamic airman named Robin Olds. ■

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Rescue Operations During Linebacker II

It was bombing that settled the question,
bombing that got our prisoners out.”
General Al Haig

A B-52D Stratofortress from the 93rd Bombardment Wing at
Castle Air Force Base, California.

Darrel Whitcomb

Text © by the author.

When North Vietnam launched its “Easter Offensive” against South Vietnam in late April 1972—a fateful year in the Vietnam War—American President Richard Nixon took bold actions. While directing that the reduction of our forces in South Vietnam would continue, he dispatched additional air and naval forces to the theater to cover our withdrawal and staunch the North Vietnamese attack. Additionally, he directed his National Security Advisor, Dr. Henry Kissinger, to step up negotiations with the North Vietnamese and then personally travelled to the Soviet Union and China to diplomatically isolate the North Vietnamese from their benefactors.

For the next six months, American air and naval power in Operations Freedom Train and Linebacker pummeled the invading forces and North Vietnam itself, until their offensive ground to a halt, with an estimated 140,000 soldiers killed and 650 tanks destroyed. When the North Vietnamese resumed serious negotiations, President Nixon restricted the bombing to 20 degrees North Latitude, as a show of good faith, and dramatically increased materiel shipments to the South Vietnamese military. By late October, Kissinger and his North Vietnamese counterparts had reached a tentative ceasefire agreement, and President Nixon was re-elected by a landslide. However, after the election, South Vietnamese President Nguyen Van Thieu objected to the agreement and demanded numerous modifications. In late November, Kissinger presented the changes to the North Vietnamese but they rejected them all.¹

On November 30, acting on President Nixon’s direction, CINCPAC, Admiral John McCain, sent a message to CINC-SAC, General John Meyer, CINCPACAF, General Lucius Clay, and CINCPACFLT, Admiral Bernard Clarey, stating, “We must be prepared for contingency breakdown in cease-fire negotiations”, and the subsequent cancellation of restrictions above the 20th parallel. He directed them to begin planning for “an integrated and sustained air campaign against North Vietnam,” to interdict the southward flow of supplies and to isolate the North Vietnamese “heartland,” — where targets should be such that their destruction would achieve the maximum psychological impact while causing minimum risk to the population. It would be a three-day operation.²

December

Kissinger continued to make entreaties to the North Vietnamese, but, they refused his proposed changes and even presented several of their own. The two sides were at an impasse. President Nixon sent a strongly worded cable to Hanoi, but it was not answered, and intelligence sources indicated that the North Vietnamese government was directing mass evacuations of the Hanoi and Haiphong regions. Accordingly, on December 17, President Nixon ordered the resumption



of concentrated US air attacks against North Vietnam, including the use of tactical air and B-52s against targets in the Hanoi and Haiphong area, beginning later that evening in Washington area time. The operation would be called Linebacker II. The Joint Chiefs of Staff alerted both CINCPAC and CINCSAC that the operations could be extended beyond the three-day limit. In explaining to the nation what was about to happen, White House Press Secretary Ron Ziegler indicated that Linebacker II was a campaign, not just one attack. He said that it would continue, "until such time as a settlement is arrived at," adding that, "We stand ready to end the conflict rapidly." They wanted a quick end to this. As Ziegler further explained, "It is the President's view that neither side can gain from prolonging the war or from prolonging the peace talks."³

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Linebacker II

The airmen, sailors and marines of the 7th AF and the aircraft carriers of Task Force 77 were still flying missions over Laos, Cambodia and South Vietnam and were ready to return to the Hanoi area. For the new campaign, strike packages of F-4s and A-7s would be striking targets during the day, and A-6s, F-111s, and B-52s with support packages would be striking at night. Given the intensity and sheer quantity of North Vietnamese air defenses throughout the theater, but especially in the Hanoi region, the need for rescue could arise anywhere at any time.

Rescue Forces

Long veterans of the war, the airmen of the USAF 3rd Air Rescue and Recovery Group ran the theater rescue campaign and operated the Joint Rescue Coordination Center (JRRC) in Saigon, and a subordinate Rescue Control Center at Nakhon Phanom (NKP) Royal Thai Air Force Base (RTAFB), Thailand. They had been reduced from four to two assigned squadrons. At NKP, the 40th Air Rescue and Recovery Squadron (ARRSq) flew the HH-53C recovery helicopters which were the key theater-wide recovery asset, and the HH-43 helicopters which were dispersed throughout the theater to provide local rescue at the bases where U.S. forces were located. They were assisted by the 56th ARRSq, based at Korat RTAFB, Thailand, which flew the HC-130 "King" aircraft which provided in-flight refueling for the HH-53, and served as the airborne mission commander (AMC) for control of rescue and supporting forces during SARs. They were collocated at Korat with the 3rd Tactical Fighter Squadron which flew A-7s and provided rescue escort for the helicopters and on-scene command and control (OSC) for recovery operations. Their designated call sign was "Sandy." The ships of Task Force 77 (TF-77) had assigned to them a helicopter rescue unit, HC-7, equipped with SH-3 helicopters. They were dispersed in small detachments aboard ships in the Gulf of Tonkin (GOT), prepared to recover anybody who had to bail out over the water or up to five miles inland in North Vietnam, although their crews were known to stretch that "five miles" when necessary. As noted, during Linebacker II, allied forces were still flying over the other regions of the theater. Within South Vietnam and Laos, helicopter crews from remaining U.S. Army units and contract pilots flying for Air America were also ready to recover downed airmen as the need arose. These were all capabilities which had been long developed and refined in this long war.⁴

All aircrews flying in SEA were well versed in SAR procedures. The B-52 crews now going into the heart of North Vietnam were briefed on what to expect from the rescue forces. They were shown the Selected Area For Evasion (SAFE) areas around Hanoi and briefed on the preplanned contact times for evaders. All were equipped with full survival vests and had at least one survival radio plus a secondary beeper. They had all been through survival school and knew what to expect. They understood the function of the rescue task forces and knew how to interact with the



"High Road to Hanoi." Aviation art by Jack Fellows©. Used by permission of the artist. Visit him at <http://www.jackfellows.com/>.

Jolly Greens, Sandys, and forward air controllers (FACs) who would try to rescue them. They knew that the U.S. Navy would recover them over the GOT, but were not as sanguine about the Jolly Greens coming into the Hanoi area.⁵

December 18/19

On the first night, 121 B-52s struck targets in the Hanoi area divided into in three waves, about four hours apart. Each wave was escorted by a gaggle of about 45 fighters of various types for MiG CAP, SAM suppression, chaff dispensing, and stand-off jamming. The B-52s were also preceded and followed by F-111s from Takhli, RTAFB, Thailand, and A-6s off of the aircraft carriers. Over 200 SAMs were fired at the aircraft, damaging two, and bringing down three of the big bombers.

At about 2200L, **Charcoal 01**, a B-52G, from the 97th Bomb Wing (BW), Blytheville AFB, Ark., was in the first wave as it attacked the Yen Vien Railway Yard, on the northern edge of Hanoi. It was mortally hit by two SA-2s just before bomb release and went down near its target. Three men ejected and were quickly captured. They were released in March 1973. The other three crewmembers went down with the aircraft. Their remains were returned in 1978.⁶

An hour later, an F-111 from Takhli, **Snug 40**, flown by Lt Col Ronald Ward and Maj James McElvain, struck the Hanoi International Communication Transmitter located in the Hanoi environs, the most heavily defended

area in North Vietnam. After expending their bombs, the crew reported to a monitoring agency that they were out-bound. That was their last communication. The wreckage was never found, and post-mission analysis suggested that the terrain following radar failed as they flew across the Gulf of Tonkin and caused them to hit the water. There was no one to rescue.⁷

As the second wave attacked its targets in the Hanoi region, another B-52G, **Peach 02**, from the 2nd BW at Barksdale AFB, LA, was hit and severely damaged by an SA-2 just after releasing its bombs and turning away from the target. The crew was able to fly their aircraft out of North Vietnam, intending to land at U-Tapao Royal Thai Navy Airfield, Thailand. However, while passing Udorn RTAFB, Thailand a fire in the left wing became worse and the aircraft began to come apart. All seven crewmembers bailed out and were rescued by two USMC CH-46s from MAG 15 at Nam Phong Air Base, Thailand. They flew the survivors to Udorn.⁸

Just at sunrise, a B-52D, **Rose 01**, from the 99th BW, Westover AFB, MA, dropped its bombs on Hanoi's main radio station. As it was turning away after release, it was hit by an SA-2 and caught fire. Four crewmembers bailed out and were quickly captured. There was no SAR effort. The POWs were released in March, 1973.⁹

Aboard the ships of TF-77, the SH-3s of HC-7 were ready. They were also flying aircraft along the shoreline when strikes were going in. At dawn, Jolly Green 32 and



By December of 1972, the Sandy role had transferred from the Douglas Skyraider to the A-7 Corsair.

66 took off and flew north to orbit in northern Laos. They were joined by Sandy 01-05. But they were not used and returned to their bases when their coverage window was ended. This would be a common pattern throughout the campaign.¹⁰

December 19/20

On the second night of Linebacker II, 93 B-52 sorties were sent in, again in three equal waves, against targets in the Hanoi area. Tactical modifications were applied based upon the results from the night before. All waves were escorted with the same support packages. Over 180 SAM firings were reported by the crews. Two aircraft were damaged, but none was shot down.¹¹

In the early morning hours of December 20, an A-7, **Streetcar 303**, off of the *USS America*, was part of a flight which was attacking an SA-2 site twelve miles south of Haiphong in support of the B-52s. The aircraft, flown by Lt Carl Wieland, was struck and destroyed by a missile. The pilot ejected, but in the chaos ongoing around him, his loss was not immediately noticed. Before any rescue actions could be taken, he was captured. He was released in March 1973.¹²

December 20/21

On the third night, 93 B-52s were scheduled to go in. Their main target was the big rail yard at Gia Lam and also the Yen Vien railroad complex near Hanoi. Over 220 SAMs were fired and six B-52s were shot down.

At about 2200L, **Orange 03**, a B-52D, from the 99th BW, Westover AFB, MA, was on its bomb run at Yen Vien, when it was attacked and slightly damaged by a MiG-21. Orange 01 and 02 both released their bombs on the target. Just prior to bomb release, Orange 03 was hit and mortally damaged by an SA-2, a few miles north of Hanoi. The air-

craft went into a flat spin and the electrical system failed. The aircraft commander ordered the crew to bail out, and two men ejected and were quickly captured. There were no SAR efforts for the crew.¹³

Almost simultaneously, another B-52G, **Quilt 03**, from the 456th BW, Beale AFB, CA, was on its bomb run against the Yen Vien rail yards when it was hit by at least one SA-2. Two men were wounded and subsequently died when the aircraft depressurized. The other four men all ejected and were quickly captured. They were released in 1973, and the remains of the two other men were returned in 1977.¹⁴

Just a few minutes behind **Quilt 03** was **Brass 02**, in another flight of three aircraft to attack the same target. It was another B-52G from the 42nd BW at Loring AFB, ME. On its bomb run, it was hit by two missiles which knocked out four engines. But the aircraft was still flyable and the crew turned to the southwest in an attempt to get out of North Vietnam. Fortunately, the crew was able to hold the aircraft together and they were attempting to make it to U-Tapao when the aircraft went out of control about 10 miles southwest of NKP. All six of the crewmembers were able to bail out. **Knife 30**, a CH-53 from the 21st Special Operations Squadron (SOS) was on a night sortie and picked up two men; **Jolly Green 71** picked up one; **Pedro 42**, an HH-43, picked up two, and the sixth man caught a bus which brought him to the front gate.¹⁵

Just past midnight, an A-6 from the *USS Enterprise*, **Milestone 511**, was shot down by AAA or possibly an SA-7, as the aircraft was making a low-level run on the Haiphong shipyards. The crew, Cdr Gordon Nakagawa and Lt Kenneth Higdon, both ejected but were quickly captured before any SAR effort could be mounted. Both were released in 1973.¹⁶

Three losses in the first wave certainly got the attention of commanders in Saigon and at SAC headquarters at Offutt AFB, NB. Since the B-52Gs seemed to be more vulnerable than the other B-52 types, two cells scheduled in

the second wave were recalled, and that wave suffered no losses.

At about 0600L, a US navy flight working east of Hanoi reported a huge fireball over Hanoi just as the third wave was approaching its targets. **Straw 02**, a B-52D from the 306th BW, at McCoy AFB, FL, had just completed its bomb run and release and was making a post-strike turn when it was hit by an SA-2 missile and badly damaged. Two engines were on fire and the electrical system failed. However, the crew was able to turn toward the southwest and attempt to get out of North Vietnam. Thirty minutes later, the aircraft became uncontrollable and five members of the crew bailed out east of Ban Ban Valley in Laos, an area under the control of Pathet Lao forces. The status of the radar navigator was never established. Jolly Green 71 and 73 had already launched and were heading to the holding point in Northern Laos, and Sandy 01, 02, and 03 were scrambled from Korat, followed an hour later by Sandy 11, 12, 13, and 14. Everybody headed for the area of the survivors, and two MiGCAP flights were diverted to cap the area from MiGs. Arriving, everybody began searching for the survivors. Once they were located, the Sandys had to eliminate some AAA as the two helicopters worked to recover the survivors. Jolly 73 picked up two survivors and Jolly 71 picked up three. Jolly 71 lowered a PJ to the ground to search for the sixth man. No trace was found. Jolly 71 and 73 then returned to NKP, leaving the continuing search for the missing crewmember to Jolly 30 and 66 and the Sandys. They never found him.¹⁷

While the rescue forces were working hard to recover the Straw 02 survivors, more bad things were happening over Hanoi. Several more cells were arriving to attack more targets in the Hanoi area. **Olive 01** was a B-52G from the 92nd BW, at Fairchild AFB, WA. It was leading a cell of three aircraft directed at a target near Kinh No in the Hanoi area. While making its turn after bomb release, it was hit by several SA-2s, and destroyed. The aircraft erupted in flames and went straight down. There were seven men onboard. Three of the crew were known to have ejected. All three were quickly captured, and one died in captivity. Two were released in March 1973. The remains of one man were released in 1974, and the other four in 1988. There was no SAR effort. The JRCC log in only mentions Olive 01 once: "20/2250Z Olive 01 No Contact - NX (Notified) Jack."¹⁸

But even as the first glimmer of dawn began to arrive, the drama was not over. Two more cells of B-52s were headed for Kinh No. In the second cell, **Tan 03**, a B-52G, from the 97th BW at Blytheville, AR, had a problem. Their radar-navigation system had failed, and they needed to rely on release guidance from their cell lead. Unfortunately, they were lagging behind the two other B-52s, and the aircraft was rocked by an SA-2 detonation just below it. The aircraft went into a dive, but the pilots were able to recover it. Another SA-2 hit the aircraft and the pilots lost complete control. The aircraft commander directed the crew to bail out. Then the aircraft exploded. Only the gunner escaped, and arriving on the ground, was quickly captured. He was released in March 1973. The remains of one man

were returned in 1975, and the other four in 1988. The JRCC log holds just one cryptic comment on this event: "Tan 03 lost contact after Bullseye From King 22 NX B/C (Blue Chip)."¹⁹

The Whistle

It had been a horrible night. At one point, as the SAMs were streaking through the sky, an electronics warfare officer on one of the B-52s decided to take matters into his own hands. He carried a whistle as a good-luck charm and would occasionally whistle on the radio at opportune times for a bit of comic stress relief. While watching several SAMs streak up at him and his compatriots, he let go with a blast from his whistle on the North Vietnamese air defense control frequency and then followed it up with a shrill "Time Out!" call. For ninety seconds, not a single missile was fired. In that time, his crew was able to drop their bombs, make their post-strike turn, and escape. He was either smart or lucky but didn't care which because they got out alive. Countermeasures come in all forms.²⁰

Maybe the SAC commanders should have issued whistles to all crewmembers, because they had to do something. The night was a disaster. Four B-52Gs and 2 B-52Ds had been shot down, and another B-52D had been seriously damaged but was able to make it back to U-Tapao. Over 200 SAMs had been fired at the attackers. But after three nights of bombing, some key points were now evident: the B-52Gs had fundamental deficiencies in their electronic countermeasures equipment which could not be quickly fixed and they did not belong over Hanoi; and more seriously, six of the B-52s had been hit as they turned after bomb release. Changes had to be made to the basic plan of attack. All of this was discussed in detail as CINCPAC and SAC commanders and staffs conferred. They also determined that much more SAM suppression was needed especially just before the B-52s arrived.²¹

From a rescue perspective, the numbers from night three of the campaign were bad. Of the 37 men which crewed these aircraft, only 11 were rescued, and none from the Hanoi area. The Linebacker II campaign was clearly showing the limits of our rescue capability. The men of rescue were more than ready to fly the missions. However, their aircraft were just not capable of operating in a high threat area like Hanoi.

