SPRING 2024 - Volume 71, Number 1
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Journal of the Air Force Historical Foundation

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Air Force Historical Foundation Annual Awards
May 9, 2024

The Air Force Historical Foundation Annual Membership Meeting will be held at the Arlington, VA, Army Navy Country Club at 3 PM on May 9, 2024. All AFHF members in good standing are invited to attend (bring your current membership card).The Foundation's Annual Awards Banquet will be held at the Army Navy Country Club afterwards. There will be a Cocktail Hour at 5:30 PM, and the Dinner/Banquet will foillow at 6:30 PM until 9:30. The Annual Awards Banquet is open to the public and the ticket information will be available soon. Attire for the evening is service dress/business formal. Check for details at **afhistory.org** or you may register at https://www.afhistory.org/events/.

The Air Force Historical Foundation's Annual Awards were established to honor specific individuals and units dedicated to the making and documentingof U.S. Air Force and U.S. Space Force history.

The Air Force Historical Foundation's **James H. "Jimmy" Doolittle Award** was established to recognize a unit that has displayed bravery, determination, discipline, esprit de corps, and superior management of joint operations while accomplishing its mission under extremely difficult and hazardous conditions in multiple conflicts, and thus has made a sustained, significant contribution to Air Force history.

This year's General James H. "Jimmy" Doolittle Award will go to the 432d Wing at Creech AFB. They are the first repeat winners. The Doolittle Awards Presentation will be held at the Wing in March.

The **General Carl "Tooey" Spaatz Award** recognizes an individual who has made significant contributions in their lifetime to the making of Air Force or Space Force history.

This year's General Carl A. "Tooey" Spaatz Award will go to **Lt. General Susan J. Helms** (USAF, Ret.)

The **Major General I.B. Holley** Award recognizes an individual who has made sustained, significant contributions to the documentation of Air Force and Space Force history during a lifetime of service. The Award's inaugural presentation was to Major General I.B. Holley as a tribute to his decades of assistance, support, and encouragement to military historians.

This year's recipient is **Dr. Benjamin S. Lambeth**.

Reserve the dates, November 7-10, 2024

The Air Force Historical Foundation Annual Symposium and Air and Space Musuem Conference will take place in Tucson, Arizona, in partnership with the Pima Air and Space Museum. Look for details to be forthcoming at **afhistory.org**.

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Features

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FRONT COVER: A USAF B–29 Superfortress, versions of which had bombed Japan.*(USAF Photo)*
REAR COVER: An AC–47 "Spooky" circles in search of its target. *(USAF Photo)*

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Journal of the Air Force Historical Foundation

The Journal of the
Air Force Historical Foundation
Spring 2024 Volume 71 Number 1

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Journal of the Air Force Historical Foundation ISSN 2992-9326 (Online) is produced for Spring, Summer, Fall, and Winter by the Air Force Historical Foundation. ISSN 2992-9318 (Print) is produced for Summer.

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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Periodicals postage paid at Mechanicsville, MD 20659 and additional mailing offices.

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

Leadership's Message

To our members,

Our Air Force Historical Foundation has rightfully been focused on craft that fly in the air and in space, and the men and women who create, maintain, support, document, and operate them. Like many of you, I've spent most of my professional life living and working squarely in that space. But as the old saying says, "Time, like air and space craft, also flies." Three short years as the Chairman of the AFHF Board have truly flown by.

In the time I've historically spent in one Air Force Permanent Change of Station tour, the AFHF has taken a dramatic flight of its own into the future. I can't resist listing a few of the highlights.

In three years, the Foundation has reset and recreated its branding and outward facing communications to present a modern and attractive face to the world through a new web presence, a renamed and updated journal, and a successful series of on-line book clubs and war stories. Foundation leaders have reset and expanded our Partnerships with Air and Space Museums, Air University, the Air and Space Force Association and other like-minded organizations. We've created new contributions to historical records through new oral history and archive projects. We've begun to shape the foundation's response to the creation of the Space Force and develop ways we can support Guardians past, present, and future. Last year, we executed a successful return to conducting symposiums with a stimulating Vietnam-focused event in Denver. We are returning to publishing, beginning with a partnership with AU Press to return *A Few Great Captains* to circulation. And we continued to present scholarly works on Air and Space history through our renamed journal, popularize history through our This Day series, and recognize outstanding units, leaders, historians, and writers through our awards program.

And in the same way that air and space craft depend on the people who create and maintain them, the Foundation's progress over these years was the result of the efforts of inspired members. I'll single out a few.

Kristin Walker led us through rebranding, reshaping of our web presence, and many other projects. She provided a vision that helped start us down this path.

Executive Directors Jim Vertenten, Steve Newbold, and Dik Daso did the thinking and led the teams that turned ideas into reality. Dik and Steve were extremely effective partners in this work.

With help of some outstanding volunteers, John "Pepe" Soto and Matt Jolley built and executed our fantastic book club and war stories events.

Journal editor Richard Wolf made the *Journal of the Air Force Historical Foundation* better and better.

Angela Bear kept the doors open and the trains running and willingly took on new challenges and skills to fit our redesigns.

New Partners at AU, ASFA, and amazing museums, and the Super Sabre Society broke down bureaucratic barriers to forge new joint efforts beneficial to all our organizations and audiences.

Board members took on committees and projects to build and guarantee AFHF's future. Special thanks to Joe Burke for leading our efforts to think through how to best adjust to the creation of the US Space Force.

Through it all, our President Jonna Doolittle Hoppes was a beacon of advice, encouragement, and tireless efforts. What a great partner!

Finally, AFHF exists to serve our members, and everything we've done has been done to serve you better. I've enjoyed the chance to reconnect with old friends and make new ones over the last three years.

I hope you can attend our annual meeting and Awards Dinner on May 9th. I'll be handing off the Chairman position to Maj Gen John Barry, USAF (ret). John is an accomplished Airman, respected non-profit leader, and tireless proponent of Air and Space Power. You'll be well-served.

I remain convinced that America's security requires a strong and healthy air and space arm. I'm confident the AFHF will continue to help educate, inform, and memorialize those who feel the same way.

Know the Past, Shape the Future!

Respectfully,

Gen. James "Mike" Holmes
Foundation Chairman

"Miss Jane" Fogleman
August 1941 to October 2023

Miss Jane Fogleman, 82, of Durango, CO, passed away in early October, 2023 from complications associated with COVID. All who served with the Foglemans remember her as a fun-loving, dedicated example of a devoted and independent military spouse. She was an inspiration and leader.

She was born in August, 1941, on her parents' farm near Walnut, Juniata County, PA to Ernest and Mary Lauver. She was a 1959 graduate of Juniata Joint High School and 1961 graduate of Goldy Beacom College Business School. She is survived by her husband of 60 years, General Ron Fogleman, USAF, Retired; son, Harry Fogleman, daughter-in-law, Deanna Devereaux Fogleman; grandchild, Amelia Jane Fogleman; stepmother, Edith Berrier Fogleman; sister-in-law and husband, Edwina Kay and Robert Hill; brother, Alton Lauver and numerous nieces and nephews.

Miss Jane Fogleman was a small business owner, entrepreneur, philanthropist and service volunteer in her community. Early in her life she worked in banking and the travel industry.

Before moving to Durango, she accompanied her husband on numerous assignments in the US, Europe and Asia as well as on international trips in support of US troops on six continents. She played a key role developing and supporting programs addressing the needs of our Soldiers, Sailors, Airman and Marines and their families. In recognition of her support to the families of joint service personnel Miss Jane was awarded the Department of Defense Outstanding Civilian Service Award and is a recipient of the United States Air Force Outstanding Civilian Service Award. As a member of the High Noon Rotary Club of Durango, she was awarded a Paul Harris Fellowship from Rotary international.

After moving to Durango, she became a partner in a small business, served as the corporate secretary of an international aerospace consulting company, the secretary of another family-owned small business and the administrator of the Fogleman Family Trust. She served as a member of the Board of Directors of the Mesa Verde Foundation for sixteen years, serving as the Chair for two years. While serving as the Chairman of the Board of the Mesa Verde Foundation, working with the local delegation and other key members of the Congress, the Foundation secured the funding to build a new visitor center and curatorial for Mesa Verde National Park. Additionally, she was a member of the Mesa Verde Museum Association and acted as the liaison between the Foundation and the Association for several years. For twenty years she was the hostess for an annual Christmas gala where friends, neighbors and members of the community were encouraged to make charitable contributions in the form of gift cards. This program generated thousands of dollars in contributions to the local Senior Center and needy individuals. She was a physical fitness advocate and avid reader. She volunteered as a Friend of the Durango Library and served on the Board of the Mercy Health Foundation.

In 2016, the Women's Resource Center of Durango presented her with their Extraordinary Women Award for inspiring women and girls in the community.

She and her husband, Ron, enjoyed hosting family and friends in their guest house at the B Bar J, traveling and spending time with their two sons, Rob and Bill, daughter-in-law, Deanna and grandchild, Amelia Jane.

She was interred at the USAF Academy Cemetery.

More on the Air Force Historical Foundation Awards

Air Force Historical Foundation Awards for 2023

Air Command and Staff College: the 2023 award at ACSC went to Mr. Philip R. Povolish Jr., for his paper "An Analysis of Commercial Spacepower".

Air Force Institute of Technology: the 2023 Gen Bryce Poe II award went to Captain Corey D. Mack, USAF, for his thesis "Defense Industrial Base Mergers and Acquisitions in the Post Cold War Era".

Air Force ROTC: the 2023 award went to Cadet Daniel Ferenczhalmy of AFROTC Det 025 at Arizona State University.

Air War College: AWC did not select an awardee for 2023, as only one student was nominated, and in AWC's opinion his/her thesis didn't meet the intention of an AFHF award.

Royal Air Force: selection of the AFHF award to an RAF officer, called the Two Air Forces Award, always occurs the year following. This year, the 2022 award went to Wing Commander M. D. A. Tobin for his paper "Reflections on the V-Force".

School of Advanced Air and Space Studies: This year SAASS named our award the "David R. Mets Award" for Best SAASS Thesis in History, presented by the Air Force Historical Foundation." In 2023, it was awarded to Maj Ryan Perhala, USAF, for his thesis "'Tactical Standoff': The Origins, Development, and Evolution of the Hellfire Missile".

U.S. Air Force Academy: the 2023 award went to C1C Cole J. Coppess for his paper entitled "The DH. 4: The Foundational Combat Aircraft for the United States". It is published in this issue. Starting in 2024, the AFHF award will be named the "Col. Wayne C. Pittman, Jr. Award for Excellence in Airpower History", in honor of Col. Wayne Pittman, Jr., USAF-Retired, a member of the first USAFA class, an RF-4C WSO and Silver Star awardee, and a life member of AFHF.

Foundation News Clips

The inaugural edition of the AFHF Newsletter, Raider Chronicles, has been published and is available on our website at **https://www.afhistory.org/research/newsletter/**. The Newsletter name harkens to the history and courage of those intrepid Airmen who took part in the 1942 Doolittle Raid, and the future evolution of our forces seen in the promise of the B–21 Raider weapon system. Our editor, Col Eileen Bjorkman, USAF (ret), has done a wonderful job assembling a combination of history and AFHF news for all to enjoy.

The Official Podcast of AFHF—Know the Past...Shape the Future—is now available on our website and wherever Podcasts can be found. Listen to stories and histories of aviation and space exploits told by those who lived them. Keeping Air and Space history alive for everyone who studies, has participated in, or dreamed of the amazing backstories of aerospace. From the B–17 to the Space Shuttle – from the birth of unmanned aircraft to the reality of today's MQ–9 – AFHF has the lineup for you! Hosted by Eward R. Murrow Award winning journalist and our War Stories host, Matt Jolly, the first release is now available with many more to come. You may access the Podcast at this link: **https://www.afhistory.org/podcast/**

Information on the upcoming Awards Banquet and registration can be found on our web site at: **https://www.afhistory.org/events/**

Know the Past…Shape the Future!

https://www.afhistory.org/support/become-a-member/

Job Announcement for Journal Editor

The Journal of the Air Force Historical Foundation expects that its Editor will be retiring at the end of 2025. To ensure that there is sufficient continuity to allow for a peaceful handover of all of the functions, the AFHF would like to proceed through the hiring process during 2024. Currently, a job description is being constructed to enable the hiring process to proceed. That should be available to interested applicants on or about the end of March 2024. Interested parties should send expressions of interest or requests for the job description to the Executive Director at **xd@afhistory.org**.

From the Editor

We start off this Spring issue with an article by one of our regular contributors, William P. Head, as he tells the story of the siege at Ben Het in South Vietnam.

Our second article is by a new contributor, Larry L. Burriss, who submits the story of the Tennessee Air National Guard supplying airlift for Operation Provide Promise in Bosnia..

Our third article is by another new author, Charles J. Sheehan, who submits the World War I diary of his grandfather, Charles Fahy, and some notes on his susequent career.

Our fourth article is by our USAFA cadet Best Article Award winner, 2d Lt Cole Coppess, who writes about the DH. 4 in World War I.

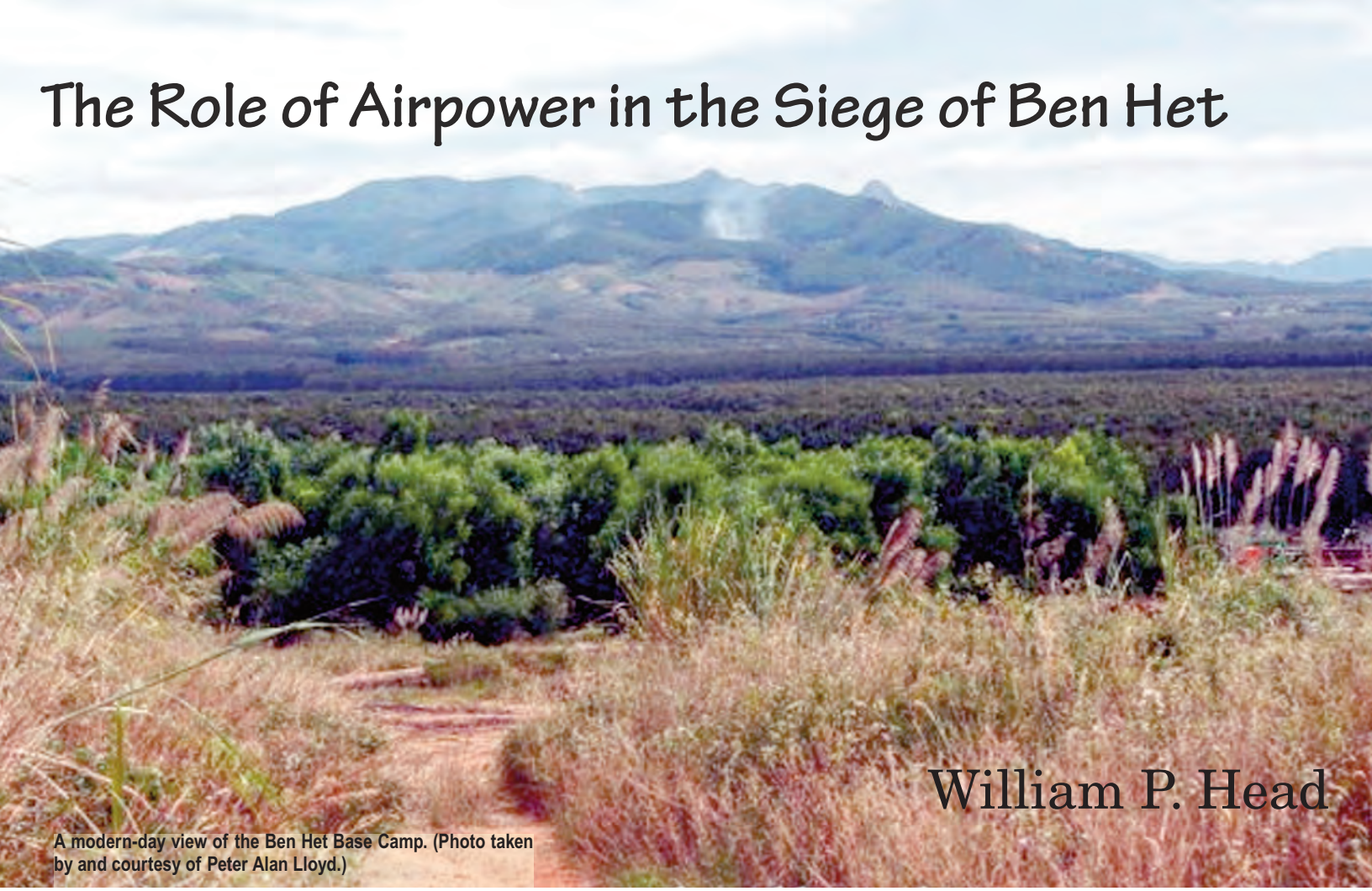
Our fifth and final article is by a Ph.D. candidate at The Ohio State University, Christian D. McCall, whose story is about the bombing of the Chubu region in Japan in World War II.

The Leadership's Message can be found on page 3. It's worth the read to keep you abreast of our changes. We also have coverage of the Annual Awards on page 5. Don't miss Upcoming Events on page 70. The sad passing of "Miss Jane" Fogleman is observed on page 4. And the issue closes with the Mystery. Enjoy!

Richard I. Wolf, Editor

The Role of Airpower in the Siege of Ben Het

William P. Head



A modern-day view of the Ben Het Base Camp. (Photo taken by and courtesy of Peter Alan Lloyd.)

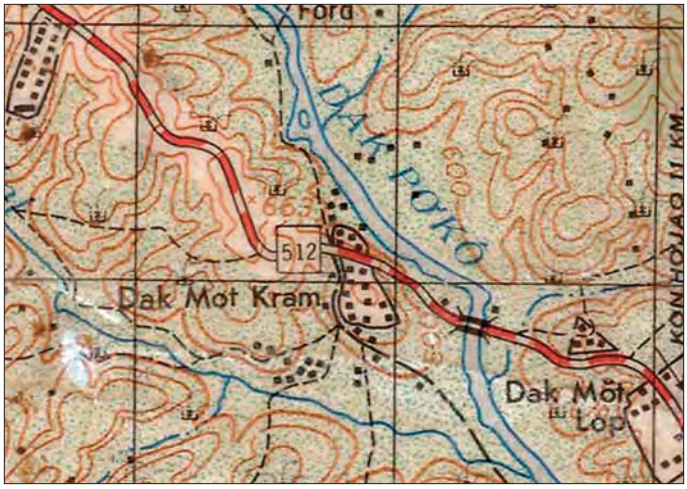
Anyone who studies the United States' (U.S.) war in Vietnam has heard of, and probably recalls, many of the details of the Siege of Khe Sanh. It was officially fought during the first six months of 1968. Begun concurrently with the infamous Tet Offensive, many experts believe these two combat events had a great deal to do with initiating both the American anti-war movement, and the U.S. withdrawal from Vietnam. However, it was not the only outpost to fall under siege by North Vietnamese Army (NVA) forces; nor the last. Roughly a year later, another outpost, known as Ben Het, came under siege. This was also near the co-joined Vietnamese, Laotian, and Cambodian border area. It was aimed at an Army Special Forces camp which was different than Khe Sanh which had been manned by Marines. It too would successfully withstand a determined attack by a large enemy force and survive due to aerial resupply, B–52 Arc Light raids, tactical airpower, and the heroic soldiers who defended the outpost.

The Battle/Siege of Ben Het was one of the many bloody engagements experienced by the U. S. military during the Vietnam War. This battle was fought around, the aforementioned Special Forces camp which had been built in 1966 and was composed of a main hill and two satellite hills. American artillery was placed on top of each and was designed to interdict enemy units, supplies, and vehicles traversing the Ho Chi Minh Trail. There was also an airstrip just outside of the base perimeter used mostly when NVA or Viet Cong (VC) units were not besieging the camp. Much like the Marines at Khe Sanh, Army and Allied units were sent there to monitor communist infiltration along the network of routes near the camp and act as a "reconnaissance and lookout post to keep an eye on enemy traffic along this intricate series of roads and footpaths. This meandering logistics and infiltration route wound through the mountains and jungles of Laos, near the Ben Het camp before one main branch exited Laos into Vietnam."[1] The 5th Special Forces Group, Detachment A-244 was the primary unit stationed at Ben Het. The base was located approximately seven miles from the tri-border area, nine miles northwest of Dak To and 33 miles northwest of Kontum.[2]

Introduction and Background

By the spring of 1968, the hill top Specials Forces outpost was defended by artillery, anti-aircraft guns, ground attack weapons, M48 tanks, and U.S. Special Forces troops. Also present were local native peoples known as Montagnards. Together they faced between 1,500 to 2,000 North Vietnamese Army regulars and a several hundred main force Viet Cong.[3]

Ben Het camp map.