December 21/22

SARs were also occurring in other parts of the theater. One representative event occurred in the evening hours of 21 December when an AC-130, **Spectre 17**, from the 16th SOS at Ubon RTAFB, Thailand, was hit and severely damaged by several rounds of 37 mm AAA while attacking trucks along the Ho Chi Min Trail, 25 miles west of Saravan, Laos. The crew turned to head for Ubon only 70 miles to the west, and with Spectre 07 in trail. However, the aircraft was mortally damaged and filling with fuel when the crew started to bail out. The crew of Spectre 07 made radio contact with two survivors, as they assumed on-scene-com-

mand (OSC) and used their guns to suppress the enemy gunners. Jolly Green 32 – equipped with a Limited Night Recovery System, (LNRS), and Jolly Green 63 launched from NKP. Three A-7s, Sandy 11, 12, and 13, launched from Korat.

Another AC-130, Spectre 12, also diverted to support the operation. Air America helicopters offered their assistance but were not used. Arriving an hour and 10 minutes after the crash, Jolly 32, flown by Capt Jerry Shipman and crew successfully utilized the LNRS and Low Light TV systems to recover the two survivors in five minutes. Both men were then flown to NKP. This was the first successful use of the LNRS for a night combat recovery.²²

While the Jollys, Sandy, Spectres, and FACs were working to recover the two men from Spectre 17, another B-52 strike force was heading for North Vietnam on night four of the campaign. This one included 30 bombers and was focused on targets in the Hanoi area. Tactical changes had already been made. Now the bombers would no longer make the post-strike turn. Instead, they would proceed straight ahead, and depart North Vietnam over the GOT. All of the aircraft on this raid were from U-Tapao, the aircraft from Guam were sent to targets in South Vietnam.

At about 0430L, Scarlet cell of three B-52Ds, was approaching its bomb run on the Bach Mai storage complex on the southwest side of Hanoi. The flight lead was Scarlet 01, from the 22nd BW, March AFB, CA. but that aircraft had a problem with its radar system and its aircraft commander directed Scarlet 02 to take the lead and direct their bombing. Scarlet 01 then became **Scarlet 03**. The aircraft was hit and mortally damaged by SA-2s. The aircraft commander ordered the crew to eject.

Landing on the ground, the pilot and gunner were quickly captured. They were released in March 1973. The two navigators were killed and their remains were returned in 1988. The copilot is still missing. However, the Electronic Warfare Officer, Capt Peter Camerota, was free and evading in North Vietnam, but nobody knew that yet.²³

The Evader

Capt Camerota heard voices all around him. He had left his survival pack with his parachute but had his vest and survival radios. He evaded for an hour and then hid in a narrow cave on the side of a small hill. He made several radio calls but they were not answered.²⁴

Literally 15 minutes behind the Scarlet cell was the Blue cell of three B-52Ds, striking the same target. The crew of **Blue 01**, from the 7th BW, at Carswell AFB, TX, watched 10 SA-2s come up as they made their bomb run. As they were releasing their bombs, the aircraft was bracketed by two exploding SA-2s. The pilots fought to control the plane as windows cracked, the aircraft rapidly depressurized, the electrical system failed, and the left wing erupted in fire. The aircraft commander directed the crew to bail out. All six men successfully escaped the dying aircraft before it exploded and made it to the ground where they were all quickly captured and thrown into prison.



F-111A Aardvarks such as this suffered a number of combat losses also.

They were released in March 1973. Unfortunately, some of their errant bombs struck a hospital in Bach Mai and caused an international outcry that the attacks were indiscriminate carpet bombing of Hanoi.²⁵

At sunrise, the Jolly Greens from NKP and the A-7s from Korat arrived at their assigned orbit point in northern Laos. However, there was nothing that they could do for the downed B-52 crewmen. And they had not a clue that Pete Camerota was still loose somewhere near Hanoi.

December 22/23

That evening, **Jackel 33**, another F-111 from the 474th TFW at Takhli, struck the Hanoi Port Facility with a load of 12 Mk-82 bombs. The crew reported their successful strike and egress, adding that the right engine had been shut down. However, when the aircraft lost both hydraulic systems and the flight controls would no longer respond, the pilot, Capt Robert Sponeybarger and WSO, 1Lt Bill Wilson, ejected in their capsule, about 17 miles southwest of Hanoi. They landed on the side of a hill and had a bit of trouble climbing out of the capsule. When clear, both were unhurt, and they decided to separate, figuring that their chances of evasion were better if they did it alone. Both had full survival vests with two radios and extra batteries. The area was mixed jungle and cleared land, with small villages interspersed. Evasion would be a challenge for both, and they could hear people in the area. Neither made an initial radio call. However, the emergency beacon in their ejection capsule was broadcasting, and Moonbeam, the orbiting EC-130 ABCCC aircraft in northern Laos heard their beacon and reported it to the JRCC at 1512Z, 2212 local time in Hanoi. Throughout the night, several other aircraft and agencies reported the strong beeper emitting from about 20 miles southwest of Hanoi. US aircraft traversing the Hanoi skies would call, listen, and watch for any indication that the crew of Jackel 33 was alive and free, as they were now doing for the other men shot down in the last few days.²⁶



HH-53 being refueled by a "King" HC-130. The King birds provided navigation and refueling capability for the rescue helicopters and enabled them to reach survivors in any part of the theater. The King crews, as airborne mission commanders, also provided critical command and control for rescue operations theater-wide.

December 23/24

At the direction of President Nixon, Linebacker II operations were suspended for 36 hours. However, based upon a favorable weather forecast, that morning of 24 December, rescue forces were launched to try and recover **Jackel 33**. Shortly after sunrise, Jolly Green 30, 63, 66, and 73, departed NKP heading north, but Jolly 63 had to abort with a mechanical problem. The Jollys were escorted by a Pave Nail OV-10 from the 23rd TASS which used its LORAN to take them to the designated holding point in northern Laos. Sandy 01, 02, 03, 04, 05, 06, 07, 08, and 09, took off from Korat. They were also accompanied by Smoke 01 thru 04, which were loaded with a CBU to produce a smoke screen, and Slam 01-04, a strike flight with bombs, rockets and anti-personnel CBU. King 21 also joined the force to serve as AMC and tanker for the Jollys. As the task force approached North Vietnam, Sandy 01, 02, and 03 proceeded ahead to locate and authenticate the survivors to ascertain that each was a "valid objective," and not an NVA trap. However, it took more than an hour before Jackel 33 Bravo responded. Jackel 33 Alpha would only answer with a beeper.

The Sandys tried to get down over the survivors, but the weather was just too poor for visual operations. Consequently, Slam 01-04 were released for strike duties, and they diverted to work with a Raven FAC near the PDJ in Laos. The Sandys did finally make voice contact with both men, and Sponeybarger relayed some messages for Wilson. At one point, Sandy 06 was able to make a low pass over both men and get better positions on each. He determined that the area was just far too difficult and dangerous for a rescue operation and he recommended that the survivors be moved. The JRCC planners quickly developed movement plans for both men and Sandy 06 delivered the messages to them. All of the Sandys, except Sandy 06 then returned to Korat and the Jollys returned to NKP. Sandy 11, 12, 13, 14, 15, and 16 joined Sandy 06, but they were not able to do

anything more for the survivors because of the poor weather and the constant threat of the NVA air defenses in the Hanoi area. Later that afternoon, Wilson talked a bit with Sponeybarger. A few minutes later, Wilson heard gunfire, and Sponeybarger no longer responded. In fact, he had been captured. An NVA team was searching for him and had gear to track his radio. They followed him over a ridge and found him in the grass. He was marched off to prison. And Bill Wilson was all alone, except for the North Vietnamese he could hear looking for him, and the voices he had on the radio. He found some tall grass and hunkered down in the miserable cold wetness of North Vietnam.²⁷

Not too far away, a USMC F-4 from the *USS America*, **Shamrock 210**, was escorting a reconnaissance aircraft taking photographs of North Vietnamese torpedo boats when it was hit and severely damaged by 85 mm AAA. The crew of Lt Col John Cochran and Maj H. Carr, turned southeast and were able to get out beyond the coastal islands before ejecting. They were able to broadcast beepers and make voice contact with their wingmen who reported their downing. An SH-3 from HC-7 was able to slip in and recover both men.²⁸

December 25, The Evader

Capt Pete Camerola was getting tired of his small cave. Using his survival map, he determined his approximate position and realized that he would not be able to walk to the nearest SAFE area. He would only venture out at night, and was frustrated that his furtive radio calls were not being acknowledged. Physically, he was okay, in good shape and unhurt. His spirits flagged a bit as he could only wonder if anybody knew that he was alive. And he had another problem on his mind. His wife, Joy, had travelled to Thailand and was staying with him in the U-Tapao area. She was expecting their first child, and he knew that she would worry about him. He wanted to make sure that his compatriots knew that he was alive. Perhaps, he thought,



The SH-3s from HC-7, aboard the ships of Task Force 77, were always on call for rescue operations.

his signal was being blocked by the terrain. But, he had to be careful. The surrounding fields were full of locals throughout the day who were tending to their crops and accompanied by armed men in uniforms. He decided to move up his small hill and see if that helped. He found another small cave adequate for hiding. However, it did not assuage the thirst – he had lost his water bottles in his travel - or hunger pains now roiling in his gut. And every night, he would keep making his calls, and waiting for response.²⁹

December 26/27

Bill Wilson (**Jackel 33**) was also still down there. The weather looked like it might allow a rescue effort, and another task force consisting of Jolly Green 63, 73, 66, and 30 headed north, to be joined by Sandy 01, 02, 03, 04, 05, 06, 07, 08, and 09. Two of the Sandys, Capt Cliff Montgomery and 1st Lt John Penney, reentered the area, and determined Wilson's location and re-authenticated him as a "valid objective." They also got actively engaged with some AAA sites that they had to destroy. Penney learned an important lesson that day. As Montgomery was searching for Wilson by homing in on his radio, Penney was also trying to use his ADF to get directional cuts on the survivor. While doing so, he was flying behind Montgomery, and was just shocked at all of the tracers which passed between their two aircraft – and Montgomery never saw.³⁰

Wilson told the Sandys that he was in good shape, but running out of water and batteries. However, the Jolly Greens had mechanical troubles with their helicopters and were not committed for a pick up attempt. In fact, two of the HH-53s, had to divert into and spend the night at Lima 16 (Van Vieng), in northern Laos.³¹

That day overall Linebacker II operations were resumed, with the second heaviest efforts of the campaign. In the late afternoon, a flight of F-4s operating north of

Hanoi, monitored a call on Guard from someone claiming to be a crewmember of Scarlett 03, downed in 22 December. He was not authenticated and his positions could not be determined. Four hours later, ten streams of B-52s, consisting of 116 aircraft attacked 10 targets in the Hanoi / Haiphong area in a compressed 15-minute period. Seventy SA-2s were fired at the aircraft, damaging two, and downing two more.³²

Ash 01, a B-52D from the 22nd BW, Robins AFB, GA, was part of a wave that attacked the Kinh No railway yard. After dropping its bombs, it was struck and seriously damaged by an SA-2 about 50 miles southwest of Hanoi. Two engines were knocked out and the aircraft was leaking fuel. The crew diverted out over the GOT for possible ejection. However, the aircraft was still flying reasonably well and, with the assistance of some KC-135s decided to proceed to U-Tapao. There, the crew lost control of the aircraft on final approach to the runway and crashed. The copilot and gunner were rescued by ground teams.³³

Ebony 02, another B-52D, but assigned to the 449th BW at Kincheloe AFB, MI, was in the fourth wave which made the attacks in the Hanoi Area. As the aircraft was in its post-strike turn, it was hit by an SA-2, mortally wounding the aircraft commander. The copilot took the controls, but when the aircraft was hit and critically damaged by another SA-2, he ordered the crew to bail out. Two men were killed and their remains were returned in 1977. The other four men were captured, imprisoned, and released in 1973.³⁴

December 27/28

Bill Wilson (**Jackel 33**) was due to catch a break, and on the 27th it seemed to arrive as the weather appeared to be breaking up. Perhaps a rescue team could get in. He needed to come out because he was out of potable water, one of his radios had failed and he was down to his last battery. In late morning **Jolly Green 73**, flown by Capt

Richard Shapiro and crew and Jolly Green 66, were launched out of NKP for another attempt to rescue him. They were followed shortly by Jolly Green 32 and 52. In route, they joined with King 27 and were then met by Sandys 01 through 09, led by Capt Cliff Montgomery and Smoke 01, Maj John Morrissey and Smoke 03, and 04. However, the Sandys had been delayed a bit because as they were waiting for takeoff clearance at Korat, they had hold for a while because an F-105G preceding them had an engine problem on takeoff and the pilot had jettisoned his external stores at the end of the runway. That debris had to safely cleared away before the A-7s could line up and take off. Regardless, with the rescue task force joined, they would also be supported by a mass of 32 F-4s and F-105s conducting another Linebacker II raid, and also providing MiGCAP and SAM suppression for the rescue effort.