An area battle map.

During the final three years of America's involvement in the Vietnam War, Special Forces units occupied six A-Camps along South Vietnam's mountainous western border in the Central Highlands. These included Bu Prang, Duc Lap, Duc Co, Dak Pek, Dak Seang, and Ben Het. At one time or the other, each one of them was attacked and besieged by the NVA which sought to remove these impediments to their resupply efforts.[4] Ben Het itself, was situated on a barren mountaintop in the Central Highlands and was the westernmost of the camps. As noted, it also had its own adjacent airstrip. It proved to be strategically important because it was located only eight miles east of the point where Laos, Cambodia, and South Vietnam tri-border area. As alluded to, from the outset, Ben Het was manned by Special Forces A-244 A-team forces commanded by Captain Louis Kingsley.

Many of the Montagnard tribesmen defenders were joined by their families. The site was almost exactly 288 miles northeast of Saigon. While it was a formidable defensive position, it was also an inviting target for enemy forces. Like Khe Sanh, it was of tactical and strategic value. Eventually, it was just too tempting for the enemy to pass up and, on March 3, 1969, 2,000 NVA troops, supported by tanks and artillery, initiated a sudden and unforeseen assault that, eventually, surrounded the 250 U.S. soldiers and 450 South Vietnamese Civilian Irregular Defense Group (CIDG) defenders. Ultimately, what evolved into a siege, lasted until July 2, when the camp guardians were reinforced by Allied relief units. At the same time, enemy artillery units at a well-hidden position, known as "Area 609," inside nearby Cambodia, employed Howitzers on rails that allowed the guns to be run back into caves shuttered with metal blast doors to protect them from air strikes. The camp itself, also known as a Ranger Camp or Fire Support Base (FSB), was the location of one of the few battles between U.S. Army troopers and regular People's Army of Vietnam (PAVN) units during the Vietnam War.[5]

Dr. William P. Head is Chief, 78th ABW History Office, Robins AFB, Georgia. He received his Ph.D. in U.S. diplomatic history from Florida State University in 1980. He has fourteen book-length publications to his credit. His most recent book is Storms over the Mekong: Major Battles of the Vietnam War *(Texas A&M, 2020). For his work* Shadow and Stinger: The History and Deployment of the AC–119G/K Gunships *(Texas A&M, 2007), he received the AFMC Book Award and won the Frank Futrell Air Force-level prize. He also wrote* Night Hunters: A History of the AC–130s and their Role in U.S. Air Power *(Texas A&M Press). Dr. Head has authored forty articles and a like number of book reviews in such journals as* Air Power History, Virginia Review of Asian Studies, Journal of Third World Studies, Journal of Military History, *and the* Journal of American History. *He has made presentations on Modern Military, air power, Asian and American history to 106 scholarly meetings over the past thirty years.*

The NVA Attacks Begin

In late February and early March 1969, Allied leaders had become increasingly concerned about the buildup of enemy units around Ben Het and decided to place anti-tank mines under the roads surrounding the camp in preparation for a potential NVA armored assault. Most of those stationed in the camp were leery of the situation and what might happen next. As it turned out, their premonition of a tank attack was right. During the pitch-black night of March 3, the well-hidden NVA artillery fired nearly 650 rounds into the camp. This was followed by a battalion-size incursion by troops of the 66th NVA Regiment supported by numerous BTR-50 Armored Personnel Carriers (APCs) and ten PT-76 tanks from the 4th Battalion, NVA 202nd Armored Regiment. The strike originated from the west side of the base.[6] This was only the second time the NVA had deployed tanks in conventional pitched battle.[7]

On the perimeter was a well dug in CIDG Company

Soviet-built PT-76 tank.

An AC–47D in Vietnam also known as "Puff the Magic Dragon."

supported by numerous U.S.-built M48 Patton tanks. In command of the camp defense was the A-team's Executive Officer (XO) 1st Lt. Michael D. Linnane. Among the defensive units were two Green Beret squads and two other CIDG companies, A-242 from Dak Pek and A-246 from Mang Buk. Spearheading the attack were NVA tanks which inadvertently charged into the minefield destroying two of their tanks and notifying the camp's occupants the enemy was upon them. As the enemy armor advanced one PT-76 shell hit a U.S. tank and killed two crewmen. The burning tanks lit up the night like fireworks on the fourth of July. In addition, the camp's defenders launched several flares further illuminating the attacker's positions against the nighttime sky all across the surrounding countryside. As the increasing firefight continued, both sides targeted the other side's muzzle flashes in order to target the opposition's tanks. In turn, a Mobile Infantry Strike (MIKE) Force unit; the 1st Battalion 2nd Mobile Strike Force, arrived to support the defenders.[8]

As things became increasingly intense, the defenders called on their secret weapon American airpower. Specifically, Allied commanders called for an air assault by an AC–47D *Spooky* fixed-wing gunship. On that first night, AC–47s flew thirty sorties spraying the surrounding area just outside of the perimeter. As dawn broke, the battle subsided revealing the carnage. The two NVA tanks destroyed the previous night were particularly noteworthy. So overwhelming was *Spooky's* firepower that it forced the attacking NVA forces to halt their advance, not only during that first night, but every other succeeding time they attacked. In spite of the damage done to the outpost, the camp defenders survived this initial assault.[9]

Years later, then retired Major Linnane recalled that while most people don't think of tank battles when considering the history of the Vietnam War, "there was tank-versus-tank action in the Vietnam War. Not exactly on the scale of the Arab-Israeli wars, but when you're the one being shot at, you're dealing with a significant action." In this engagement, the PT-76 lightly-armed amphibious tanks, with 76.2 mm D-56T rifled tank guns, faced U.S.-built M48 Patton tanks, with 90 mm M41/T139 tank guns. As dawn's light broke, it revealed devastation in every direction. Two of the wrecks were PT-76, and one was an M48. While it was a tactical draw, the enemy had been beaten back and the camp was still there.[10]

M48 Patton tanks like this one defended Ben Het.

The Struggle Turns into a Protracted Siege

Spectacular and harrowing as it had been, this massed armor attack was only the first phase of what would become a protracted engagement. Following this initial engagement, the conflict evolved into a siege. The heavy rains and the resulting muddy roads, brought on by monsoon showers, slowed the tempo of the fighting causing both sides to dig in. Beginning in April and continuing until early July, the ranger camps near Ben Het and Dak To withstood repeated shelling and intermittent assaults by infantry units of the 28th and 66th NVA Regiments. Throughout, the surrounding mountain tops were often obscured beneath thick cloud cover and the triple canopy jungles which shrouded these rugged peaks surrounding Ben Het. The roads were blocked in several places, and the NVA assumed positions to fire on aircraft attempting to use the airstrip.

One of the PT-76s destroyed on the first night.

The enemy's close proximity limited aerial resupply and forced the C–7 *Caribou* tactical cargo aircraft to employ parachute drops to deliver their loads into the Special Forces Camp. When an aircraft had to land, they relied on Close Air Support (CAS) from fighter aircraft in order to stop the incessant ground fire. Standard tactics called for A–1 *Sky Hawk* fighter-bombers to strafe and bomb the surrounding NVA hilltop positions to force their gun crews to halt their firing. Subsequently, Forward Air Controllers (FACs) guided each C–7 into the camp's landing strip. This, in turn, was supported by numerous F–4 *Phantoms* which silenced enemy Anti-Aircraft Artillery (AAA) fire. Frequently, tactical aircraft dropped smoke canisters just before the C–7s made their final approaches. This worked for a while, but by late June, with one last battle in the offing, the C–7s could no longer land, and supplies could only be airdropped. In spite of these problems, 200 tons of provisions arrived between June 10, and the end of the siege in early July. To facilitate air drops, CDIG camp defenders ventured from the camp to root out enemy troops in the surrounding countryside before Allied aircraft landed or made air drops.[11]

Standard Operating Procedures

Nearly every day from April until the last big engagements in June, enemy artillery units fired dozens of shells into the camp often in preparation for some kind of probing attack. Some of these assaults grew into bloody firefights. Indeed, the last actions grew into unyielding three or four hour firefights one in which an American was killed and a half-dozen more wounded.

Throughout the siege, the NVA deployed 1,500 troops into the surrounding vicinity. Prior to the last engagement, they even dug zig-zag trenches and tunnels under the north hill of the camp beneath all three barbed wire expanses and reached the bunkers of the outer perimeter defenses. During one wave of attacks, they used loudspeakers to try and convince the CIDG to surrender. They broadcast, in English and Vietnamese, that Ben Het was about to be the Americans' "Dien Bien Phu." They followed their message with a barrage of artillery and mortar shells.[12]

The Americans and ARVN Fight Back

Even as the U.S. countered these incessant attacks with B–52 strikes that dropped 340 tons of bombs, at a time, on the area around the camp, leaders realized they had to open the roads to both Dak To and Kontum. The camp was running low on ammunition, especially illumination rounds. Besides, in the summer of 1969, this and other battles, had political implications, being the first tests of President Richard M. Nixon's "Vietnamization" policy. Thus, it fell to Army of the Republic of Vietnam (ARVN) troops to clear the main road network. While this process began well enough, it soon bogged down, requiring the ARVN commander to request reinforcements.

He received four infantry battalions with half of the armor from the II Corps. An American battery of 175mm guns, along with a battalion of 105mm howitzers, numerous helicopters as well as tactical air strikes and B–52 assaults augmented these additional forces.[13]

The Days in Between (April to June)

In order to grasp the constant strain of the battle on the defenders it is worth following the daily reports, by the defenders, to higher headquarters. Even as they came under siege in late April and early May, Military Assistance Command, Vietnam (MACV)'s official history, recalled "intelligence indicators pointed to a buildup of NVA Forces in the Dak To/Ben Het Area. It was discovered that two NVA Infantry Regiments and major portions of an NVA Artillery Regiment were present to the south of Ben Het, Fire Support Base (FSB) 6 and Dak To. The target appeared to be Dak To." This proved to be preparations for yet another feinted attack on the Allied defenses at Ben Het.[14]

To deal with this, on May 24, 1969, "the 24th Special Tactical Zone (STZ) set up a Combined Tactical Operations Center (CTOC) at FSB 1 in Dak To, in order to control the troops being inserted into the area to counter the NVA threat. The Commander of the 1st Battalion 92nd Field Artillery Regiment (1/92), LTC Nelson Thompson was designated the Fire Support Coordinator for the Dak To/Ben Het area of operations." The official record indicated that, "The Dak To Combined Fire Support Coordination Center [FSCC] under his command was to control" not only the fire support of American, but also all ARVN artillery in the area. In fact, "This would eventually evolve into the equivalent of one Battalion Group; forty-one tubes of Field Artillery and six Air Defense Artillery twin 40mm M-42s." Further, members of the FSCC coordinated all aerial missions such as B–52 strikes, sky spots sorties, and helicopter gunship attacks. As it turned out, from May 4 to July 8, they directed over 50,000 rounds of artillery, 1,100 FAC sorties, 989 tactical air strikes, 533 combat sky

B–52 Arc Light bombing raids like this one were employed at Ben Het.

spots, and 142 B–52 strikes. Last, but not least, the 24 STZ "employed 19 maneuver battalions, with as many as nine battalions committed at one time." In total, "This same period saw friendly elements kill more than eighteen hundred NVA troops."[15]

As the siege tactics on both sides changed and adapted to the unfolding combat events, as well as the "growing complexity of the organizational situation," leadership decided, on June 9, to create a Battalion Group. While the primary Forward Command Post (FCP) remained at Dak To, the 6th Battalion, 14th Artillery Regiment (6/14) established an auxiliary FCP at Ben Het. The Commanding Officer (CO) of the 1/92 Battalion Artillery became the Battalion Group Commander. Throughout this period of operations, both FCPs came under intense enemy fire from B–40 rockets and 75mm recoilless rifle fire as well as sapper attacks. As recorded in the official history:[16]

During June 1969, Ben Het was surrounded by a large number of well-armed and well dug-in NVA. The NVA had the firing data for the airfield and for all established helicopter pads. When an aircraft attempted to land, it not only received small arms and automatic weapons fire, but also immediately upon landing was subjected to mortar and recoilless rifle fire. Large NVA Forces effectively cut the road to Ben Het, and aerial resupply was essential.

As May faded into June, these patterns of strike and counter strike continued with the enemy lobbing multi-various rounds into the camp every day. While most of the casualties were wounded to one degree or another, some died during this gallant and determined stand to preserve the Camp on top of the three hills. During the battle, "the 1/92nd Artillery's, Battalion Surgeon not only took care of the sick and wounded . . . , but also with personnel from Headquarters Battery made fourteen MEDCAP visits. Six hundred and sixty six villagers were also provided general medical care." Between May and October 1969, Battery A, 1/92 Artillery suffered more than 60% casualties. Some were awarded more than one Purple Heart. Among the other medals awarded to this single unit were: One Legion of Merit, 14 Bronze Stars with V for Valor, 10 Bronze Stars, an Air Medal, 67 Army commendations Medals with V for Valor, 10 Army Commendation Medals, and 44 Purple Hearts. The unit received: "The Valorous Unit Citation with streamer embroidered Dak To/Ben Het, for service from 4 May 69 thru June 69." In one sobering part of the unit's history was a list of Battery's Killed in Action (KIA) and Wounded in Action (WIA), from Dak To/ Ben Het, which was recorded in "the Diary of Judge Bobbie Joe Pope." Seriously wounded at Dak To, Pope was a SFC in Battery A, 1/92. He retired from the Army with the rank of Sgt. Major. The list included, below: [17]

Casualty roster from *The Diary of Judge Bobbie Joe Pope*

May 11-PFC Ronald J. Carter-KIA,	June 4-PFC William Burgess-KIA
May 11-PFC Smith-WIA,	June 4-SP4 Guadalupe Guerrero-WIA
May 12-PFC Louis C. Bustamante-WIA,	June 4-PFC David L. Hanson-WIA
May 12-SSGT Donald Kraft-KIA (died on May13),	June 4-PFC David Porter-KIA
May 13-Bell-WIA,	June 4-PFC Jeffry D. Wood-WIA
May 13-Dunbarr-WIA,	June 9-PFC Franklin Austin-WIA
May 13-PFC Theodore Chimeloweic-WIA,	June 9-PFC Donald Hettervik-WIA
May 13-SP4 Thomas M. Connell-KIA,	June 9-PFC David A. Hughes-WIA
May 13-PFC Thomas Davis-KIA,	June 9-SP4 Joaquin M. Martinez-WIA
May 13-PFC William L. Gould-WIA,	June 9-SP4 Jose A. Pagan-WIA
May 13-SP4 Herald-WIA,	June 9-Richardson-WIA
May 13-PFC Leland K. Payne-WIA,	June 17-Talbot-WIA
May 13-PFC Roy C. Pharr-WIA,	June 23-Bailey-WIA
May 13-SGT. John S. Plonka-WIA,	June 23-Bober-WIA
May 13-SP4 Pope-WIA,	June 23-Chamber-WIA
May 13-PFC Michael Shingleton-WIA,	June 23-Connell-WIA
May 13-PFC Charles H. Webster-WIA,	June 23-LT. Johnson-WIA
May 13-PFC Lynn J. Wieser-KIA,	June 23-PFC Joe Martinez-WIA
May 15-PFC Lawrence G. Howard-WIA,	June 23-SP5 Wayne T. Mitchell-WIA
May 15-Kinney-WIA,	June 23-PFC David W. Metz-WIA
	June 23-SFC Bobbie Joe Pope-WIA

Another destroyed PT-76.

Duck and cover from another artillery round.

Key Events at the End of the Siege

Among the hundreds of other official reports and news articles regarding Ben Het were ones coming from *Stars and Stripes*. Given the publication's reputation one might speculate about the article's veracity. However, at least in following cases, the accounts were very accurate. One, dated June 3, described a NVA attack by forces "moving under cover of a mortar barrage, which attacked the South Vietnamese district headquarters at Dak To." The reporter stated that "Initial reports said two South Vietnamese were killed and four wounded and the headquarters sustained 50 percent damage. The NVA losses were not known." He went on to recall that, a South Vietnamese spokesman said "one ARVN regiment and two Ranger Battalions, perhaps as many as 2,000 troops are sweeping the hills around Dak To as part of Operation Dan Quyen translated as 'People Rights.'" The aim is to take growing pressure off Dak To, where field reports say the NVA are again massing their forces from bases in Cambodia." In addition, "The spokesman said he had no cumulative casualties for the operation around Dak To, but in three days of fighting a week ago 216 NVA and 47 Government troops were killed." American intelligence reported that, "Another 117 Government troops were wounded . . . [and] that 45 NVA Battalions are in the Highlands. A total of 52,000 NVA and Viet Cong are against 89,000 Americans, Koreans and South Vietnamese."[18]

As officials later discovered, this was, in fact, the enemy buildup for its final attack. In the meantime, the Allies delivered massive amounts of firepower against the heights surrounding Ben Het which stripped away much of the triple canopy jungle. Even so, most of the enemy's tunnels withstood the shelling and airstrikes unscathed. In turn, "ARVN troops succeeded in getting a convoy over Road 512, from Dak To into Ben Het on 24 June but it took heavy fighting most of the way to do so. Just outside the A-Camp U.S. engineers clearing mines were ambushed by the NVA, suffering heavy casualties." Soon after, they reported on "another convoy trying to make it into the camp which was badly shot up." Next, "another Mike Force company was tasked to air assault into the camp to help stem the tide. The NVA stepped up the artillery fire on the base dropping nearly 450 rounds into the camp wounding nine Americans." The USAF countered with Arc Light attacks by sixty B–52s dropping 1,800 tons of bombs.[19]

B–52s Saturate the Terrain around Ben Het

Another news report elaborated on the B–52 Arc Light raids around Ben Het. Relevant to this story, it stated that U.S. B–52 bombers dropped "hundreds of thousands of pounds" of mostly 500-pound iron bombs on "NVA Troops concentrations threatening the Allied Specials Forces camp at Ben Het." A military spokesmen said, "The B–52s struck in two raids Tuesday night and early Wednesday, dumping their bombs on targets in jungles about three miles south and two miles north of the Special Forces Camp, 285 miles Northeast of Saigon." He went on to reveal that, "Reverberations from at least 180 tons of bombs rolled over the beleaguered outpost, which sits near the South Vietnamese, Cambodian and Laotian borders." Officials also reported that following the raids, "Allied troops at the Special Forces Camp were resupplied by truck convoy but remained under pressure from NVA gunners." They went on to state, "there had been continuing battles with NVA troops in the jungle. . . [and] that at least 183 NVA soldiers were killed around the outpost in a series of firefights." [20]

A follow up statement from a South Vietnamese representative said "a government infantry battalion, backed by U.S. air and artillery attacks, killed 105 NVA troops about three miles northeast of Ben Het. Most were killed by artillery." At this point, the Camp was still defended by twelve U.S. Special Forces advisers, 189 U. S. artillerymen, hundreds of South Vietnamese regulars, and CIDG forces. On the 26th, they had been resupplied by a U.S. convoy guarded by Allied troops from Dak To, driving west along Route 512. Apparently, "NVA troops destroyed one of 11 trucks in the convoy and wounded two U.S. Army Engineers and 19 Government Soldiers along the way, but the ammunition-laden trucks got through to Ben Het."[21]

Ben Het on top of the high ground.

Beating Back the Last Big Attack

As the Allies counter attacks began against the NVA's last major probing assault, reinforcements and supplies began to pour into Ben Het. Another media article reported that ARVN troops "reinforced the Ben Het Special Forces Camp, pushing out into nearby jungles where NVA artillerymen have been firing at will on the outpost for nearly two months."