Entering North Vietnam, Jolly Green 32 and 52 went into a holding pattern with Sandy 08 and 09 as escort. Then Sandy 01, Capt Montgomery, had to make a decision. Maj Morrissey remembered the quick discussion they had.³⁵

A rescue this close to the CITY [Hanoi], had never been attempted, or considered. ...that decision to go for Bill was not made by 7th [Air Force] or King. I told King that the weather and defenses looked reasonable for a try and that we were going in – I did not ask, and no one said no....we joined with the two Jollys and started our joint ingress.

The decision was not quite that simple. Morrissey was monitoring King on one of his secondary radios and they informed him that a MiG 21 had taken off – but did not appear to be heading toward the SAR package. However, it would cause other problems in a few minutes. King also notified him that an SA-2 site a few miles to the east was tracking the rescue armada and going into launch mode. Serious gut check time.

Regardless, Montgomery ordered his force to execute. He and Sandy 02 escorted Jolly 73 and 66 for the run in to Jackel 33Bravo. Crossing the Black River, they and Morrissey's flight laid down a smoke screen to shield the vulnerable helicopters as they flew in toward the survivor. The other Sandys flew ahead to Wilson's location to contact and authenticate him and strike whatever needed to be destroyed.

Past the river, Jolly 66 went into a holding pattern with Sandy 08 as Jolly 73 then went for the survivor, drawing heavy fire from a 12.7mm gun which hit the aircraft with several rounds. They crossed a ridge and spotted Wilson about 1/3 the way down the slope, on a small ledge with tall grass. They were fired at by another 12.7mm gun, and one of the Jolly Green gunners destroyed it with his mini-gun. Wilson popped his smoke. Shapiro saw it and hovered toward it. The flight mechanic, Sgt Chuck Rouhier, spotted Wilson and began to lower the penetrator and give Shapiro directions. Enemy troops were firing at the helicopter from all sides, and the gunners and photographer onboard were firing back. Rounds were flying through the helicopter. Wil-

son ran for the penetrator and was almost on when he was either blown over by the rotor-wash or he fell down or was zapped by a static electric charge from the helicopter. At any rate, at that critical moment, he could not quickly get on the jungle penetrator. Shapiro did not have any more time to wait. As he noted in his after-action-report:³⁶

I looked over at the copilot... He said, "Hey man, I'm hit, let's get out of here!" He nodded towards his right arm and I could see a large open wound the size of my fist right above the elbows. There was blood all over the cockpit. I decided that the situation was becoming increasingly hopeless; the enemy had the cockpit zeroed in and all 3 guns were returning fire. So I executed an immediate egress...I thought I was going to lose control of the aircraft as it went into an almost uncontrollable oscillation and required full right rudder.

Struggling with the now badly damaged aircraft, Shapiro rendezvoused with a King HC-130 over northeastern Laos because he did not have enough fuel to get back to any base in Thailand. Unfortunately, the enemy fire had also damaged the aircraft's refueling probe, and it could not extend to safely reach the tanker refueling drogue, or even pressurize to transfer fuel. Facing fuel starvation, Shapiro put the helicopter down in a benign area, and his wingman, Jolly Green 66, picked up Shapiro and his crew. Jolly 32 then landed and its crew salvaged weapons, classified equipment and documents from Jolly 73. Then and all of the Jollys rejoined with King 27, refueled and headed back to NKP. However, the wreckage of Jolly 73 was not secure, so the escorting A-7Ds had to destroy HH-53C #69-5788. When that was done all of the A-7s returned to Korat.³⁷

Wilson had no choice except to continue evading. He was able to find small amounts of water and did eat some vegetation – sparingly. He was given more evasion instructions and continued to evade. That night, he watched F-111 strikes come through his area. At least that boosted his morale a bit.³⁸

As the final flight of Jolly Green 73 was on-going, another large package of aircraft was attacking targets in the north as part of the overall campaign and two more USAF aircraft were lost.

Vega 02, an F-4 from the 432nd TRW at Udorn RTAFB, Thailand, was part of a flight providing MiGCAP for the strike package and SAR operation when it was shot down by a MiG-21, 50 miles west of Hanoi. The crew of Capt John Anderson and 1st Lt Brian Ward both ejected. In the confusion caused in the command centers by the on-going Jackel 33 and now Jolly Green 73 SARs and continuous larger air operations, their loss was barely even noted, and they were quickly captured. Anderson broke both arms in the ejection. They were released in 1973.³⁹

A few minutes later, **Desoto 03**, another F-4 also from the 432nd TRW at Udorn, was on a strike escort mission covering the attack forces, when it was engaged and shot down by the MiG-21 that Maj Morrissey had been warned about. The crew of Maj Carl Jeffcoat and 1st Lt Jack Trimble, ejected. Bill Wilson heard the emergency



Downed American pilot awaits rescue by helicopter in tall elephant grass.

calls and welcomed them to the club! However, before any SAR effort could be mounted for them they were quickly captured.⁴⁰

Maj Morrissey and the A-7s were aware of the loss of the two aircraft. Morrissey was also told by King that the MiG which had attacked Desoto 03 had landed at the small Hoa Loc Airfield 20 miles west of Hanoi. Morrissey and his wingman still had ordnance on board and he seriously considered attacking the MiG on the ground. However, he was dissuaded by two thoughts:

*His job was to escort and protect the Jolly Greens, and they were not yet out of "Harm's way."
As a young F-105 pilot, he had flown on a mass strike mission into this very area on July 27, 1965 and watched six F-105s get shot down in a decoy and ambush by NVA guns and the new SA-2s.*

At that time and moment, he passed on the fleeting opportunity. He still thinks about that decision occasionally.⁴¹

As the rescue task force was leaving, an RF-4 from Udorn, piloted by Capt Sherwood "Woody" Cox, was directed to inform Jackel 33Bravo that the SAR effort was over. Cox and Jack Trimble were good buddies from Udorn. He remembered:⁴²

We went to the tanker and asked where the Jollys were and were told that they were not only not ready then but were not coming back at all and that we should advise 33B[ravo] to do a Hogan's heroes and surrender with hands in the air. This is what has had me pissed for all these years and continues to bug the hell out of me.

We had to go back in and advise a fellow crewmember who's hopes we had just skyrocketed that the SAR was not just being delayed but was being cancelled. I have never had to do anything so wrong in my life. I guess they knew the peace talks were going well and that a release would be imminent ... but still...!

As Sandy 01 was shepherding the Jolly Greens and his wingmen home, 1st Lt Jack Trimble, Desoto 03Bravo, was experiencing his own misfortune. He remembered his actions:⁴³

After I was captured in the early evening / late afternoon all I could do was listen for the sound of jets and gaze skyward in hopes of seeing one of "us." As each echo faded it was strangely comforting to know they would be back in Thailand soon.

I was surrounded by quite a collection of militia, farmers and their families and being led down a country road very near where Bill Wilson's SAR effort had gone on.

As we came around a bend in the road, one gomer with a radio marshaled us all under this large oak tree. There we waited. I couldn't hear anything but I did have a clear look at the sky above me. Suddenly, out of the west came the roar of a single F-4, pretty low. It flew right through the patch of sky I could see. It was in a left turn or knife edge and it was an RF-4. I could see the pilot silhouetted against the sky. "It's Woody" and it was, my friend. I'd flown so many weather recce's and post-strike escorts with [him] that I could tell it was [him] by the way [he] leaned forward in the seat. I teared up and hoped [he] would stay safe. I knew I was OK.

Morale was a bit down at Korat that night. Remembered 1st Lt John Penney:⁴⁴

That was a somber night at the Korat Club. We had the Jolly Green in the hover and Bill Wilson had actually gotten to the penetrator. It may have been a blessing in disguise that he was not hoisted above the elephant grass as, from what I heard the PJs said in debrief, he may have been shot off the penetrator and never made it home alive. We'll never know.

Morale was no better at Udorn. They had another four members of their Wing missing with status unknown. It had been a very bad day for the USAF over Hanoi.

December 28/29

That evening, another wave of 60 B-52s were dispatched to attack several main storage areas and SAM sites. On its bomb run, **Ash 02**, a B-52D from the 28th BW, Ellsworth AFB, SD, was the target of an estimated 15 missiles just after it released its bombs. The detonating missiles severely damaged the aircraft, but the crew was able to fly it back toward Thailand as F-4s escorted it. In the vicinity of NKP, the crew lost control of the aircraft and the aircraft commander directed the crew to bail out. All six men successfully escaped from the crippled aircraft. They were picked up by Pedro 42, Knife 30, Jolly 32 and Jolly 52, all from NKP.⁴⁵

As Ash 02 was experiencing its travail, another B-52D, **Cobalt 01**, from the 7th BW, Carswell AFB, TX, was running its own gauntlet. It was one of twelve aircraft slated to attack the railway yards near Hanoi. On its bomb run, it was targeted by several SAMs and its crew took evasive actions. Unfortunately, one missile slammed into the aircraft and extensively damaged it. Forty seconds later, the aircraft commander ordered the crew to bail out. Four men successfully got out and were quickly captured as they



In Laos, the Air America crews were still ready to answer the call for help.

landed. Two men were killed. The POWs were released in 1973, the remains of the two men killed were returned in 1977 and 1985. Ash 02 and Cobalt 01 were the last two B-52s lost in Linebacker II.

Just before noon, the new assistant director of operations for 7th AF, Maj Gen Jack Bellamy was briefed on the on-going saga of Jackel 33. Traversing flights were still talking to him, but battery exhaustion was now a concern, and he was reporting that he was moving as directed but water was short and there were “bad guys all around.” The general told the JRCC that they had the authority to direct another rescue attempt if they felt it was warranted. Accordingly, they put the Sandys and Jollys on alert for the day, but never directed the package to launch.⁴⁶

That afternoon, an RA-5 from the *USS Enterprise*, **Flint River 603**, was making a photo reconnaissance run over a POL storage area near Haiphong, when it was attacked and seriously damaged by a MiG 21. The crew of Lt Cdr Alfred Agnew and Lt Michael Haifley headed southeast. They reached the water, but their aircraft went out of control and they ejected. Their status was unknown.⁴⁷

That evening, sixty B-52s and supporting aircraft attacked railroad yards and storage areas in and around Hanoi. The SAM sites were active, but they only fired 48 missiles, clearly indicating that the sustained attacks were having an impact on the NVA defense forces. No B-52s or supporting aircraft were lost or even damaged.⁴⁸

Jackel 33 and the Evader

The next morning, Dakota, a flight of US Navy F-4s, did a radio check with Jackel 33Bravo. He was okay, but

weak. They also got a call from somebody calling himself Scarlet 03, and a rough fix on his location. Intelligence determined that this was a survivor of the B-52 crew which was shot down the night of 21/22 December. Capt Pete Camerota was elated. In this and a subsequent contact, he indicated that he was not injured, but was on a hilltop with villages below and would like to be picked up.

The evidence was clear that there were two Americans loose in North Vietnam who needed to be rescued. But, by now, Camerota was very weak and could sense that he was occasionally passing into mental confusion. He had not eaten anything and had only been able to scrape off a small amount of dew from some large leaves. He had also moved to the top of his hill, which probably facilitated his radio contact. He discovered that one of his radios had a dead battery, and he did not have a spare.⁴⁹

Meanwhile, two Sandy A-7s, flown by Capt Cliff Montgomery and 1st Lt John Penney, took off from Korat. They flew to Wilson’s location and after making contact with him, determined that he had moved in the wrong direction. They dropped him a “Madden” kit, full of supplies: food, water, radios, compass, signal mirror and batteries. Wilson saw the pod drop. He proceeded to retrieve it and was captured by NVA soldiers.⁵⁰

While working with Wilson, the A-7s also got a call from Camerota, who heard them working. They were able to get a general idea of his location but were not able to do much more before they had to leave. Camerota realized then that he was in a very dangerous area and his chances of rescue were slim, but others now knew of his situation and perhaps they might try a rescue. It was the best that he had felt since he had been shot down.⁵¹

At some point, Pete Camerota made contact with



The airmen of rescue maintained 24/7 alert.

Cadillac Flight. They tried to generally determine his location and promised that they would pass along his information for follow-on actions. As before, the realization that his compatriots knew that he was alive and still waiting for rescue heartened him and raised his spirits. However, his thoughts, again went to his wife, Joy, alone in Thailand at Christmas. He could only hope that she was being cared for by his unit mates at U-Tapao.⁵²

The airmen in the JRCC and NKP did not know that Wilson had been captured and had only the briefest indications that Camerota was alive and evading. However, they now had indications that perhaps a third man, one of the crewmembers of Flint River 603 was also evading. These developments were briefed to Gen Bellamy. He was presented with a plan to use all of the Sandys fraged for Linebacker II support flights the next day to attempt to find and if warranted, call in the on-orbit Jollys to recover any or all of the three men. The general approved the plan for execution, and the frag orders went out to the units.⁵³

December 29/30

The next night, December 29, a similar force again raided the Hanoi area, with only 25 SAM firings in response. The NVA were clearly beaten down. The next morning, the White House announced that negotiations would resume in Paris on January 8, 1973, between Presidential Advisor Henry Kissinger and Le Duc Tho.

Accordingly, as directed, Admiral Moorer ordered our military forces to cease operations in North Vietnam and ad-

acent waters north of the 20th Parallel at 0659L, December 30. President Nixon sent a congratulatory message:⁵⁴

I would like to commend those who have so skillfully executed the air campaign against North Vietnam... the courage, dedication, and professionalism demonstrated by our men is a source of enormous satisfaction to me as their Commander-in-Chief.

During the operation, 714 B-52 sorties and 1,773 tactical strike and support sorties had dropped over 15,000 tons of ordnance on 34 targets of vital importance to North Vietnam's war-making capability, primarily in the Hanoi / Haiphong area. Rail transport and POL storage were crippled and electrical power capacity was reduced by 90 percent. Over 1,250 SAMs had been fired, almost the total national inventory. When faced with such utter destruction, the North Vietnamese leadership agreed to resume the peace process.⁵⁵

The American POWs in the prisons around Hanoi heard the air armada flying overhead and certainly understood the meaning and importance of what had been accomplished in Linebacker II. Said USAF Col John Flynn, the senior POW officer, "When I heard the B-52 bombs go off, I sent a message to our people. It said, 'Pack your bags - I don't know when we are going home, but we are going home.'"⁵⁶

Jackel 33 and the Evader

On December 30, radio contact could not be established



Capt. Pete Camerota.

with Jackel 33Bravo and the weather was bad all over the area, so the SAR plan was cancelled. With the cessation of Linebacker II, any further SAR operations above 20 degrees north had to be specifically approved by General Vogt. The JRCC Log noted cryptically, "Neg[ative] attempt or com[munications] search for Jackel 33, F/R [Flint River] 603, or Scarlet 03 due to bad wx [weather] forecast in A. M. [3,000 feet overcast, 3 miles visibility, rain] and new rules for above 20 [degrees] north."