The Mike Strike force, of about 400 men, was flown in from nearby Pleiku and moved toward Ben Het, in the rugged central highlands. According to "U.S. Special Forces Major William Wilson, 35 of Tucson, Arizona, the threat is not really serious to the camp. They can't take it. We've got too much fire power on call. They're going to pay hell for anything they try to do to us." According to the official report, "The sweep was launched about one mile south of the camp, situated eight miles east of the tri-border region with Laos and Cambodia. Only scattered contact was reported by nightfall."[22]

As this same account stated, "Ben Het, manned by U.S. Army troopers, American artillerymen, and 400 CIDG troopers, had received an estimated 5,000 enemy shells since May 6 but no major ground assaults." In turn an Army official reported "the Americans have been backed by an estimated 100 B–52 bomber strikes, along with jet fighter-bomber, helicopter gunships and artillery support from a half-dozen nearby bases in the Dak To valley." An Army spokesperson reiterated, "The Mission of the Ben Het camp is to guard the tri-border area, protect the valley and interdict enemy supplies and communications." Another U.S. official stated, "I think things are cooling down." According to Colonel Alexander Weyand, 40, of El Paso, Texas, a West Point Graduate, "We may be through the heaviest part, we are starting to get convoys through on the road." This report went on to confirm the earlier recounted fact that "a nine-truck convoy fought its way into Ben Het. Two Americans died during the eight mile trip from Dak To, the last section of which has become known as the 'SUICIDE MILE' because of the heavy fire from NVA forces in jungles along the road, known as Route 112." As if to present the Americans with one last reminder they were not defeated, only pulling back, as June ended, the NVA hurled 117 rounds of artillery and mortar shells into Ben Het.[23]

Now, with U.S. support, ARVN troops in their first real test of being on their own, poured troops in, to push the NVA out once and for all. At this decisive point in the battle, seven ARVN battalions joined the two American-led Mike Force battalions totaling close to 4,000 personnel. In turn, more ARVN troop convoys continued to move between Road 579 and Road 512, in the ensuing few days and the ARVN multitudes systematically cleared the NVA out of the areas around the camp. Even though the enemy was bloodied, they were not defeated. However, their

B-52s like this one flew many Arc Light sorties during Ben Het.

attempt to take Ben Het was over. At this moment, as they had so often in the past, they faded back into jungle, into their Cambodian sanctuaries, living to fight another day. And so they would. In August, these same NVA regiments would besiege the Special Forces A-camps at Bu Prang (A-236) and Duc Lap (A-239).[24]

The Battle Ends! What was the Result?

On July 2, officials declared the siege of Ben Het was over. As the NVA retired, U.S. engineers rebuilt and improved the Camp at Ben Het making sure to reinforce and improve all the bunkers. As they did, higher headquarters stopped to take stock of the combat. They reported that one Army Green Beret was killed and sixteen wounded. In turn, one South Vietnamese Special Forces member was killed and seven others wounded; 15 ARVN soldiers were killed and 70 wounded, and 52 CIDG strikers were killed and 141 wounded. In addition, 23 civilians were killed and 11 wounded. Casualties among U.S. artillerymen was high with 7 killed and 33 wounded.[25]

On the surface, Ben Het's continued existence proved to be a major political victory, one of the few experienced by the South Vietnamese Government and President Nixon's Vietnamization Program. And, why not? After all, the Fire Support Camp and Special Forces defenders had defeated every attempt to push them out, even when the NVA brought tanks into the wire. While the American Special Forces, artillerymen, and armor units fought a determined and courageous engagement, to those who knew, it showed the ARVN had a long way to go before they were actually self-sufficient.

Meantime, Southern leaders hailed it as a great victory because the defenders of Ben Het fought off the attacking NVA and VC. In reality, the result of the siege proved that those at Ben Het were really powerless to stop the NVA from infiltrating into Vietnam from Cambodia along the Ho Chi Minh Trail. In fact, during the next many months the flow of supplies and troops increased rather than shrank. In addition, the NVA consistently were able to beat back the CIDG strikers when they ventured forth from the Ben Het camp. This meant that the local forces were never able to affect the NVA as the ARVN and Government leadership had envisioned.[26]

In Summation

In looking back, with the first NVA assault on Ben Het, the Allies acted to save their outpost in order to prove that, left alone, the South Vietnamese could succeed and defeat the enemy. However, beginning in April 1969, the camp was besieged, for months, by Northern soldiers and the Viet Cong, who seemed impervious to both massive B–52 strikes and the limited effectiveness of the South Vietnamese Army who were tasked with rooting out the NVA from the surrounding countryside. Ultimately, rather than decisively defeating NVA forces, the ARVN, heavily supported by American airpower, temporarily delayed defeat and left their NVA attackers in the surrounding jungles and mountains just out of sight. Many enemy soldiers slipped back to their nearby safe havens of Laos and Cambodia. When Allied patrols and airborne reconnaissance found no sign of the adversary, U.S. commanders officially declared the struggle for Ben Het

C-7s like this one proved vital to resupplying Allied forces at Ben Het.

was over. Since they had held their ground and reported a large enemy body count they stated it had been a "great victory." Perhaps it was in tactical terms. However, as for winning the war or stopping the torrent of supplies and forces down the Ho Chi Minh Trail it had achieved next to nothing.

After the Battle

Much like the American's withdrawal from Khe Sanh, soon after Ben Het was secured, U.S. forces left. Unlike Khe Sanh, which was occupied by the NVA, Ben Het was taken over by the ARVN's 85th Border Rangers. In January 1972, it became clear PAVN units were, again, building up for offensive operations in the tri-border region. With additional ARVN forces having been deployed forward, toward the border, in order to slow any sort of the PAVN advance and allow the application of airpower to deplete North Vietnamese manpower and logistics, it seemed like ARVN troops were ready for anything. To counter a possible threat from the west, two regiments of the 22nd Division were deployed to Tan Canh and Dak To. The 1st Squadron, 19th Armored Cavalry Regiment, equipped with U.S.-built M41 tanks, deployed to Ben Het. On April 24, 1972, the 2nd PAVN Division, elements of the 203rd Tank Regiment, and several independent regiments of the B-3 Front attacked both positions, quickly overrunning both bases with their more modern Soviet-built T-54 tanks. On May 9, 1972, elements of the PAVN 203rd Armored Regiment assaulted Ben Het. ARVN Rangers destroyed the first three PT-76 tanks with BGM-71 Tube-launched, Optically-tracked, Wire-guided (TOW) missiles, thereby breaking up the attack. The Rangers spent the rest of the day stabilizing the perimeter, ultimately destroying 11 tanks and killing 100 PAVN. While this temporarily saved South Vietnam, three years later, the South fell and the land where the Camp had been became farmland and public housing.[27]

Some Final Thoughts

In the June 30, 1969 edition of the *New York Times*, reporter, Blackstone Drummond Ayers, Jr., described the siege at Ben Het as, "An Ordeal in Dirt and Death… Ben Het at night is a scene that is at once beautiful and fascinating, weird and horrible. Dali, Goya, Bach, The Beatles, Hemingway and Zanuck would understand. Flares hang in the sky, casting milky, light purple shadows. A plane drones and circles overhead, periodically spitting streams of fiery tracers at enemy positions." Seldom have words, alone, so poignantly described an episode during the Vietnam War. As author Peter Alan Lloyd later stated "perhaps no besieged, ragged, jungle-matted mountain locations other than Ben Het, Dak Seang and Dak To could have inspired them." Due to these outposts' "proximity to the tri-border and Ho Chi Minh Trail this was no doubt some of the most important terrain fought over in the Central Highlands."[28]

Epilogue

From 1969 to 1973, the area near Ben Het was high on the list of NVA targets of opportunity. For those entrenched at Ben Het from May through July 1969, facing the con-

stant onslaught of enemy combat forces, the Special Forces troops, artillerymen, quad-mount anti-aircraft gunners, M48 tank crews, and reinforcing companies of CIDG strikers from the camps at Dak Pek and Mang Buk, bore the brunt of these attacks and, somehow, hung on. None of this would have been possible without the dedicated support of American airpower that included B–52 Arc Light raids, tactical aircraft attacks, re-supply sorties by tactical cargo aircraft, and night time missions by fixed-wing aircraft; *Spooky*. While this was true throughout the war, nowhere was it more clearly demonstrated than Ben Het, with the possible exception of Khe Sanh. During most engagements by American and ARVN ground forces they most often had to rely on CAS or Aerial Interdiction to sweep the mountainous jungle battlefields in order to survive.

Many years later, Lloyd traveled to Vietnam on a research trip for a two volume book series he was composing. As he recalled one of the most significant places through which he travelled proved to be the remote tri-border area. Here he visited several of the nearly forgotten battlefields and base camps fought over in the course of the Vietnam War. Not surprisingly, one of the most important spots was the desolate heights where the American Special Forces outpost was located near Ben Het. As noted, it was the location of one of only a tank battles between the NVA and U.S. forces during the Vietnam War. At the time, those involved saw it as a desperate fight for the very heart and soul of the war. Ironically, during Lloyd's travels, "unless you had an experienced guide, you would never find it, as there are no signposts or other markers to denote the camp's location." He did find the site and did write an important, multi-volume book recounting the struggle for Ben Het. The point is that not only have many Americans forgotten Ben Het and, even, Khe Sanh, but so have most Vietnamese. It certainly seems that any article or book recalling the war is, to this day, important in order to help leaders and residents in both nations from repeating history's tragic mistakes as well as preventing desperate battles that cost the lives of so many young soldiers, sailors, airmen, and civilians. ■