Pete Camerota did not know any of that. He kept making radio calls and listening, as the villagers below tilled their fields and the skies above no longer resonated with the roar of American airplanes.⁵⁷

Rescue Forces

Linebacker II was over. However, little changed for the rescue forces because combat operations were still ongoing in South Vietnam, Cambodia, Laos, and North Vietnam up to the 20th Parallel. American personnel were still at risk. Intelligence sources indicated that Capt Pete Camerota and possibly 1st Lt Bill Wilson and Lt Cdr Alfred Agnew were still evading in North Vietnam.⁵⁸

The Linebacker II Campaign conducted December 18-30, was designed to force the North Vietnamese to the negotiating table to conclude a ceasefire agreement. It involved heavy airstrikes "...aimed at sustaining maximum pressure through destruction of major target complexes in the vicinity of Hanoi and Haiphong." To defend against the strikes, the North Vietnamese air defense

forces were at full strength and at full alert. Chris Hobson, in his exhaustive book, *Vietnam Air Losses*, noted the following American losses during the campaign:⁵⁹

Fixed-wing aircraft lost: USAF-22, USMC-3, USN-5 Results:

KIA - 54 / 42%
POWs - 43 / 34%
Recovered - 30 / 24%

Recovered by:

USAF helicopters	18
USMC helicopters	6
USN helicopters	2
Crash home base	2
Unknown	2

Reflecting the much higher threat to the aircraft and crews, the "recovered" percentage was lower and the "POW" rate was dramatically higher than the earlier campaigns in 1972. It was an inauspicious ending to the year. Additionally, as the record shows, nobody was rescued from the Hanoi Area during Linebacker II; all of the B-52 crewmen rescued were either in Laos or Thailand.⁶⁰

Rescue results during Linebacker II were disappointing and highlighted clear deficiencies. However, as disappointing as the results were, there is another way to look at this climactic campaign. The all-out effort of Linebacker II convinced the North Vietnamese to reengage in discussions leading to a peace agreement being negotiated over the last two years. The "Agreement on Ending the War and Restoring Peace in Viet-Nam," was signed by representatives of the United States, North Vietnam, South Vietnam, and the Viet Cong in Paris on January 27, 1973. Within it, Article 8 stipulated "the return of captured military personnel and foreign civilians" In February and March, 591 prisoners, including those captured during Linebacker II, were returned to U.S. control. Perhaps it can be argued that Linebacker II itself, was our greatest SAR effort of the war, because it precipitated the return of those Americans held by the North Vietnamese. Said General Alexander Haig in his memoirs, "It was the bombing that settled the issue, the bombing that got our prisoners out." That is a pungent and provocative thought.⁶¹

Post script

Unknown at the time, in fact, 1st Lt Bill Wilson and Lt Cdr Alfred Agnew had been captured and Lt Michael Haifley had been killed. Capt Pete Camerota remained on his hill for several more days. Finally, though, he realized that he was not going to be rescued and his only way to survive was to surrender himself to the local forces. Completely emaciated and even too weak to walk, he did so early in the new year, and was incarcerated with the other captured airmen. He, Wilson, and Agnew were released and returned to the United States in March 1973. Lt Haifley's remains were returned in 1985.⁶² ■

NOTES

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3. *Ibid.*, pp. 145-6.
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6. Chris Hobson, *Vietnam Air Losses*, (Forest Laske, Minn.: Specialty Press, 2001); JRCC Log, Historical Research Agency, Maxwell AFB, Ala.; Karl Eschmann, *Linebacker: The Untold Story of the Air Raids Over North Vietnam*. (New York; Ivy Press; 1989), p. 97; <http://www.linebacker2.com/-.php>, accessed Jun 30, 2017.
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9. Hobson, *Vietnam Air Losses*; JRCC Log; Eschmann, *Linebacker*, p. 106; <http://www.linebacker2.com/-.php>, accessed Jun 30, 2017.
10. JRCC Log.
11. Hartsook, *Air Power Helps Stop the Invasion and end the War 1972*, p. 148.
12. Hobson, *Vietnam Air Losses*.
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14. Hobson, *Vietnam Air Losses*; JRCC Log; Eschmann, *Linebacker*, p. 116; <http://www.linebacker2.com/-.php>, accessed Jun 30, 2017.
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17. Hobson, *Vietnam Air Losses*; JRCC Log; Eschmann, *Linebacker*, pp. 131-2; <http://www.linebacker2.com/-.php>, accessed Jun 30, 2017.
18. Hobson, *Vietnam Air Losses*; JRCC Log; Eschmann, *Linebacker*, p. 133; <http://www.linebacker2.com/-.php>, accessed Jun 30, 2017.
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20. Eschmann, *Linebacker*, p. 134.
21. Hartsook, *Air Power Helps Stop the Invasion and end the War 1972*, p. 148; Eschmann, *Linebacker*, pp. 134-5.
22. Hobson, *Vietnam Air Losses*; JRCC Log; Mission narrative, File K318.3912-5 pt 3, Jan – Dec 1972, HRA, Maxwell AFB, Ala.
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24. <http://www.pownetwork.org/bios/c/c164.htm>; accessed July 29, 2017.
25. Hobson, *Vietnam Air Losses*; JRCC Log; Eschmann, *Linebacker*, pp. 145-7; <http://www.linebacker2.com/-.php>, accessed Jun 30, 2017.
26. JRCC Log; Jon Couch, *The Jackal's Journey*, Draft document, pp. 16-20. Note: In all of the logs and mission reports, Jackel is spelled with an “e.”
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28. Hobson, *Vietnam Air Losses*; JRCC Log.
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A TALE OF TWO COMMANDERS



Noel Parrish commanded the Tuskegee flight training program from 1941 to 1945, when this photo was taken. Second from left is Col. Noel Parrish, Col. Benjamin O. Davis Jr. is in the center, and Dr. Frederick D. Patterson, president of Tuskegee Institute, is fifth from left. (Photo courtesy of National Air and Space Museum, Smithsonian Institution.)

Daniel L. Haulman

The Tuskegee Airmen included the first black pilots in American military service, but also others who served with them, in their units, or at their bases, between 1941 and 1949. Some of those personnel, including commanders of some of the Tuskegee Airmen units and bases, were white. Two of the most important of those Colonel Noel Parrish, commander of most important black flying school in the American military during most of World War II, and Colonel Robert Selway, who once commanded the 332nd Fighter Group and later the 477th Bombardment Group, the only two black flying organizations in the American military services during the war.

Colonel Noel Parrish was the commander of Tuskegee Army Air Field and the flying school there, where basic and advanced flying training for future black fighter and bomber pilots took place. Much larger than Moton Field, where the primary flight training took place using biplanes on grass, Tuskegee Army Air Field covered 1,681 acres. It boasted four large paved runways and three large double hangars. Black cadets who graduated from advanced flying training became Army Air Forces pilots, ready to move on to transition flight training or combat overseas.

Most Tuskegee Airmen remember Colonel Parrish, despite his white skin and southern roots, as a friend rather than an enemy, who was fair and genuinely interested in their success. Colonel Parrish favored the racial integration of the Air Force just after World War II, and wrote an Air University thesis to promote that idea. The Tuskegee Airmen Incorporated, which included a large number of black Tuskegee Airmen veterans, later instituted a Noel Parrish award to honor a member of the organization for his or her outstanding accomplishments. Parrish's reputation for fairness was established in part as a result of his actions during a racial integration crisis at Tuskegee Army Air Field in August 1944.

Colonel Robert Selway might have also been remembered as a friend of the Tuskegee Airmen, if he had not been responsible for resisting the integration of the training bases where he commanded, first the 332nd Fighter Group, before it deployed overseas to take part in combat as the first black fighter group, and later the 477th Bombardment Group, the only black bomber group, which never deployed overseas or took part in combat during World War II. If Selway had handled the integration issue at the bases he commanded the way Parrish did, Selway might also have been remembered by the black pilots and crews with admiration and respect. After all, he had commanded the only two black flying groups in World War II, and helped train them for combat. This paper explores the difference in the way Parrish and Selway responded to the integration crises at their bases, which left one a hero and the other a villain.

Before August 1944, Tuskegee Army Air Field was largely an all-black base, except for the white leadership there, white instructor pilots, who remained the majority there during the war, and some white enlisted support staff. Unlike the black personnel, who lived on base, white personnel lived elsewhere, such as in the white part of the town of Tuskegee,

or at nearby Auburn. Largely because of the absence of white residents on base, many of the facilities at Tuskegee Army Air Field remained racially segregated during most of World War II. This included the post exchange restaurant, which some of the white personnel never used. On either side of the restaurant kitchen, in the middle of the building, was a dining room. The larger dining room on the east of the facility was where the black personnel ate. A smaller dining room, on the west side of the kitchen, was reserved for the white personnel. The segregation policy at the base was consistent with the segregation policy of the surrounding community in central Alabama, where racial segregation was the norm, and where it had been the norm for generations. Many of those who used the restaurant considered segregation there as much a matter of tradition as of policy.

There were certain blacks at Tuskegee, however, who were not satisfied with the status quo. Many of them had contact with other blacks who served at Selfridge Field, near Detroit, Michigan, where segregated base facilities had been resisted unsuccessfully. Many of the black cadets at Tuskegee, some of them conscious of demands for integration in the black press newspapers such as the Pittsburgh Courier or the Chicago Defender, opposed separate training of black pilots. If they had to be trained at a base set up specifically to train black pilots, at least the facilities on that base might stand some integration in the name of equality.

On August 3, 1944, twelve black officers led by Captain Willard B. Ransom entered the west dining room of the

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Tuskegee Army Air Field post exchange restaurant and demanded service. When 2nd Lt. George D Frye, Assistant Exchange Officer, asked the black officers to go to the larger east dining room reserved for them, Captain Ransom showed Frye two War Department letters that called for base recreational facilities and post exchanges to be open to all personnel without regard to race. Lt. Frye agreed to let the black officers be served in the west dining room, effectively integrating the restaurant without violence, but he acted in consultation with Col. Parrish, the base and flying school commander. Parrish made a conscious decision to let the post exchange restaurant be integrated, in accordance with War Department policy, despite protests from some white personnel at his flying school.

The integration of the post exchange restaurant at Tuskegee Army Air Field was non-violent, but it was still very controversial. Many white officers stopped eating at the facility, refusing to eat with the blacks they trained. Some of the white flight training officers lost their enthusiasm for training blacks, and became more strict. The elimination rate for black cadets increased. Certain white officers expressed dismay at what seemed ingratitude from the black personnel, who seemed to be as interested in social change as much as the flight training. Some white officers asked for transfers, and within two months, Tuskegee Army Air Field received its first black flight instructors, partly to make up for the white flight instructors who were leaving. Although he was under pressure from white officers to restore segregation at the post exchange restaurant, Colonel Parrish refused to do so, although he assured the white leadership of nearby towns that integration of the base facilities would not affect areas outside the base.¹

Colonel Parrish's handling of the integration crisis at Tuskegee Army Air Field contrasted sharply with a crisis at Freeman Field in April of 1945. At that base, the commander resisted racial integration on the base. The result was the "Freeman Field Mutiny," which is assuming a greater importance in the history of civil rights in America. Many more people know about the Freeman Field mutiny than about the much quieter integration of Tuskegee Army Air Field the previous year.

Many of the facilities at Tuskegee Army Air Field remained racially segregated during most of World War II

Colonel Robert Selway commanded the predominantly black 332nd Fighter Group, which included the 100th, 301st, and 302nd Fighter Squadrons, at Selfridge Army Air Field, Michigan, before the group went overseas. He was a graduate of the U.S. Military Academy at West Point, and under his leadership most of the black fighter pilots prepared for combat operations, flying P-40 and P-39 airplanes. The preparation those pilots received at Selfridge helped prepare them for success in battle, and some of the credit must go to Selway, who was a strict disciplinarian. Members of the 99th Fighter Squadron did not train at Sel-



Col. Robert R. Selway (center, wearing sunglasses) inspects the troops in 1944.

fridge under Selway, because that squadron had already deployed overseas in the spring of 1943 for combat operations in North Africa, Sicily, and Italy.

In late 1943, Colonel Benjamin O. Davis, Jr., a black West Point graduate who had commanded the 99th Fighter Squadron in combat, returned to the United States from Italy to take command of the 332nd Fighter Group and take it overseas. Selway's experience with the Tuskegee Airmen did not end at that point, however. When the 332nd Fighter Group left Selfridge for Italy, at the opening of 1944, the Army Air Forces activated the 477th Bombardment Group at Selfridge. The 477th was the first black bombardment group. Selway, who had commanded the first black fighter group, became the first commander of the first black bombardment group. In fact, during World War II, there were only two black flying groups, and Selway commanded both, although not at the same time.

Even at Selfridge, Selway faced an integration crisis. For example, when movies were shown, blacks and whites were expected to sit on different sides of the theater. When the lights dimmed for the feature, however, some blacks moved over to the side reserved for whites. When the lights came back on, officers demanded that the blacks move back to "their side" of the theater. Selway wanted to preserve segregation on the base, possibly because he was aware of racial riots that broke out in nearby Detroit during the war. By keeping blacks and whites separate, he hoped to avoid racial confrontations and violence. The violence in Detroit contributed to the Army Air Forces' decision to move the 477th Bombardment Group from Selfridge Field, Michigan, to Godman Field, Kentucky. Godman Field was next to Fort Knox, which was filled with large numbers of white soldiers, who might be called upon to help quell any racial trouble that might develop. Godman Field and Fort Knox were also farther from the smoldering racial cauldrons of the big cities like Detroit.

Segregation of base facilities was less an issue at Godman Field. There was only one Officers Club, but blacks

did not need to integrate it, because only blacks went there anyway. The white officers at Godman Field went to the white Officers Club at neighboring Fort Knox, where they were welcomed with open arms.

When the 477th Bombardment Group moved to Freeman Field, Indiana, however, trouble developed. The minority of white officers in the group, who had gotten used to going to a segregated white-only Officers Club demanded their own club, separate from that of the black trainees. Freeman Field was significantly larger than Godman Field, and had plenty of room for two officers clubs, one for whites and one for blacks. The black officers club could even be larger, because there were more blacks than whites, just as the post exchange restaurant at Tuskegee Army Air Field originally reserved its larger dining hall for blacks.

Parrish made a conscious decision to let the post exchange restaurant be integrated, in accordance with...policy

Keeping the black and white officers at Freeman Field separate was not only Selway's idea, but also that of his superiors. Most notable of these was Major General Frank O. D. Hunter, commander of the First Air Force, under which the 477th Bombardment Group operated. As early as 1943, when the 332nd Fighter Group was still in training at Selfridge, Hunter had encouraged segregated facilities there, including separate officers clubs. In December 1944, Hunter wrote that "racial friction will exist in a marked degree if colored and white pilots are trained together" and that "the doctrine of social equality cannot be forced on a spirited young pilot preparing for combat." Selway was well aware of his commander's racism, and was not eager to challenge it.²

On April 5, Selway became commander of Freeman Field, where the 477th Bombardment Group was stationed, in addition to his remaining commander of the



Lena Horne with the Tuskegee Airmen, Col. Noel Parrish on the right.

group. Selway approved two officers clubs on the base, consistent with General Hunter's policy. Officers Club 1 was to be for black officers of the 477th Bombardment Group, "E" Squadron (Trainee), and the 118th Army Air Force Base Unit, while Officers Club 2 was to be for base and supervisory personnel who were white.³ Selway tried to make the segregation appear to be non-racial, pretending that the separation would be between trainers and trainees, not necessarily between whites and blacks. That was merely a cover for the actual reason, because certain blacks who were not trainees on the base were still not allowed to go to Officers Club 2. On the same day that Selway became commander of the base, beyond his command of the group, the 115th Army Air Forces Base Unit, which supported the 477th Bombardment Group, moved from Godman Field, Kentucky, to Freeman Field, where the 387th Air Service Group was already located.⁴

On the late evening of the same day, 36 black officers from the 115th Army Air Forces Base Unit attempted to enter the officers' club assigned to white "base and supervisory" personnel, since they believed they were "base personnel". The assistant base provost marshal, who

attempted to block the entrance of the black officers, was pushed. Three black officers were accused of doing the pushing: Lieutenants Roger C. "Bill" Terry, Marsden A. Thomson, and Shirley R. Clinton.⁵

On April 6, the next day, 25 additional black officers attempted to enter the officers' club at Freeman Field that had been reserved for white "base and supervisory" personnel. They and the 36 black officers who had attempted to enter the club the day before, at total of 61, were arrested in quarters and charged with disobeying an order of a superior officer, some with violence⁶. Freeman Field was made a Control Base, and base functions changed. The 387th Air Service Group was made responsible only for the supply and maintenance of the 477th Bombardment Group, and its squadrons were moved to another part of the base, which lowered group morale.⁷

Three days later, on April 9, on the advice of his superiors, including General Hunter, Selway decided to release all but 3 of the 61 black officers who had been arrested in quarters at Freeman Field for attempting to enter an officers' club closed to them were released. The three not released had been accused of disobeying the orders of a

superior officer and offering violence to him. At the same time, Colonel Selway issued a new base regulation, 85-2, noting which personnel were to use each of the two base officers' clubs. Of the 422 black officers at Freeman Field, 101 refused to sign the regulation, and were taken into custody. 321 of the other black officers apparently signed the regulation, some of them adding notes that they disagreed with the segregated officers club policy. Since Daniel "Chappie" James, the future first black four-star general in the American armed forces, was not among those arrested, he must have been among those who signed.⁸

The crisis intensified. On April 10-11, the 101 African-American officers of the 477th Bombardment Group refused again to sign a paper stating that they acknowledged the new base regulation directing separate officers clubs, and were confined.⁹ Two days later, the defiant black officers were transported on six transport planes from Freeman Field back to Godman Field, where the 477th Bombardment Group had been stationed before, and confined at the old base.¹⁰

The ultimate solution to the racial problems of the 477th BG was to replace its commander, Colonel Selway

By this time the problems at Freeman and Godman Fields had attracted national attention, as the news spread through the black press and also beyond. The situation became embarrassing to the War Department, which on April 20, directed the release of the 101 black officers who had been confined for insubordination, and although each was given a letter of reprimand, they were not court martialed. Three days later, the officers were released. They were transferred to the 126th Army Air Forces Base Unit at Waltherboro Field in South Carolina.¹¹

The three black officers who had been charged with using violence were court martialed, and two of them were acquitted. Only Roger Terry, was convicted, for "jostling". His sentence was far less than one might have expected, but far more than he deserved, in the eyes of most of his fellow black officers. He became a symbol of their struggle

for racial equality and against segregation.

The ultimate solution to the racial problems of the 477th Bombardment Group was to replace its commander, Colonel Selway, with a new commander who had less of a racist reputation. That commander, logically was Colonel Benjamin O. Davis, Jr., a fellow West Pointer who was black, and who returned from combat duty in Europe after the war ended there. In the summer of 1945, Davis replaced Selway as commander of the 477th Bombardment Group (later the 477th Composite Group, when the 99th Fighter Squadron was also assigned to it). Davis had succeeded Selway before, as commander of the 332nd Fighter Group. The solution was not really a great step toward racial justice or integration. All the white officers who had been in the 477th were replaced with black officers, and the 477th Composite Group became an all-black organization. Instead of ending segregation, the reassignments of the summer of 1945 made the 477th more segregated than ever, and instead of being black and white, it became all black.

The peaceful integration of the post exchange restaurant at Tuskegee Army Air Field, Alabama, in August of 1944, under Colonel Noel Parrish, contrasts sharply with the failure to integrate the officers clubs at Freeman Field, Indiana, in April 1945, under Colonel Robert Selway. The primary reason for the contrast is the difference between Parrish and Selway. Although a Southerner, Parrish was willing to change the policy at Tuskegee Army Air Field, allowing racial integration to proceed, while Selway, who was not from the South, resisted integration, to his lasting shame. In the end, Noel Parrish has come down in history as a friend of the black Tuskegee Airmen, partly because of his willingness to treat them more as equals at his own base, and partly because of his advocacy of the integration of the Air Force soon after its birth in 1947. Selway, on the other hand, has been vilified as an opponent of racial justice and progress because of his refusal to challenge the policies of his superior and his own prejudices. These historical incidents, compared and contrasted, illustrate how much influence a leader can have on the course of history, and how much influence the course of history can have on a leader. ■

NOTES

1. History of Tuskegee Army Air Field, 1 July to 31 August 1944, pp. 12-15, call number 289.28-5 at the Air Force Historical Research Agency.

2. Alan L. Gropman, *The Air Force Integrates, 1945-1964* [Washington, DC: Office of Air Force History, 1985], pp. 17-18.

3. History of Freeman Field, Indiana, 1 Mar-15 Jun 1945, AFHRA call number 283.28-6.

4. 115 AAF Base Unit organization record card.

5. History of Freeman Field, Indiana, 1 March-15 June 1945, AFHRA call number 283.28-6; J. Todd Moye, *Freedom Flyers* [Oxford University Press, 2010], p. 133 and 138.

6. History of Freeman Field, Indiana, 1 March-15 June 1945, AFHRA call number 283.28-6.

7. 387th Air Service Group history for the period February-April 1945.

8. History of Freeman Field, Indiana, 1 March-15 June 1945, AFHRA call number 283.28-6; J. Todd Moye, *Freedom Flyers* [Oxford University Press, 2010], pp. 133, 135, 138.

9. (Benjamin O. Davis, Jr., *Benjamin O. Davis, Jr., American* [Washington, DC: Smithsonian Institution Press, 1991], pp. 142-143; Alan L. Gropman, *The Air Force Integrates* [Washington, DC: Office of Air Force History, 1985], pp. 22-25; Ms. Zellie Rainey Orr.

10. History of Freeman Field, Indiana, 1 March-15 June 1945, AFHRA call number 283.28-6; LeRoy F. Gillead, "The Tuskegee Experiment and Tuskegee Airmen, 1939-1949," call number 289.28-18 at the Air Force Historical Research Agency.

11. LeRoy F. Gillead, "The Tuskegee Experiment and Tuskegee Airmen, 1939-1949," call number 289.28-18 at the Air Force Historical Research Agency.

Powering the Eagle...Over 90 Years and Counting. Pratt & Whitney's Inspirational Women. Ned Allen, Editor-in-Chief. Reston Virginia: American Institute of Aeronautics and Astronautics, 2017. Photographs. Pp 138. \$29.95 ISBN 978-1-62410-383-4

In *Powering the Eagle*, Allen and a host of Pratt & Whitney production team volunteers tell the story of the roll and importance of women working at this important company. The story begins with Pratt & Whitney's founding and continues through the modern day. As the title indicates, women began working there over 90 years ago.

To tell the story of women at Pratt & Whitney, Allen and team divide the 90 years into four chapters: Early Years, War Years, Post-War Years, and Take off. To set the context for the four chapters, there are two timelines (1920s-1940s and 1950s-2000s) that highlight the major events in Pratt & Whitney history.

Known around the world as an aircraft engine company, Pratt & Whitney began as a precision machine tool company in 1860. It wasn't until 1925 that Pratt & Whitney became an aircraft company. One year later, in 1926, their first *Wasp* engine took to the air. Initially, women served primarily in clerical jobs; but with the shortage of men during the Second World War, women's roles in aviation expanded to engineering, manufacturing, and other related tasks.

The heart and soul of the book are the photographs and period captions. The combination of the two brings the story of women at Pratt & Whitney to life. Quite often the production team used text from period publications: "To provide an accurate depiction of the changing cultural perception of women in the workspace, a number of articles included in this book were copied exactly as they appeared in their archival source." As the book progresses, readers will certainly notice a change in how women were treated. As the authors explain after World War II, "The storyline changed again as women became formally recognized for their technological and manufacturing achievements in the aerospace industry."

Powering the Eagle is not a history of Pratt & Whitney. The coverage of the company's specifics is light. The photographs and captions tell both the story of women in the company as well as their advancement through its ranks. The use of period captions helps bring the time period to life. The captions are often humorous when looked at through the lens of 2018—the treatment of women has definitely changed. Along with the photographs are brief excerpts from interviews of women who worked at Pratt & Whitney. Though brief, the interviews also help bring the past to life.

The final chapter of the book focuses on Pratt and Whitney's women within the last 20 years. There are short descriptions of some of the amazing women who have worked there; their accomplishments are nothing

less than impressive. Today women occupy a permanent place in the workforce at Pratt & Whitney. They are no longer a temporary workforce rising to the demands of world war. They are capable leaders both at work and in the community.

The book is a very quick read. Commissioned by Pratt & Whitney, *Powering the Eagle* is a tribute to women who have worked there. Despite being the history of women at one aviation company, the book provides a bit of insight into the role of women throughout the aviation industry. Allen and his team deserve a hearty well done for creating *Powering the Eagle*; their book is inspirational.

Lt. Col. Daniel J. Simonsen, USAF (Ret.)



The Shady Lady: 1,500 Hours Flying the U-2 Spy Plane. By Lt Col Rick Bishop, USAF (Ret.). Manchester, UK: Crécy Publishing Ltd., 2017. Illustrations. Photographs. Appendices. Glossary. References. Index. Pp 280. \$24.95 ISBN: 978-191080909-9

Lt Col Bishop's story of flying "The Lady" (as the U-2 is referred to) is framed by his extensive background in military and civilian aviation, extending from flying as an Army warrant officer pilot in Viet Nam to a command pilot in KC-135s and U-2s. He rose to command the only operational U-2 squadron in the US Air Force. He retired, at the FAA's mandated age, from American Airlines.

Although books about the U-2 are too numerous to list, few are as personal as *Shady Lady*. This book is a look into the personal journey from childhood interest in aviation to one's ultimate dream. Bishop gives credit to authors such as Jay Miller and Chris Pocock for the technical details and thoroughness of their efforts. But *Shady Lady* goes further, providing an extensive look at the personal story of one U-2 pilot.

Shady Lady is more than a technical tract. Bishop does provide technical details, where necessary, regarding such things as learning to fly the precise approach pattern required during initial "dances with the Lady," fitting the flying suit necessary to survive at the extreme altitudes at which the U-2 operates, the detailed mission planning needed to enable acquisition of required information, and mission preparation. All are well done, make the dangers of flying this aircraft real, and add to the book's appeal. The reminisces of time spent moving from instructor pilot to standardization/evaluation pilot for KC-135s add necessary background, illustrating the path from helicopters to U-2 pilot and, ultimately, to squadron commander.

Shady Lady is a relatively short book, but it is densely packed with much detail of learning the preci-

sion flying needed to operate the U-2. Mission preparation, the stress learning to fly an aircraft requiring strict attention to the book, planning and flying operational missions, and the social life that comes with extended temporary duty in remote locations are all discussed in great detail. The photographs are well chosen, are frequently beautiful, and add to many of the details of which most readers outside of the reconnaissance community would not be familiar.

The book is enhanced by inclusion of excellent appendices which provide general specifications for the U-2 models Bishop flew, an excellent list of the variants of the U-2, and general-arrangement and cockpit drawings of the U-2R/TR-1.

The book is well edited and an easy read. Technical issues regarding the aircraft are dealt with nicely, and the extensive glossary and appendices only enhance the story. Bishop's tales of time spent in operating locations around the globe and at home bring the business of flying one of the most demanding and mysterious aircraft in the US inventory to a personal level.

In short, this is a book that I will add to my already extensive shelf of books on this aircraft as it adds a human touch and completes many of the sentences from the more technically-oriented books.

MSgt. Al Mongeon, USAF (Ret.)



The Mediterranean Air War: Airpower and Allied Victory in World War II. By Robert S. Ehlers, Jr. Lawrence Kansas: University Press of Kansas, 2015. Photographs. Notes. Bibliography. Maps. Pp. 520. \$48.00 ISBN: 978-0-7006-2075-3

This synthesis convincingly depicts the air war over North Africa and Italy as a key enabler of Allied victory in the Mediterranean. The Mediterranean offered access to the Suez Canal and mid-East oil, was a back door to southern Europe, and lay astride key Far East supply routes. Allied airpower, as effectively executed by, and under the command of, airmen was a key factor in that victory. Without Allied air supremacy in the Mediterranean, the fate of the war in North Africa, and indeed the entire war, would have been in question. This book builds on the thesis of Douglas Porch, *Hitler's Mediterranean Gamble* (2004), of the Mediterranean as a major theater that enabled overall Allied victory in World War II.

Author of the groundbreaking *Targeting the Third Reich: Air Intelligence and the Allied Bombing Campaigns* (2009), Col Ehlers expands upon the theme of David Ian Hall in his *Development of British Tactical Air Power, 1919-1943* (2008), to reveal the RAF's timely development of a spectrum of airpower capabilities in the

heat of aerial combat over North Africa as crucial to the Mediterranean campaign: air superiority, interdiction, night operations, reconnaissance, training, hemisphere-spanning logistics pipelines, rapid airfield engineering, timely intelligence analysis and dissemination, and aircraft maintenance. Emphasized throughout is the overriding importance of command and control—closely coordinated among air, ground, and naval forces—as a prime enabler of effective airpower exploitation. The vital role of key RAF leaders—especially Tedder, Portal, and Coningham—is accentuated in these successes. Ehlers argues that superior airpower techniques were tested and matured here and benefitted subsequent Allied ground campaigns in Western Europe.

Accompanying scrutiny of enemy airpower shortcomings vividly drives home the point. Axis air forces did not coordinate as effectively with land and naval forces as their Allied counterparts. Despite numerical superiority, they failed to bomb Malta into submission, consistently interdict Allied supply lines, or close the Suez Canal. Despite some initial successes, enemy air forces failed to establish and maintain air superiority, ultimately dooming tactical air support and resupply efforts of their armies in the field.