NOTES

1. CHECO Report, by Ernie S. Montagliani, "The Siege of Ben Het," HQ PACAF, Directorate, Tactical Evaluation, 7th Air Force, 1 Oct 69, pp. 1-4. The original was a Secret Report. It was declassified by AF/HOH on 18 Jul 2008. It is in the Air Force Archives file K717.0414-8, [here after CHECO Report, Ben Het]; Peter Alan Lloyd, "Vietnam War Battlefields: Visiting Ben Het Special Forces Camp, Vietnam," http://peteralanlloyd.com/visiting-vietnam-war-battlefields-ben-het-special-forces-camp-vietnam/. This was research for his books, volume I, *Back: Across the Fence*, and volume II, *Back: Into the Jungle*, (Berkeley, California: PAL Publishing, March 2013), [hereafter Lloyd Article].
2. CHECO Report, Ben Het, pp. 1-4; Shelby Stanton, *Vietnam Order of Battle*, (Mechanicsburg, Pennsylvania: Stackpole Books, 2003), p. 246, [here after *Order of Battle*]; Michael Kelley, *Where We Were in Vietnam*, (Missoula County, Montana: Hellgate Press, 2002), pp. 5-49, [hereafter *Where We Were*].
3. Lloyd Article. According to Army official records, the M48 *Patton* was a first-generation main battle tank introduced in February 1952. It was designated as the 90mm Gun Tank; main armament a 90mm M41/T139 gun. It replaced the M26 *Pershing*, M4 *Sherman* and M46 *Patton* used in the Korean War, and the Cold War M47 *Patton*. It had a M48/M48A1 Continental AV1790 V12 air-cooled gasoline engine with 650 horse power. It weighed 49.6 short tons and in the 1960s cost $309,090, equivalent to $2,676,830 in 2020. It had a crew of four including a commander, gunner, loader and driver.
4. *Ibid*.; CHECO Report Ben Het, pp. 16-19; Steve Balistreri, "Battle for Ben Het Special Forces A-Camp, 23 June 1969," Special Operations Forces, U.S. Army, https://sofrep.com/specialoperations/battle-ben-het-special-forces-camp-june-231969/. 23 Jun 2017, [hereafter Battle for Ben Het].
5. Lloyd Article; Stanton, *Order of Battle*, pp. 244-246. See CHECO Report Ben Het, Figure 1.
6. Balistreri, The Battle of Ben Het; Lloyd Article.
7. Article, History.com Staff, "Vietnam War, 1969, North Vietnamese encircle Ben Het," http://www.history.com/this-day-in-history/north-vietnamese-encircle-ben-het.
8. Balistreri, The Battle of Ben Het; Lloyd Article.
9. Lloyd Article; CHECO Report, Ben Het, pp. 13-15.
10. Article, by Harold C. Hutchison, "Green Beret describes harrowing tank attack during Battle of Ben Het," *We are the Mighty*, January 28, 2019, https://www.wearethemighty.com.
11. *Ibid*.; Article staff writer, "B-52s Saturate Ben Het Jungles," *Pacific Stars and Stripes* , Vol. 25, No. 176, June 26, 1969, p. 1; CHECO Report, Ben Het, pp. 17-18.
12. Balistreri, The Battle of Ben Het; Lloyd Article.
13. Balistreri, The Battle of Ben Het; Lloyd Article.
14. History, by the United States Army, *Military Assistance Command, Vietnam, Command History*, Annex K, Kontum, 1972-73, p. K-1 through 30, [hereafter MACV History 1972-73]; Unit History, 1/92nd Field Artillery, Ben Het/Dak To, Vietnam, May—July 1969, [hereafter 1/92 History]; CHECO Report Ben Het, pp. 5-11.
15. 1/92 History; CHECO Report Ben Het, pp. 20-25.
16. 1/92 History; CHECO Report, Ben Het, pp. 20-22.
17. 1/92 History. The value of this list is how it mirrors casualty figures for all the units involved in the Bet Het action. It also reflects the dates, such as May 13, when the enemy made major attacks.
18. Report, A.P. Staff Writer (Saigon), "Artillery, Planes Beat Off Reds Attacking Dak To," *Stars and Stripes*, Tuesday June 3, 1969, [hereafter Dak To Report].
19. Dak To Report; CHECO Report Ben Het, pp. 20-22.
20. Report, U.P.I. Staff Writer (Saigon), "B-52s Saturate the Ben Het Jungles," *Stars and Stripes*, Thursday June 26, 1969.
21. *Ibid*.; CHECO Report, Ben Het, pp. 20-22.
22. Report, U.P.I. Staff Writer (Saigon), "Ben Het Reinforcements Stalk Reds," *Stars and Stripes*, Thursday June 27, 1969.
23. *Ibid*.
24. Balistreri, The Battle of Ben Het; Lloyd Article.
25. Balistreri, The Battle of Ben Het; Lloyd Article; CHECO Report, Ben Het, pp. 27-28.
26. Balistreri, The Battle of Ben Het; Lloyd Article.
27. Kelley, *Where We Were*, pp. 35–49; Simon Dunstan, *Vietnam Tracks-Armor in Battle*, (Osprey Publishing, 1992); Donn Starry, "Mounted Combat in Vietnam Studies," (Department of the Army, 1978), pp. 212-217; "U.S. Military Assistance Command, Vietnam, Command History 1972, Annex K—Kontum, 1973, MACV," p. K-14.
28. Lloyd Article.

Skis, Pigs and Airdrops: The 118th Tactical Airlift Wing in Bosnia

Mixed-use aircraft, both civilian and military, crowd the ramp at Rhein-Main Air Base/Frankfurt Airport, Germany. Different aircraft types, countries, languages and missions complicated both civilian and military operations at one of the busiest airports in Europe. *(All photos courtesy of the author.)*

Larry L. Burriss

When members of the 118th Tactical Airlift Wing, Tennessee Air National Guard, went skiing in Europe, they probably took along their good luck pigs.

Skiing? Good luck pigs?

The skiing part didn't win the aircrews any Olympic medals. But they did provide a lot of help for starving children around Sarajevo.

And the pigs? Well, they came later.

"Ski" is how you pronounce SKE, short for Station Keeping Equipment, a system used to insure the unit's giant C–130H Hercules aircraft could fly fighter-like formations at night and in clouds, then air-drop tons of food and medical supplies just where they are needed, on time and on target.

Shortly after Christmas 1993, more than sixty Tennessee Volunteers, including three aircrews and this writer, deployed to Rhein-Main Air Base near Frankfurt, Germany. They were part of Operation Provide Promise, the United Nations-sponsored relief efforts in Bosnia-Herzegovina.

On this particular night mission, Capt. Curt Bailey of Nashville was the aircraft commander for United Nations 25, an airdrop mission to Bosnia. Bailey and his crew were part of an American six-ship formation flying along with a formation of German aircraft to a drop zone near Sarajevo.

Brig. Gen. Donald E. Loranger Jr., the commander of the 435th Airlift Wing, host unit for the 118th, noted the multi-unit character of the operation, with Guard, Reserve and active duty airmen successfully coordinating with a variety of international units.

Brig. Gen. Guy Tallent, commander of the 118th, noted that as a combat unit, the mission was to deliver combat supplies and equipment. Yet in an ever-changing political world, providing humanitarian help to others would use the same techniques and training.

For some of the Tennesseans, this was their second humanitarian trip this year. For others, it would be their first experience in providing aid to others.

And why do the Tennesseans keep going back? SSgt. Gary Crawford of Smyrna said he realized how little other people around the world have but it is the children, who have little or no knowledge of the political situation that has led to their suffering. They are innocent victims.

More than one of the Tennesseans said the relief effort reminded them of the Dr. Seuss story, *Horton Hears A Who.*

One of the lines in the story goes, "A person's a person no matter how small."

The United Nations High Commissioner for Refugees estimated that between 1981 and 1991, the number of refugees more than doubled, from 8 million to 18 million. The UNHCR also estimated that each day more than 2,500 people fled their homes trying to escape war, human rights abuses and persecution.

These are the people the Tennessee Volunteers were trying to help.

This night Bailey, his crew and this public affairs officer would be delivering 14 CDS (Containerized Delivery System) bundles of food. Each bundle weighed about 650 pounds.

This mission began much like any other flight: weather checks, intelligence briefings, checking our personal survival equipment. But now, instead of one aircraft flying the not-so-friendly skies, there would be six aircraft in tight formation, at night, all maneuvering at the same time.

Coordination was obviously critical.

Part of the pre-flight activities included "study time," and no high school or college student probably studied harder than the crews preparing for this mission.

The navigator on this flight, Maj. Dave Chesser of Clarksville, Tennessee, noted there are dozens of check points, and the timing for this kind of mission is absolutely critical. Everyone has to make sure they all turn at the same spot in the sky, and the SKE equipment makes this possible.

By using SKE, the crew can keep track of what the other aircraft in the formation are doing, and when the ship in front turns, they know they have so many seconds before making the same turn.

And the crews didn't just assume that everything would work out ok: part of professionalism is knowing how to deal with the inevitable problems.

If the lead aircraft had a problem at one point in the mission, co-pilot Capt. Dan Sutton said they had one set of plans. But, if the problem occurs at another part of the mission, then a different set of options comes into play.

This mission briefing had a little something extra: the general manager of the Frankfurt Flughafen (airport), which is co-located with Rhein-Main, came by to express his appreciation to the crews. He also gave everyone small candy pigs, traditional German good luck tokens.

Capt. Dan Sutton, a C–130 co-pilot with the 118th Airlift Wing, Tennessee Air National Guard, Nashville, reviews flight plans before a humanitarian airdrop mission to Bosnia

But Bailey and his crew may have wondered just how effective the good luck pigs were when they arrived at the aircraft a couple of hours before the scheduled takeoff.

Ground crews were changing an engine, but unforeseen maintenance difficulties forced the crew to change aircraft.

But the good luck pigs were apparently still asleep, because the only available aircraft wasn't ready either, and hadn't even been fueled or loaded, and there were problems with its SKE equipment.

Nevertheless, the maintenance crew got the plane refueled, loaded and the faulty equipment fixed in less than two hours. The good luck pigs were apparently now awake and at work.

The flight plan called for all six American aircraft to taxi out at once, and to take off at 30 second intervals. We were the last ship in the formation, so we would be able to see everything that happened in front of us.

As we began to taxi out, we fell into position behind another C–130, and then briefly stopped, what looked like close enough to reach out and touch the aircraft in front of us.

As we turned onto another taxiway, more and more space opened up between us and the aircraft in front. "This is more like it," I thought as we moved toward the runway. More and more space opened up. This was getting better and better.

But then my happy thoughts were shattered as another C–130 moved in from our left, and deftly slid into position right in front of us. No one had said a word, no one flinched, and the huge C–130 Hercules were moving about not like the lumbering giants they sometimes seem, but more like lithe dancers being choreographed on a stage.

We rolled into takeoff position, and watched as the lead

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Maj. David Chesser, a C–130 navigator with the 118th Airlift Wing continually monitors altitudes, turns, times and speeds as part of a humanitarian airdrop to Bosnia. One of the Tennessee Air National Guard, Nashville-based aircraft suffered minor damage from ground fire during a similar mission

aircraft took off, followed at 30 second intervals by all the other aircraft in the formation.

Finally it was our turn, and we were accelerating down the runway, then reaching for the sky. Despite the delays and changing aircraft, we were right on time.

As we headed south towards Sarajevo, the other aircraft in the formation were clearly visible. There were six of us, in trail, and the lead aircraft was only a few thousand feet ahead. At 200 knots flying speed, the aircraft we were following was only 10 seconds ahead of us.

It got darker and darker as we flew on, and soon we were in the mountains. Tiny villages twinkled below us, patches of light in the snow.

In these picture postcard villages, families were getting ready for dinner, perhaps their second or third hot meal of the day. Perhaps some of the parents were just coming home from the market with the week's groceries. Where we were going, however, the only light was being provided by exploding artillery shells. And in the back of our aircraft was perhaps the one good meal hundreds of people would get this week.

Soon we crossed the Combat Entry Point, and it was time to put on flak vests and survival gear. And for this flight there was more equipment: helmets and oxygen masks. The drop would be conducted from more than 10,000 feet so as to avoid gunners on the ground, and the aircraft would be depressurized. We would be on oxygen for almost an hour.

On the SKE radar, the other aircraft appeared as small square blips. Now all we could see out the windows were the navigation lights. In the distance, we could see the lights of the lead aircraft begin to cross from left to right, and it was time for another turn.

All of the blips on the screen began to move to the right, and navigator Chesser began another countdown to our turn. Headings, altitudes, speeds, turn rates and seconds were all passed on as a bewildering series of numbers. Bailey and copilot Sutton took it all in, sorted it out, and in just a few seconds there was again a single line in the sky.

In the back of the aircraft, the two loadmasters, SMSgt. Richard Guthrie of Old Hickory, and SSgt. Tom McCauley, began the final checks of parachute riggings and hold-down straps.

The 14 CDS bundles were arranged in two long rows, much like cars in a freight train. Each bundle was a cube, about four feet on each side, and on the top of each bundle was a small parachute attached by a static line. At the drop point the straps would be released, the bundles would fall out the back of the aircraft, the parachutes would open and the food would gently float to the ground. That was what was supposed to happen.

But the crew was taking no chances, and various pro-

This Royal Norwegian Air Force C-130 with United Nations markings, was part of the international humanitarian mission to Bosnia..

cedures for a wide range of possible problems were reviewed. What if the release straps don't let go properly? What if a bundle became jammed on the exit ramp? How long would we wait for the automatic release to work before we manually released the load? What if a combination of things went wrong? What if the radar goes out at this point or that point? What about ground fire? Opposing aircraft? Missiles? All were taken into account.

Chesser was giving a constant stream of course, altitude and wind data. Engineer Garrett was constantly monitoring fuel and aircraft systems. Bailey and Sutton were listening, responding, and watching the ground, instruments, radar and the dim, barely visible formation lights on the aircraft in front of us.

The good luck pigs were getting a real workout tonight.

And then the ramp was open and we were over the drop point. Bailey pulled the aircraft up about five degrees, and the CDS loads disappeared out the back, looking like a freight train disappearing over a cliff, into the darkness near Sarajevo.

Somewhere near us the Germans reported anti-aircraft fire. On the ground we could see tracers and explosions as the constantly changing coalitions fought each other. And as the children suffered.

Soon we turned for home and the crew relaxed a little. The aircraft were still in a tight formation, but with the CDS food bundles gone, the aircraft were a little lighter, and the people, a little more relaxed.

Chesser noted that in some ways the airdrop missions were easier than the air-land missions. They are shorter, and because they are at night, you were less likely to get shot at. But because the air drops were from such high altitudes, everyone had to be on oxygen, and it gets awfully cold up there with that rear ramp open.

Guthrie, the senior loadmaster on the crew, lightheartedly disagreed. "Cold," he said in mock horror. "You're sitting up front with all those instruments putting off all that heat, and we're standing back here with the ramp open, looking down at the ground.

"You're strapped into your seat looking out your window, while Tom and I are held in this plane by safety straps."

The change in conversation from earlier in the mission was obvious. Now there was time for kidding and joking, as the loadmasters ribbed the flight officers about being nothing more than high-paid taxi drivers.

"We do all the work back here," Guthrie said. "Without us, these boys would just be flying around not doing anything constructive.

"But we do appreciate the work they do. Every time we loadmasters have to deliver some supplies, they give us a ride."

And poor engineer Garrett was caught in the middle. Part of him wanted to side with his enlisted compatriots in the back, but he also knew he had to sit up front with the flight officers.

"Leave me out of this," he said as both sides tried to win his loyalty. "If you don't leave me alone, I'll shut off the gas and pull the plugs on those fancy instruments, and then we'll see how far any of you get."

All six ships continued in formation to Rhein-Main. The Frankfurt airport is one of the busiest in the world, and radio discipline is a must as air traffic controllers maneuvered the entire formation into landing position, all the while avoiding a constant stream of civilian airliners.

Over the radio, air traffic control was conducted in English, but the accents were a constant reminder of international affairs: Spanish, French, Oriental, Russian, German, English and American. But our six-ship formation was acting as one airplane as we turned and descended. We heard ATC talking to other aircraft from around the world, and an occasional, "Good job," and "keep up the good work" was passed along.

Soon we're back on the ground, and the crew went in for debriefing. The entire mission was reviewed, from the first briefing in the morning to the landing and engine shut down. Suggestions for improvement were made as the crews discussed tactics, radio procedures, routes and alti-

The peaceful city of Split, Croatia, was a common way-point for humanitarian airlift to and from Bosnia.

tudes. The suggestions, from those on the front lines, would be incorporated into future missions.

There is also lots of informal "debriefing," and it soon became apparent that the 118th had built up a reputation for getting the job done.

As Guthrie talked to loadmasters from other units a small crowd gathered around him as he passed on tricks of the trade. Younger loadmasters stood in awe, and older ones nodded knowingly. Here was a man you listen to. Here was a man who knew how to get the job done.

Bailey stood off to one side and watched, commenting that none of the crews knew the names of anyone they helped, how old they were or their politics. What they did know is that they were making a difference, using combat training to get humanitarian aid on the right target at the right time.

As everyone departed, other crews came in to begin their mission planning. The flow in and out of the briefing room, in and out of Rhein-Main, was constant, and as one group prepared to depart, another group arrived to begin planning the air-land missions that will land at Sarajevo to deliver supplies that cannot be airdropped.

Bailey noted that starvation and disease don't work a normal 8- to-5 schedule. They don't take time off for weekends or holidays. And they don't get a normal lunch hour.

Fighting starvation and disease means you fight them on their terms, at their time and at their place.

Two days later, Bailey and his crew were flying supplies directly into to Bosnia-Herzegovina, which meant 18-hour days, meals on the run, and a schedule that made a mockery out of the expression, "day-to-day routine."

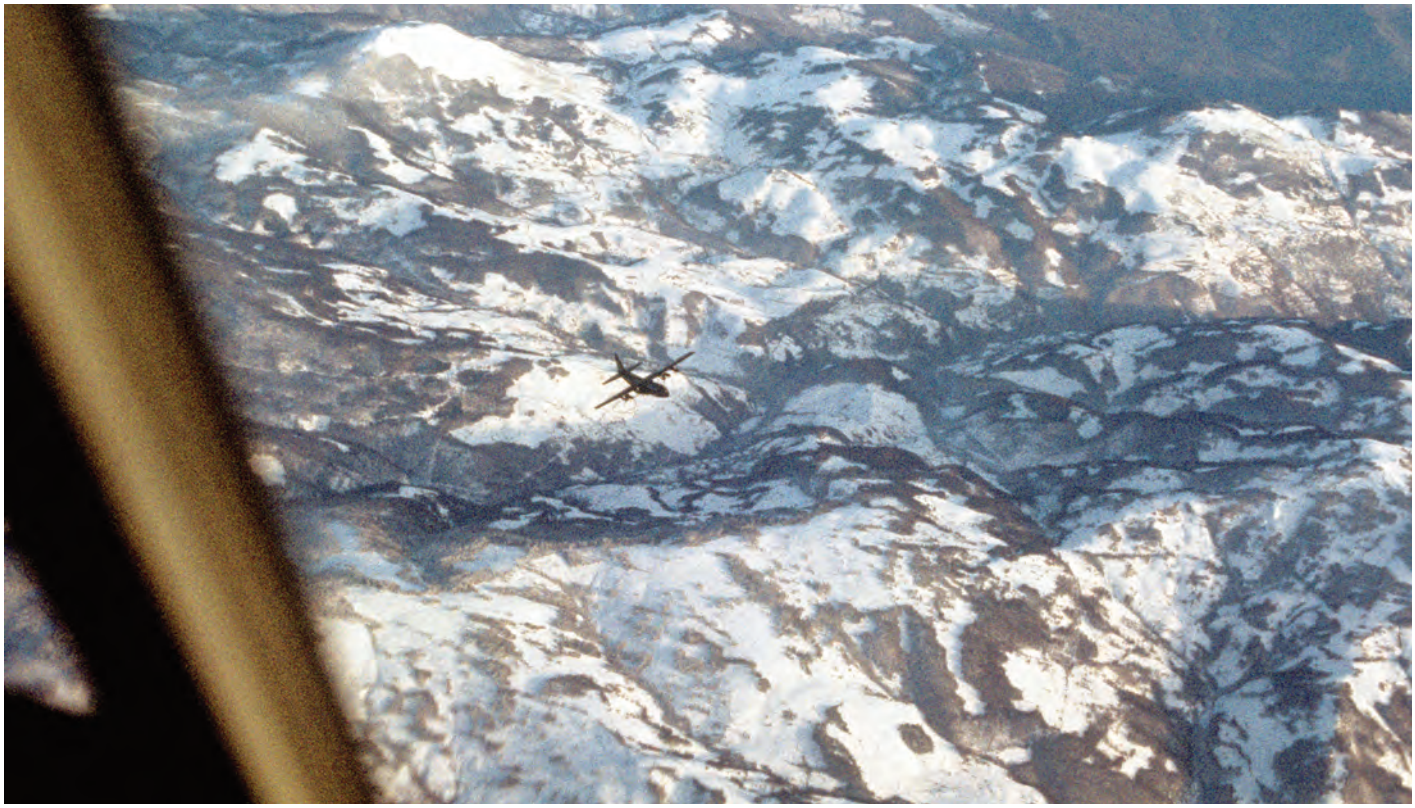
But the rewards, said Bailey, were worth it. He noted that at the end of the day, they all came back to a warm hotel and warm food. The schedules were routinely changed, always with the realization of how small our problems sometimes seem.