Carefully chosen and informatively captioned photos of key leaders, significant aircraft, and the effects of bombing on airfields, harbors, and battlefields reinforce important points in the text. Numerous maps—Ehlers credits those of the Maps Department at West Point and the official British history as the best and reproduces them—enable the reader to follow aerial campaigns. Ehlers also extensively mined official histories as well as archival resources of the belligerents. Well-placed citations from original sources buttress conclusions. The extensive endnotes help the reader understand his interpretation of evidence. The bibliography is extensive.

Above all, this book is about relentless and unyielding air combat. The clear and succinct narrative, bolstered by the strong analysis, vividly describes air strikes on front lines, truck convoys, ships, harbors, and airfields. Eyewitness accounts relate their effects on the enemy's ability to maneuver, concentrate forces, reinforce, or resupply troops. If there is a primer for aspiring leaders on how to develop, execute, and maintain airpower capability, this is it.

Steve Agoratus, Hamilton, New Jersey



Tanker Pilot, Lessons from the Cockpit. By Mark Hasara. New York: Threshold Editions, 2017. Photographs. Acknowledgments. Pp. xiv, 304. \$26.00 ISBN 978-1-5011-8166-5

For anyone interested in military aviation, this is a

“must read” book. The author, Mark Hasara, Lt Col, USAF (Ret) and pilot call sign “Sluggo,” offers an exciting inside look at the aircraft refueling world. Reading Hasara’s personal stories and tactical incidents from over 20 years of active flying missions is illuminating! And these included missions during the Cold War, Desert Shield, Desert Storm, the Iraq War, and Enduring Freedom. I never realized how little I knew and how much I underappreciated the role of our USAF tanker fleet. The reader learns early in the book that nearly all military aircraft operations anywhere in the world must have air refueling tankers available and integrated into any mission plan in order to succeed. One quickly identifies with the air refueling motto: “Nobody kicks ass without our gas—nobody.”

The book starts with a very positive and supportive foreword by Rush Limbaugh. Hasara flew and operated the Boeing KC-135 Stratotanker throughout his career from the late 1980s to 2003. Each chapter begins with appropriate “world celebrity quotes” and ends with “Lessons from the Cockpit.” Hasara includes some excellent photographs which he took over the years. Some of his most interesting stories come from refueling aircraft of different countries. Different procedures, different languages, and various levels of training all add up to challenging situations. One such incident involved the “brute force disconnect” by an F-15 of the Royal Saudi Air Force which inadvertently broke off the nozzle from the refueling boom. The pilot asked, “We make air mess, no?” A good sense of humor is valuable in situations like this.

For me, a very interesting piece of history came from the KC-135 being called the “water wagon.” The KC-135, with 165,000 pounds of fuel, was too heavy for take-off without water injection into the engines. “Six-hundred and seventy gallons of demineralized water burns in about 125 seconds during a wet thrust take-off.” It was standard operating procedure for increased thrust. This is great stuff to learn.

Another incident occurred in 2003 when three KC-135s were assigned to specifically support six black jets (F-117 stealth fighters) coming to Saudi Arabia. The tower held these tankers at the runway for 30 minutes past their assigned time while a group of fighters were given priority takeoffs. As a consequence, the tankers missed the F-117s; and these black jets had to return home due to low fuel and scrubbed their mission. Frustrating to all, especially the tankers who pride themselves on always being there to support all missions. But the commander of U.S. Central Command Air Forces, General Moseley, defused the situation by seeing the big picture (over 800 aircraft) and declaring the confusion due to the “fog of war.” Many unplanned things always happen!

Although it could be due to my lack of experience in military air operations, I did find one negative aspect in reading this book. There are many military abbrevia-

tions and acronyms without any reference glossary: pilot call signs, squadron names, ground area zones, organizations, air space sequences, refueling corridors, refueling zones, weapons, etc. Many are defined when first used, and then you are on your own. It can be confusing and annoying. Even with this challenging problem, this is a good book to read. Bravo to tanker pilots.

Paul D. Stone, Docent, NASM’s Udvar-Hazy Center



Limiting Risk in America’s Wars. By Phillip S. Meilinger. Annapolis, Maryland: Naval Institute Press, 2017. Photographs. Notes. Bibliography. Index. Pp. Xix, 277. \$39.95. ISBN: 978-1-68247-250-7

Phillip Meilinger is an airpower historian of long standing whose interests have always extended beyond the facts to both the theory and philosophy of the uses of airpower. He has contributed to what we know of previous theorists as well as contributing his own thoughts. This book is the latest distillation of his ideas of how the United States can and should use airpower to achieve its goals with the least cost and risk. Meilinger is not arguing that we can achieve our goals with no risk or cost: politics and war always have associated costs and risks. His point is that the United States has become wedded to a philosophy involving interventions in the form of large ground formations which fails to take advantage of our asymmetric power in the form of airpower—tremendously capable special operations forces and an intelligence-surveillance-reconnaissance capability unmatched anywhere in the world. When we can match these capabilities with indigenous forces, he argues we have hit on a war-winning combination.

The book is relatively short but covers a lot of ground. Meilinger discusses prominent military theorists (Hart, Fuller, Clausewitz, Jomini, and Sun Tzu) as well as providing historical examples to support his arguments. I found it curious that he failed to bring in the concept of the Clausewitzian trinity of the people, military, and political leadership, as he does discuss the issues of image in a global 24/7 news cycle world and the corresponding impact operations (especially failed ones) have on our country. His discussion of theory, however, almost completely bypasses the airpower theorists he knows so well. He discusses John Warden’s airpower theory focusing on its ability to impact an enemy directly while bypassing his strength in the form of his fielded forces. He mentions John Boyd’s theory of the OODA (observe, orient, decide, act) loop in passing but without expanding on its use and impact. There is no mention whatever of other well-known airpower theorists (the big three of early theory—Mitchell, Douhet and Trenchard—being the most obvious). The biggest shortcom-

ing of this book, however, is the failure to address this strategy in light of the reemergence of peer and near-peer competitors in the form of Russia and China. While Meilinger doesn't state definitively that this is a theory for use in Iraq- and Afghanistan-type scenarios, his arguments and examples all point that way. He argues that nuclear weapons have made the concept of major-power force-on-force conflict obsolete. Given Russia's penchant for using proxies in seeking her foreign policy goals, this strategy might be useful; but a more robust discussion would be helpful. And while nuclear weapons certainly make the idea of a major war difficult to contemplate, our adversaries are continually seeking ways to confront us to gain advantage while avoiding our strengths. This discussion is exactly the sort of conversation needed to address these issues.

This is the sort of book we need to help continue the discussion of how the United States should be engaging in the world. The Air Force is currently developing its next generation bomber which will incorporate the latest in stealth, propulsion, and information technology. At the same time, it is exploring a relatively simple light-attack platform for use in smaller conflicts. These cost money, and the more we discuss what we are trying to accomplish and what systems are required, the better prepared we'll be. This book is a valuable addition to that discussion.

Lt. Col. Golda Eldridge, USAF (Ret.), EdD



The Origins of American Strategic Bombing Theory. By Craig F. Morris. Annapolis MD: Naval Institute Press, 2017. Photographs. Notes. Bibliography. Index. Pp. x, 250. \$34.95 ISBN: 9-78168247252-1

Discussions of the development of US strategic bombing theory leading up to World War II often focus on several elements as the main impetus behind this key component of airpower: the works of key individuals such as Generals Billy Mitchell and Benjamin Foulois, the emergence of enabling technologies such as long-range aircraft and the Norden bombsight, and organizational decisions such as the creation of General Headquarters Air Force. Morris, an assistant professor of history at the Air Force Academy, rejects the idea that any single factor played a dominant role in the development of strategic bombing theory. He presents the counter view that it was a combination of many forces that worked together to pave the way for the emergence of strategic bombing as the Army Air Forces' primary mission during World War II.

One of Morris's themes is that the path toward development of strategic bombing theory was not a steady line of progress that began with the creation of the Aero-

nautical Division of the Signal Corps in 1907 and culminated in the publication of the comprehensive strategic bombing plan known as Air War Plans Division No. 1 (AWPD-1) in 1941. To the contrary, progress could best be described as two steps forward and one step back, with an occasional breakthrough that moved the Air Service (under its various names) closer toward the goal of a coherent and comprehensive doctrine for the employment of strategic bombing. He makes the case that this isn't surprising, given the complex interplay among senior military and civilian leaders, mid-level planners, technology, competing priorities within the US military, the changing nature of warfare, and America's evolving perception of its place in the world.

Morris identifies the development of strategic bombing theory as being rooted in the experience of the 1916-1917 Mexican Expedition, which made aviators painfully aware of the need to better define the role of aviation in combat. One of the officers who flew during the Mexican Expedition was Edgar Gorrell who, by the end of World War I, had risen to the rank of lieutenant colonel and was a member of the Allied Expeditionary Force Air Service technical section. Adding his own views to ideas borrowed from British and French allies, Gorrell developed what Morris calls "the first clearly defined American vision of strategic bombing." The vision emphasized the separation of strategic bombing from tactical aviation, careful selection of targets critical to the enemy's industrial capability, and concentrated bombing of each target. Morris notes that these three principles—*independence, targeting, and concentration*—would be the cornerstones of strategic bombing doctrine for the next hundred years.

Unfortunately, this plan was approved eight weeks after the war ended. A return to peacetime conditions, with the accompanying force reductions and budget cuts, meant that there would not be an opportunity to implement Gorrell's plan.

In the interwar years, a number of factors had an impact on the development of strategic bombing theory. These included efforts to overcome the insistence by senior Army leaders that the primary role of aviation was to support the ground war, the emergence of the B-17 as a game-changing bombing platform, the eventual recognition that an effective bombing campaign could have a meaningful impact on the enemy's ability to wage war, the reshaping of the Air Corps Tactical School as an incubator for forward-thinking planners, and the 1939 appointment of General George Marshall as Army Chief of Staff. Morris covers all these factors and many others in considerable detail, clearly explaining how individuals and events, both within the Air Service and external, shaped the bombing theory that was published as AWPD-1 four months before America's entry into World War II.

This book is a well-researched, well-written descrip-

tion and assessment of how America's strategic bombing theory was developed and implemented. The knowledgeable reader might take issue with some of Morris's observations and conclusions, but these issues would be matters of interpretation, not questions of fact. For the reader who wants a comprehensive analysis of the subject, Morris' book would be an excellent addition to the bookshelf.

Lt. Col. Joseph Romito, USA (Ret.), Docent, National Air and Space Museum's Udvar-Hazy Center and National Mall Facility



Wave-Off! By Robert R. "Boom" Powell, CDR, USN (Ret). Forest Lake Minn.: Specialty Press, 2017. Tables. Diagrams. Illustrations. Photographs. Notes. Glossary. Index. Pp. 190. \$39.95 ISBN: 978-1-58007-235-9

This is an excellent example of a coffee table book on a unique subject. Any books I remember reading about carrier flight operations, especially those written from the pilot's perspective, focus on the challenge inherent in trying to put a very large (relatively speaking) piece of hardware on a moving runway. Oftentimes, this runway is not only moving forward, but also it may be pitching up and down and side to side. In addition, it may be dark, rainy, and so on. As a pilot, I have no end of respect for other pilots who take on this challenge every day as naval aviators. One aspect of this very dangerous operation is the absolutely vital role the LSO, or landing signal officer, plays in assisting the pilot in safely landing aboard the ship. In fact, the LSO is there guiding the pilot to a successful trap (landing) in all the conditions mentioned above.

This book is Powell's contribution to sharing the story of this essential role. He, himself, served as an LSO on numerous ships as well as an instructor and is, therefore, very knowledgeable on the subject. Interspersed throughout the larger narrative, Powell weaves his own personal experiences and stories along with commentaries from other pilots. All in all, the result is an enjoyable and informative read.

Powell approaches the subject chronologically while covering the role of the LSO in navies from around the world with a focus on the US and UK. This is not surprising, since these two countries have the most experience in carrier operations from the inception of this type of ship. Powell describes the specific tasks associated with the LSO and discusses how some have evolved over time while, in other cases they have remained pretty much the same.

Any good coffee table book should have lavish illustrations—this one is no exception. The photos add tremendously to the story and show the development of

the technology associated with the LSO's tasks. There are, however, a few minor issues. The narrative is sometimes a little choppy. There are some minor editorial errors (e.g., repeated captions on different photos and missing notation for end notes), but these are not significant enough to hurt the overall appeal of this book.

For anyone interested in carrier aviation, *Wave-Off!* is a great book. There is also a limited edition available, while supplies last, signed by the author. It sells for the same price as the regular edition which, at \$39.95, is worth the price.

Lt. Col. Golda Eldridge, USAF (Ret.), EdD



Jacqueline Cochran: Biography of a Pioneer Aviator. By Rhonda Smith-Daugherty. Jefferson NC: McFarland and Company, 2012. Appendices. Bibliography. Notes. Index. Pp. 211. \$29.95 Paperback ISBN: 978-0-7864-6375-9

This is a book that needed to be written. Jacqueline Cochran was a phenomenal aviator: the leading female aviation pioneer of the golden age of flight (1920s-1930s) and into World War II. But, for all her accomplishments, few people have ever heard of her. She has remained in the shadow of her friend, Amelia Earhart, who was certainly more visible than Cochran but less of an aviator.

Cochran was a natural flyer: she barnstormed, tested new aircraft, and won the daunting Bendix air race in 1938. Evidently oblivious to danger, she capably flew the extremely dangerous Gee-Bee racer, was the first woman to fly faster than sound, became the first woman to land on an aircraft carrier, and set several flight records.

Her most recognizable and historically significant accomplishment was her leadership in creating and administering the Women's Air Service Pilots (WASP) program in World War II. The WASP aspect of Cochran's life represents a highly significant milestone in the future of females flying in the military.

Cochran continued to fly after the war, including jet fighters, and set more records. She was personal friends with Chuck Yeager and associated with high-level politicians and leaders. She was involved in the space program; she never went to space but investigated women's suitability for space flight. She was manifestly successful beyond aviation. She created and managed a successful cosmetics company (selected by the Associated Press as Business Woman of the Year twice in the 1950s). She married a millionaire and stayed married but remained "Miss Cochran." She ran for Congress in 1956 (and lost). If ever there was someone whom the public should recognize as the foremost woman aviator of the 20th century it should be Jacqueline Cochran.

But we do not. Smith-Daugherty hopes to rectify this problem with this engaging and well-researched biography. Her goal is to place Cochran's life in a historical context and add to the history of women in aviation and war. She accomplishes this in fine fashion.

Cochran's life is a real "rags to riches" story. Raised a poor orphan, she did not know her birthdate or even her real name. She picked her name from a phone book. Although recognized as an aviation icon in the 1930s and 1940s, she was overshadowed in the media by Amelia Earhart, whose fame was much the product of her husband, George Putnam's, skill as a promoter and publicist.

Smith-Cochran makes the point that Cochran was not a feminist-activist as was Earhart. Cochran was a straight-arrow, conservative, Catholic, business woman as well as an accomplished aviator. She fully believed in traditional values and eschewed every chance to promote women's rights and to liberate women from domesticity and being overshadowed by men. She believed that a woman's most important role was in the home as a wife and mother. She did not believe that women were weaker; it was just more important that they be homemakers. She is quoted as saying: "Women have the same intelligence as men, are just as intelligent as men, they have the same ability. But they should not forget that they are women. They should populate the world; they should have a woman's place in the world." Smith-Daugherty explains that Cochran believed that women could advance further in aviation by not challenging the established gender roles of the day.

This book's focus is on Cochran's achievements in aviation. It steers clear of gender politics. Although Smith-Daugherty does not shy away from considering the rightness or wrongness of Cochran's *vice* Earhart's views on feminism, this is not the book's theme. She makes it clear that Cochran was the genuine article, a true aviation pioneer, and an extremely capable aviator who happened to be female.

This book is highly recommended reading for aviation historians, feminist historians, military historians, and aviators. In so doing, one will come to see that truly Jacqueline was an extraordinary aviator and the mother of military female aviators.

Fred H. Allison, Ph.D., U.S. Marine Corps History Division



Vought F-8 Crusader: Development of the Navy's First Supersonic Jet Fighter. By William D. Spidle. Forest Lake Minn.: Specialty Press, 2017. Photographs. Notes. Index. Pp. 148. \$44.95 ISBN: 978-1-58007-242-7

This is a detailed and well-illustrated look at the

conception, design, development, and evolution of the Navy's first operational supersonic fighter. Spidle is an aircraft mechanic and manager in commercial aviation who is a former employee of Vought; his book is a must for anyone fascinated with this iconic Cold War jet fighter. There are a number of good books on the F-8's operational career that spanned the Cuban Missile Crisis and Vietnam War, but few that focus on the aircraft's design and development.

Known as the "Last of the Gunfighters," the F-8 (original designation F8U) was designed in response to a 1952 Navy requirement for a simple, lightweight, low-cost day fighter with a speed of Mach 1.0. With land-based F-86s and MiG-15s dogfighting in the skies over Korea, the Navy realized a carrier-based jet fighter of similar performance was needed. Chance Vought Aircraft was best known for development of the legendary World War II F4U Corsair which, at the time, was still flying combat missions in Korea as a Marine Corps fighter bomber. However, Vought's success in the jet era had been mixed. They built the unique experimental XF5U-1 "Flying Flapjack;" but their operational jets, the F6U Pirate and F7U Cutlass, had limited success in the fleet. In many cases, lack of reliable and high-thrust jet engines had hobbled the designs. As a result, Vought needed new business and jumped at the opportunity to respond to the new competition. Within three years, the prototype F-8 made its first flight on March 25, 1955.

Spidle chronicles Vought's different proposals and system developments that culminated in the final F-8 configuration. They selected the Pratt & Whitney J57 afterburning turbojet as the powerplant and incorporated a variable-incidence wing, one of the most distinctive features of the Crusader. Using a hydraulic actuator, the wing could be raised for high incidence during takeoff and landing. This provided much better carrier suitability, including excellent pilot visibility and increased lift (translating into lower speed) during aircraft carrier flight operations. Unlike their experience with the F6U and F7U powerplants, Vought found the J57 provided the thrust required to meet the Navy's specifications, including supersonic speed.

In addition to development and flight testing, the book reviews record-breaking F-8 flights the Navy sponsored to showcase its first supersonic operational fighter. USMC Major (and future Mercury astronaut) John Glenn broke the transcontinental speed record in July 1957 for Project Bullet, flying from California to New York in 3 hrs 23 mins, 8.4 secs at an average speed of 725.55 mph. Spidle also describes the different operational F-8 variants, including the photo reconnaissance F8U-1P (RF-8) and Crusaders flown by France and the Philippines. Variants that did not see production included a two-seat trainer (F8U-1T) and the Super Crusader (F8U-3) that competed against the new Mach 2 McDonnell XF4H-1 Phantom II. NASA also utilized

modified F-8s for research on supercritical wing airfoils and digital fly-by-wire control systems.

The Crusader soldiered on into the waning years of the Cold War. The last USN RF-8G was retired in 1987, and the Philippine Air Force F-8H flew for the last time in 1988. Spidle has provided aviation enthusiasts with the definitive book on the creation and development of this legendary supersonic jet fighter. Over 60 years after its first flight, the Crusader design and service continue to inspire. Many would still argue that, "When you're out of F-8s, you're out of fighters!"

Maj. Jeffrey P. Joyce, USAF (Ret.)



The Peenemunde Wind Tunnels: A Memoir. By Peter P. Wegener. New Haven: Yale University Press, 1996. Photographs. Notes. Index. Appendix. Pp. 187 \$60.00 ISBN 0-300-06367-9

This unique historical book was not detected by our book review sensors when published over 20 years ago, but it still worthy of attention by *Air Power History* readers. It has two themes: First, how world class hypersonic wind tunnels went from Peenemunde on the Baltic coast of northern Germany to the scenic town of Kochel, Bavaria, and then to the Navy Ordinance Laboratory in White Oak, Maryland. Second, how German Air Force Lieutenant Peter Wegener, Ph.D., went with it and stayed with it until 1953. This was an aerospace saga, to use current terminology.

Wegener arrived at the Peenemunde missile development center in May 1943. He was 26 years old. The technical director was 31-year-old Wernher von Braun. For Wegener, Peenemunde was a virtual utopia after six years in the service, including two on the Russian front serving in the Luftwaffe's antiaircraft artillery. He had now arrived at the most advanced guided missile development facility in the world. The good quarters, good food, and congenial associates impressed him.

Assigned to the Aerodynamics Institute, with its staff of 200, he joined the basic research group. Wegener quickly mastered conducting hypersonic-aerodynamics model testing at speeds up to Mach 9. He worked on the A4 (V-2) missile and its many potential derivatives, including a long range configuration with swept wings.

This diligent research effort ended abruptly on the night of August 17-18, 1943, when 547 RAF bombers dropped 2,000 tons of bombs on Peenemunde. Wegener was working at a wind tunnel that night and was unscathed. However, as a result of the bombing, higher headquarters decided to move the wind tunnels to Kochel, Bavaria, a small rural town near the largest hydroelectric plant in Germany.

This move was classified, so all military people wore

civilian clothes. The new facility was built rapidly, with all of the equipment transported from Peenemunde, and was soon in operation—an astonishing feat. Wegener worked there until the end of the war in May 1945.

The site was captured quietly by the US Army. As part of the historic Operation Paperclip, which included von Braun and most of his staff, Wegener was told that the wind tunnels were going to be moved to the Naval Ordinance Laboratory in White Oak, Maryland. He accepted a personal contract to emigrate to the US, participate in developing a new facility, and put the wind tunnels back in operation. He moved to the US in early 1946—a move that ended up being permanent. He retired as a professor of engineering and applied science at Yale University.

This fascinating book provides considerable insight into this German Peenemunde group of competent, experienced scientists and engineers. They would play a large role in US aerospace accomplishments throughout the Cold War.

Sherman N. Mullin, retired president, Lockheed Skunk Works



History of the De Havilland Vampire. By David Watkins. Published in the United Kingdom by Fonthill Media, 2017. Photographs. Appendices. Bibliography. Pp. 384. \$40.00 (paperback). ISBN: 978-1-78115-610-0

This work is a comprehensive and well-illustrated study of the second operational Royal Air Force (RAF) jet fighter. Developed during the Second World War, the Vampire entered service with the RAF in 1946 and remained in production until 1961. In addition to 3400 built in England, over 1000 Vampires were manufactured under license by several other countries. Written by David Watkins, a former member of the RAF and an aviation historian who has written extensively on the RAF, this book chronicles the design, testing, production, and operational service of one of the RAF's iconic jet fighters of the early Cold War.

The first British jet-propelled airplane to fly was the Gloster E28/39 on May 15, 1941, powered by a Whittle W.1 turbojet engine. That Gloster flight occurred nearly two years after the German Heinkel He 178 V1 first flew on August 27, 1939. As World War II progressed and the Luftwaffe developed the Messerschmitt Me 262, the RAF also pushed forward with fielding jet fighters. The first of these, the Gloster Meteor, took to the air in March 1943 and entered service in the summer of 1944. Though the Me 262 and Meteor never faced off in aerial combat over Europe, the Meteor was used successfully against the German V-1 flying bombs targeting London. Whereas the Gloster Meteor was a twin-engine design,

the RAF also saw the need for a single-engine jet fighter with a primary mission as a day interceptor. De Havilland responded with the DH 100 prototype incorporating a unique twin-boom tail design. Making its first test flight in September 1943, powered by a Halford H.1 engine of 2700 lbs thrust, the DH 100 was ordered into production as the Vampire and entered service with the RAF in early 1946.

Watkins provides a detailed description of the design of both the Vampire airframe and the production Goblin jet engine (derived from the prototype's Halford H.1). He chronicles the many test and production variants as the Vampire evolved from a day interceptor to a night fighter to a widely used trainer flown by the RAF, Royal Navy, and nearly 30 foreign air forces. Though referred to as the "Kiddie Car" by non-Vampire pilots, this first-generation jet fighter offered good maneuverability, ease of handling, and excellent cockpit visibility. The final section of the book includes a history of all Vampire operators, both British and foreign, as well as a listing of known Vampire airframes still existing.

In addition to being a mainstay of the RAF during the early Cold War, the de Havilland Vampire also made a number of firsts during its over 45-year career. It was the first jet fighter to cross the Atlantic Ocean and the first jet to land on an aircraft carrier. Fortunately, besides the many Vampires on display in museums around the world there are a number still flying today, a testament to the success of the original design by de Havilland. Watkins' book will likely be the standard reference work on the Vampire and is recommended for anyone fascinated with first-generation jets.

Maj. Jeffrey P. Joyce, USAF (Ret.)



The Art of Flight. By John Watkinson. Reston Virginia.: American Institute of Aeronautics and Astronautics, 2016. Tables. Diagrams. Illustrations. Photographs. Index. Pp. xiv, 437. \$79.95 pdf, \$89.95 hardbound ISBN: 978-16240372-8

This book doesn't fit the mold of most books I've reviewed for Airpower History in that it is far less a history and far more a textbook. The subject matter focuses on flight in all of its scientific aspects, from the basic physics concepts that make flight possible to the specifics of aerodynamics, powerplants, and so on. While I felt the title is misleading (in my opinion, this is all science and not art), I nonetheless found it an interesting and useful read. That said, this is definitely not written for the casual reader or the faint of heart. As a pilot with many years of flying experience but no formal engineering or scientific training, there were parts of the book I found very slow going. In the end, it

comes pretty close to the publisher's bill on the back cover: a book for the "technically minded reader who seeks a reflective, thoughtful introduction to the concepts that allow flight."

The book is logically arranged starting with a very brief overview of the development of manned flight. Watkinson then covers an extensive list of subjects ranging from physics to information technology that are relevant to the basic scientific concepts of flight. Following this are the more traditional subjects of aerodynamics, powerplants, and aircraft control. Watkinson includes separate chapters on the helicopter and surface-effect craft. These were very interesting, as most books on flight I've ever read rarely deal with these areas. I was disappointed that despite his broad coverage he did not include anything about emerging technologies such as the tiltrotor.

The book is clearly organized and well laid out. That Watkinson is English is apparent in his use of terms such as airscrew versus propeller and his occasional examples of dry humor, but this simply adds character without detracting from the subject matter. There are diagrams, illustrations, and photos aplenty that clearly present visual depictions of the concepts covered. All the visual depictions are very high quality as is the book overall.

The back cover also states that Watkinson explains concepts qualitatively versus a heavy reliance on math. This may be so; but, while the math behind the physics is not included, there are still plenty of formulas. In the end, I think the best word to describe this book is dense. It is far beyond a primer for an aspiring new pilot and, as I mentioned before, was even slow going in some parts for an old pilot. Its price tag for either the hard cover or electronic versions will limit its appeal as well. This would be a great book to check out from your local library (assuming you can find a copy).

Lt. Col. Golda Eldridge, USAF (Ret.), EdD



The Jet Race and the Second World War. By Sterling Michael Pavelec. Annapolis Maryland: Naval Institute Press, 2010. Photographs. Pp. 227. \$3.99 ISBN 978-1-59114-666-7

Pavelec has written a fact-packed history of German, British, and U.S. jet engine and aircraft development that, to my knowledge, is not found in any other single volume. This book was not written for the casual reader.

He starts with German initiatives in the 1930s based on the brilliant jet engine design concepts and early prototypes of Hans von Ohain that were rapidly grasped and exploited by aircraft companies. He then

covers the British initiatives, driven by Royal Air Force (RAF) officer and jet engine inventor Frank Whittle, in the early years. These were not supported by the RAF or the Air Ministry.

The book then turns to the American jet aircraft effort, ignited by General Hap Arnold after a visit to England in April 1941, where he learned to his amazement that a jet propelled prototype aircraft (the Gloster E.28/89) was about to be flight tested. The book then shifts back to the Germans and the operation of their jet aircraft (the twin engine Me262) in combat from late 1944 to the end of the war. Finally, Pavelec covers how the Americans took the lead in jet-propelled aircraft development toward the end of the war, although none entered combat.

The numerous talented individuals in this jet engine history drama are given extensive coverage not only in the text but also in an appendix. Sixteen historical photographs are included.

This book is a masterful integration of an enormous amount of historical detail, all relevant. As an old aerospace (but not of the propeller generation), I was impressed and found it interesting and enjoyable.

An extensive bibliography is included with numerous primary sources. Pavelec has skillfully mined these sources. The book concludes with two detailed tables containing technical data on the early German, British, and American jet powered aircraft which flew before the end of the war. Think about this: the thrust of the several engines cited ranged from 860 to 4000 pounds!

My summary: the Germans succeeded early due to Hans von Ohain's genius, strong government financial backing, and Luftwaffe leadership, but then suffered from lack of production staffing and material shortages. The British jet effort suffered from weak government and RAF support but slowly succeeded due to the technical skill and stunning persistence of Frank Whittle. The Americans caught up very rapidly due to the forcefulness of General Hap Arnold, rapid response of industry (particularly General Electric), and Kelly Johnson's unmatched engineering and management skills. All that said, the US failed to field jet-propelled combat aircraft in World War II, while the Germans and British did. (Note: if you think I am biased regarding Kelly, read the book.)

Sherman N. Mullin, retired president, Lockheed Skunk Works



Red Markers: Close Air Support for the Vietnamese Airborne 1962-1975. By Gary N. Willis. Marvel Texas: Gary N. Willis (LULU.com publishing), 2012. Maps. Photographs. Notes. Appendices. Glossary. Bibliography. Pp 255. \$30.00 ISBN: 0-7643-2933-3.

Red Markers is a personal and organizational memoir covering a narrow slice of US air operations during combat operations in South Vietnam. It captures the experiences of the forward air controllers (FACs) who supported the Army of the Republic of Vietnam (ARVN) Airborne Division, perhaps the most effective combat unit available to the Saigon government during the war. (For a testimony on the division, see General Barry McCaffrey's article "The Forgotten South Vietnamese Airborne," in the August 8, 2017 *New York Times*.) The ARVN airborne wore red berets, and the attached US Army advisors—Advisory Team 162—were known as Red Hats. The Air Force FACs, who operated in South Vietnam from 1962 to 1973, were called Red Markers; and that also served as their radio call sign.

Willis was a member of the Red Markers from December 1969 to July 1970. He started this history after working on a Red Marker roster project that evolved into an effort to document the unique experience of the detachment and personnel involved in combat operations with the ARVN airborne. Willis relied heavily on the personal memories of unit members collected in oral interviews and surveys, complemented by diaries and scrapbooks. He also consulted official histories, a range of articles and books, and contemporary unit newsletters and newspapers. The result is an informative and entertaining read illustrated with photographs obtained from the personal collections of many members of the detachment. Additionally, the appendix includes rosters of the Red Marker personnel, including the air liaison officers (ALOs) and FACs, enlisted crew chiefs, radio operators, and maintenance personnel.

Willis places the efforts of the Red Markers into the context of the war in South Vietnam and the US efforts to support the Republic of Vietnam government, but the focus of the book is squarely on the activities of the ALOs, FACs, and enlisted team members. However, at times the reliance on personal stories creates a somewhat jerky flow to the presentation. The flow is also challenged by the fact that the ARVN airborne was an important rapid response capability for the South Vietnamese military, engaging in critical combat operations in all four military regions during the course of the war. The shifting battlefronts are a reminder of the complexity of the combat operations within South Vietnam with brief excursions into Cambodia and Laos.

The structure of this book is chronological, with seven sections roughly related to the shifting nature of the war. This covers the early advisory mission, to the American build up, followed by Vietnamization, and the return to an advisory role. The last sections deal with Vietnamese military operations after the US withdrew in 1973 and a survey of the Red Markers after the war. The chapters are generally defined by calendar years and the commanders of the Red Markers. The first section includes an introduction to the US military struc-

ture in South Vietnam and an explanation of the air-ground command-and-control system. This is followed by a brief description of the establishment of the Red Markers when Major Gene McCutchen was assigned to the Vietnamese Airborne Brigade. This section covers initial ground FAC operations and the transition to aircraft support, while revealing the difficulties faced by advisors, especially in trying to develop a FAC capability in the Vietnamese Air Force (VNAF). The second section recounts the period of expanding American forces from 1965 to 1968, following the growth of the Vietnamese airborne force to a division and the associated development of the Red Markers—although they remained a very small piece of the overall American commitment to the war. This set of chapters includes operations during and after the Tet Offensive. The third section covers Red Marker activities during the Vietnamization period from 1969 to 1972, including operations in Laos (Operation Lam Son 719), and the North Vietnamese spring offensive in 1972. The final section covers Vietnamese operations from after the US withdrawal to the North Vietnamese victory in 1975.

The book is an anecdotal tribute to the US servicemen—Army and Air Force—who served with their Vietnamese allies throughout the American engagement in Southeast Asia. Willis's work has received an award from the Military Writers Society of America. Because of its nature, it serves best as a complement to broader histories of the war and its air operations. Additionally, readers interested in the full range of roles of FACs should seek out the memoirs and histories of other air control activities, such as the Covey, Nail, Misty, or Raven FACs. In sum, this is an excellent addition to coverage of the personal side of the war in Vietnam and a fitting recognition of the small group of airmen who proudly served as the Red Markers.

Jerome V. "Jerry" Martin, Ph.D., Independent Historian, retired Command Historian, US Strategic Command



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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Superstition and Allied Aircrews in World War II

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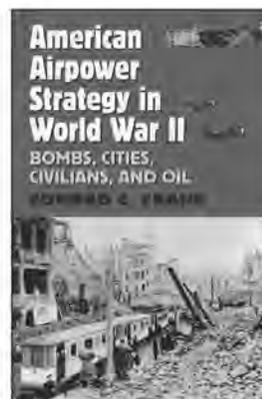
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Coming Up



Compiled by
George W. Cully

June 25-28, 2018

The **American Institute for Aeronautics and Astronautics** will hold its premier annual aviation event, the Aviation and Aeronautics Exposition and Forum ("Aviation 2018") at the Hyatt Regency Hotel in Atlanta, Georgia. For program and attendance information, see the Institute's forum website at https://aviation.aiaa.org/?_ga=2.56858921.2051453716.1522350435-776600339.1515185771.

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 10-13, 2018

The **American Astronautical Society**, the Chinese Society of Astronautics and the Japanese Rocket Society will jointly host the 15th International Space Conference of Pacific-basin Societies (ISCOPS) in Montreal, Canada. This year's theme is "Promote the Welfare of Pacific-basin Region with Space Innovation". For further information, see the Society's website at http://astronautical.org/dev/wp-content/uploads/2018/02/2018_ISCOPS_First_Announcement_RevisedAAS.pdf.

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>.

August 23-26, 2018

The **Mars Society** will hold its 21st International Convention at the Pasadena Convention Center in Pasadena, California. For more details, see the Society's website at <http://www.marssociety.org/home/>.

September 6-9, 2018

The **Tailhook Association** will hold its 62nd annual symposium at the Nugget Casino Resort in Sparks/Reno, Nevada. This year's theme will be "The Future of Carrier Aviation." For more information,

see the Association's website at <http://www.tailhook.net/>.

September 17-19, 2018

The **Air Force Association** will hold its 2018 Air, Space & Cyber Conference at the Gaylord National Hotel in National Harbor, Maryland. For more information, see the Association's website at <https://www.afa.org/afa/home>.

September 19-21, 2018

The **League of World War I Aviation Historians** will hold its 2018 Seminar in Fairborn, Ohio. This meeting will be held in conjunction with the biennial WWI Dawn Patrol hosted by the National Museum of the United States Air Force. For further information as it becomes available, see the League's website at <https://www.overthefront.com/about/news/25-seminar-news/188-2018-seminar>.

September 22-23, 2018

The **National Museum of the United States Air Force** will host its 2018 biennial WWI Dawn Patrol Rendezvous on the Museum grounds in Fairborn, Ohio. For details, see the Museum's website at <http://www.nationalmuseum.af.mil/Upcoming/>.

September 26-29, 2018

The **Society of Experimental Test Pilots** will host its 62nd annual symposium and banquet at the Grand Californian Hotel in Anaheim, California. For more info, see the Society's website at <http://www.setp.org/annual-symposium-banquet/62nd-symposium-banquet-call-for-papers.html>.

September 28, 2018

The **National Aviation Hall of Fame** will hold its annual enshrinement dinner and induction ceremony at the National Building Museum in Washington, DC. This year's inductees include Col Walt Cunningham, Mr Bill Dana, Gen Jack Dailey and Gen Ron Fogelman. For more details, see the website at www.nationalaviation.org/enshrinement/.

October 2-5, 2018

The **Aviation Engine Historical Society** will hold its 15th annual convention at the Aerospace Museum of Aviation

and the California Automobile Association in Sacramento, California. For registration, see the Society's website at <http://www.enginehistory.org/Convention/Convention2018.shtml>.

October 8-10, 2018

The **Association of the United States Army** will hold its annual meeting and exposition at the Walter E. Washington Convention Center in Washington, DC. For additional information, see the Association's website at <http://ausameetings.org/2018annualmeeting/>.

October 10-13, 2018

The **Oral History Association** will hold its annual meeting and symposium at Concordia University in Montreal Quebec, Canada. For details, see the Association's website at <http://www.oral-history.org/2018-call-for-papers/>.

October 10-14, 2018

The **Society for the History of Technology** will hold its annual meeting in St. Louis, Missouri. For more details as they become available, see the Society's website at <https://www.history-of-technology.org/annual-meeting/2018-shot-annual-meeting-10-14-october-st-louis/>.

October 23-25, 2018

The **American Astronautical Society** will host its annual Werner Von Braun Memorial Symposium in Huntsville, Alabama. For more details as they become available, see the Society's website at <http://astronautical.org/events/vonbraun/>.

November 1-4, 2018

The **History of Science Society** will hold its annual meeting at the Sheraton Hotel in downtown Seattle, Washington. This year's theme is "Telling The Stories

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

Of Science.” For registration and program information, see <https://hss2018.hssonline.org/en/>.

Early November, 2018

The **National Air & Space Museum** will present its Mutual Concerns of Air and Space Museums Program in Tucson, Arizona. For more details as they develop, see the Museum’s website at <https://airandspace.si.edu/events/mutual-concerns/>.

November 27-29, 2018

The **Association of Old Crows** will hold its 55th Annual International Convention and Symposium at the Marriott Marquis Convention Center in Washington, DC. For more details, ping a Crow at <http://www.crows.org/page/annualsymposium>.

January 3-6, 2019

The **American Historical Association** will hold its 133rd annual meeting at the Hilton Chicago and Palmer House Hilton in Chicago, Illinois. This year’s theme will be “Loyalties.” For program information and registration, see the Association’s website at www.historians.org/annual-meeting.

April 4-9, 2019

The **Organization of American Historians** will hold its annual meeting at the Philadelphia Downtown Marriott in Philadelphia, Pennsylvania. This year’s theme will be “The Work of Freedom.” For details, see their website at www.oah.org/meetings-events/meetings-events/call-for-proposals/.

In Memoriam

Warren A. Trest 1931-2017



Warren Alexander Trest, passed away on December 11, 2017. He was born on February 13, 1931 in Louisville, Mississippi to the late Warner Alexander Trest and Lillian Ersell Miller Trest and graduated from the University of Southern Mississippi.

Warren was a U.S. Army veteran of the Korean War and received the Purple Heart during his time of service. He spent many years as an Air Force historian, stationed in many places both in the United States and abroad.

He spent a number of years working on preserving the records of the Vietnam War as a member of one of the Contemporary Historical Evaluation of Combat Operations (CHECO) teams, writing contemporary history volumes. He was based in Saigon and later Bangkok in writing history and collecting documents for preservation.

Later, he spent a number of years in Washington, D.C. as Senior Historian in the Office of Air Force History. In 1982, he transferred to the Air Force Historical Research Agency (AFHRA) at Maxwell AFB, Louisiana, as the Senior Historian.

He retired as Senior Historian from the AFHRA earlier this decade. He wrote many official USAF

histories over the years. But he was also the author of several books including *Air Commando One*, *Once a Fighter Pilot*, *Wings of Denial*, and *Nobody but the People*—a biography of former Alabama Governor John Patterson. He is survived by his loving wife, Kyung S. Trest, whom he married in 1961 in Seoul, Korea; three children, Myong Trest, John Trest, and Thomas Trest; three grandchildren, Maya Trest, Naomi Trest, and Calder Trest; his sister, Sandra Sisson.

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

18th Fighter Wing Association. Oct 17-20, 2018, Fairborn, OH. Contact:
John Gearheart
16578 State Highway 155N
Ore City, TX 75683
(903) 931-1629
John.gearheart1629@gmail.com

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

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

376th, 451st, 455th, 460th, 461th, 464th, 465th, 484th, 485th Bomb Groups. Sept 13-16, 2018, Dayton, OH. Contact:
Dave Blake
648 Lakewood Road
Bonner Springs, KS 66012
(913) 523-4044
reunion@461st.org

384th Bomb Group. Oct 17-21, 2018, Fairborn, OH. Contact:
Frank & Carol Alfter
1306 Adams Way
Beavercreek, OH 45434
(937) 306-2142
fjalfter@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

656th Radar Squadron. Sept 10-12, 2018, Fairborn, OH. Contact:
John Tianen
7041 E. Calle Tabara
Tucson, AZ 85750
jtianen@earthlink.net

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

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

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

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.

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

B-47 Stratojet Association. Sep 18-20, 2018, Omaha, NE. Contact: Dick Purdum
13310 S. 26th Ave
Bellevue, NE 88123-1909

402-291-5247
dickpurdum@cox.net

Air Force Academy Class of 1959. Sept 19-23, 2018, Fairborn, OH. Contact: Jim Brown
7400 Crestway Drive
San Antonio, TX 78239
(210) 699-3318
jimbrown59@earthlink.net

Spectre Association. Oct 4-7, 2018, Fairborn, OH. Contact:

Bill Allen
2600 Windsor Lane N
Ft Walton Beach, FL 32547
(850) 865-1207
wrallenrealtor@gmail.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



Equipped with four turboprop engines, the Lockheed Martin C-130 "Hercules" has proven itself to be one of the world's most effective and enduring airlifters. The C-130's radar in the nose gives the aircraft its unique appearance. The original C-130A's didn't have the radar and are often referred to as "Roman nosed." To say the C-130 is versatile is an understatement. Armed with Cannons and miniguns, AC-130 Gunships strike fear in the hearts of our enemies. WC-130's flown by the Air Force Reserves fly into hurricanes to collect weather data. As part of OPERATION Deep Freeze, LC-130s fly supplies to various locations on Antarctica. C-130s drop annually drop supplies to South Pacific Islanders as part of OPERATION Christmas Drop. Hercs are used to fight forest fires, aerial refuelers, and even help control insects. JC-130's have been used to catch the film dropped by reconnaissance satellites. EC-130s have even been used as airborne TV and Radio Stations. Finally, 2,500 Hercs have been built and has been flown by over sixty different countries. Today the U.S. Air Force and many of our allies fly the C-130J.

To learn more about the C-130 and its many missions visit these Air Force Websites:
<http://www.af.mil/About-Us/Fact-Sheets/Display/Article/104517/c-130-hercules/>



<http://www.nationalmuseum.af.mil/Visit/Museum-Exhibits/Fact-Sheets/Display/Article/196341/lockheed-ac-130a-spectre/>
<http://www.nationalguard.mil/News/Article-View/Article/573129/operation-deep-freeze-main-season-underway/>
<http://www.193sow.ang.af.mil/About-Us/Fact-Sheets/Display/Article/1062881/ec-130j-commando-solo/>



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

This airlifter started as a concept in 1951 and entered the U.S. Air Force inventory in 1956. The latest version of this aircraft continues to serve not only the United States Aircraft as well as militaries around the globe. The U.S. Coast Guard, U.S. Marines and U.S. Navy also operate this airlifter. The mystery airplane is tactical airlifter with a rear ramp to load traditional palletized cargo, oversized cargo and vehicles. Over the decades, this aircraft proved to be exceptionally versatile. It has served as a gunship, a hurricane hunter, delivered supplies to the South Pole, and dropped Christmas presents in the South Pacific. In 1968, during the siege of Khe Sanh during the Vietnam War, this aircraft delivered critically needed supplies using the Low Altitude Parachute Extraction System (LAPES). Name this airlifter.



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