The workday for this particular mission began at 5 a.m. when most of the crew got together for breakfast. The conversation was restrained. Flying into Sarajevo was not the safest thing in the world to do, under the best of conditions. But today, the weather and a constantly changing political and battlefield situation conspired to add more than a little tension.

Normally, when delivering humanitarian relief, personal danger is not a concern. But as the unit had seen in Somalia and Bosnia, it was all-too-easy to literally get caught in the cross- fire between the warring factions.

In going over the procedures for off-loading supplies in Sarajevo, Bailey noted that the opposing sides often shoot at each other across the runway at the airport.

In addition, the huge C–130H Hercules, slowing down for a landing, makes a sometimes-inviting target: in 1993,



A C–130 formation flying through fog-shrouded, snow-covered mountains around Sarajevo, Bosnia, was a critical, but common, skill for C–130 crews from the 118th Airlift Wing, Tennessee Air National Guard, Nashville.

two of the unit's aircraft were hit by ground fire.

Standard operating procedure required the crew keep at least one engine running during the off-load. The crew wants to be on the ground only a short time to minimize the time we will be exposed.

At this point the crew was still not sure exactly what they would be doing. The normal mission is to fly to Sarajevo, then to Split, Croatia, back to Sarajevo, and then back to Germany. But who's to say what a "normal" mission is. And today would be no exception.

The rest of the crew gathered and began the process of putting together equipment and information for the flight. Weather briefings, intelligence briefings, picking up survival equipment and weapons, all were constant reminders that this was not a practice run.

Our call-sign for this mission was "United Nations 19," a reminder that we were part of an international relief effort. All of the Provide Promise missions were doing what the Tennessee Volunteers have spent years training to do: helping people. They were putting themselves at risk so that others may live.

The first problem was that the mission was not going to be anything like Garrett predicted. At the crew briefing they were told that instead of flying directly to Sarajevo, they would fly to Zagreb, Croatia, to deliver supplies, pick up other supplies, then fly to Sarajevo.

Then the crew discovered the second problem of the day: weather. At Rhein-Main Air Base, where the crew was based, the weather was cool and clear. At Sarajevo, it was freezing and heavily overcast. In fact, the weather was barely above the minimum visibility needed to land. Sarajevo, the crew was reminded, is in a valley, and today, even the tops of the mountains would probably not be visible.

Then there was a quick review of the political and battlefield situation, followed by a not-so-quick review of survival procedures.

The intelligence officer reminded everyone we were non-combatants. If captured, we were to make an appeal under the Geneva Convention. Evade capture if we could, but remember, we were not at war. We were carrying out humanitarian airlift. Only at the end of the day did the crew learn a French soldier had been killed the previous day carrying out humanitarian relief work.

We were also reminded that timing here was critical. There was a constant flow of aircraft into and out of Sarajevo, and under no circumstances were we to land early, nor were we to land more than 15 minutes late. Any deviation would cause problems for the other aircraft on the constantly moving air-bridge that stretched all the way from Bosnia back through Italy, Austria and Germany.

The next hour was spent preparing for takeoff. The aircraft was already loaded with tons of mail and supplies going to Zagreb. We also picked up a radio operator and two navigators who would be observing. The two navigators had never flown this mission before, and that made our own navigator, Maj. Dave Chesser of Clarksville, an expert, since this was his second deployment.

Rhein-Main Air Base is co-located with the Frankfurt Airport, and the field is a mix of different air forces and international civilian carriers. As we prepared for takeoff, we

were number three, behind a U.S. Air Force C–5 and a Lufthansa Airbus.

It was a two hour flight to Zagreb. Two hours of constant radio checks, position updates and procedure reviews. I was surprised at how little extraneous chatter went on. On other missions, there was talk of the kids, ballgames and good trips to take. But today, by unspoken agreement, the crew was all work: the airways of Europe are crowded and the weather, political or tactical situation in Bosnia could change at a moment's notice.

The landing at Zagreb was uneventful, but it was soon obvious this was not your typical New Years excursion: despite the fact that the temperature was below freezing, we were not allowed to go into the terminal because other aircrews had been briefly detained a short time ago. We were told not to walk in the grass alongside the ramp: the area is mined. And on the ramp itself is a Russian IL–76 and a British C–130.

But even at this remote location it was soon apparent how good the Americans had it, compared to the people in Sarajevo. We talked to an American airman stationed at the airport, and he said he was living in a tent. It wasn't too bad, he said. They're heated, and the biggest problem is brushing the snow off the top. That's his big problem he said, Their big problem," he said, referring to the Bosnians, "is staying alive."

Two hours later we took off, now loaded with generators and portable stoves.

Sometime later, somewhere over the Adriatic Sea, we crossed what is called the "combat entry point." We all put on flak vests and survival gear. Switches were thrown arming the flare and chaff dispensers. The two load-masters, SMSgt. Richard Guthrie and SSgt. Tom McAuley, took up positions in the rear of the aircraft, standing near the troop-door windows so they can see what is going on below us.

The co-pilot, Capt. Dan Sutton, coordinated radio work with the navigator. The pilot used that information to make sure we were following the proper course. And the flight engineer constantly made adjustments to fuel flow to make sure we could get where we were supposed to be going, and more importantly for us, back home again.

And somehow, the entire crew seemed to grow closer together. It's as if each man in the crew was right beside the other, reading each other's thoughts. "Nav, when is our next...," but before Bailey could finish the sentence, the navigator replied, "Pilot, three minutes to turn."

We were nearing Sarajevo, and the ground was nowhere in sight. All we could see was the tops of some of the mountains, yet we were flying at more than 20,000 feet. Below us was a solid blanket of white, looking not so much like clouds, but like a world covered in cotton.

I kept thinking the clouds would burn off before we started to land, but those hopes were dashed when we contacted Sarajevo control, and the woman on the radio told us, "U-N 19, visibility is 2,000 feet, the ceiling is at 700 feet. Please descend to 5,000 feet."

Descend? The controller had to be out of her mind! Even now I could see the tops of the mountains almost above us. And below us was a solid floor of clouds that we wouldn't clear until we are 700 feet above the ground!

In a moment, there is absolutely nothing to see. The instruments told us we are making a gentle, level descent. The pilot had slowed us down, the navigator said he could see the mountains on his radar, and the quiet, accented voice on the radio was giving us course headings and altitudes that would take us around the mountains we could not see, into a valley we could not see, surrounded by fighting we could not see.

Part of my mind was telling me this route was all mapped out, the instruments were working perfectly, and Sarajevo control had us on radar. But are they really doing what they are supposed to be doing? Someone said one time, "there are no atheists in the fox hole." And there probably aren't any atheists in aircraft flying blind through the mountains, either.

How could the rest of the crew be so calm about all of this? Bailey quietly reminded me this is what they were trained to do. I think he sensed my apprehension when he said the absolute minimum is 400 feet and they had 300 feet to spare!

After what seemed like an eternity, we broke out of the clouds, and there was the runway a few miles ahead. But then a reminder: if we could see the ground, then people on the ground, perhaps with guns, could see us.

To discourage snipers, Bailey made the landing short and fast, but otherwise uneventful, and we taxied to a parking location where United Nations peacekeepers began to immediately unload the much-needed supplies and equipment.

Shortly there was another reminder of the international nature of the endeavor: a Royal Norwegian Air Force C–130 arrived and was unloaded.

By this time the clouds had started to break up, and visibility increased. But that introduced a new set of problems: on takeoff the C–130 would be low and slow, a perhaps inviting target for snipers. So the crew would execute a combat takeoff: start rolling as soon as clearance is received, get off the ground as quickly as possible, get the wheels retracted and get the nose pointed to the sky. One instant the ground was plainly visible through the windows, but now all we could see was sky.

With the clouds clearing off, the enormity of the relief effort became visible, as every few minutes another C–130 crossed near us on its way to Sarajevo. Sutton radioed weather and condition reports to the inbound aircraft, last minute information that could make the difference between success or failure.

Bailey headed the aircraft towards Split, Croatia, where we picked up another load of supplies, tons of flour, and then headed back to Sarajevo. But now there was another complication: because of the weight of the cargo, we would not be able to take on enough fuel to get us to Sarajevo, and then back to Germany. We would have to return to Split after we drop off this last load.

On the short, 30-minute return trip back, the crew relaxed a little and enjoyed the scenery: snow-capped mountains, forests, and occasional villages. From the air, all

appeared to be calm and quiet, but the fact that we were there was reminder enough that this land that was once the home of the 1984 Winter Olympics was now racked by starvation and battle.

The landing and off-load were almost the same as before: the radar controller talked us down, backed up by the aircraft's own radar and navigation equipment. But on the ground there is a surprise: just ahead of us is the Russian IL–76 we had seen at Zagreb hours earlier. Who would have thought, just a few short years ago, that today we would be sharing ramp space with the Russians?

Before we departed, we picked up a member of the United Nations delegation who was to go to Split, where we would get fuel to take us back to Germany.

We executed another combat takeoff and the crew relaxed a little. There was some small talk about what to see and do in Frankfurt. But then the radio comes alive: there was an unconfirmed report of anti-aircraft fire at Split. Bailey asked for details, but there were none.

So it's decision time once again: go to Split for gas, but take a chance there may be hostile fire, or proceed to the alternate destination, Ancona, Italy. Bailey opted for the latter.

He noted that all they were doing was getting fuel. If they were going to pick up more supplies, they might have gone ahead and taken the risk. He said they would certainly have pressed for more details about the anti-aircraft fire, because people do make mistakes about that kind of thing, but that was all part of the job.

That settled, we departed for a brief excursion to Italy. But there was no time to play tourist: we land and as the fuel truck pulls up, Sutton went off to base operations to file a new flight plan. And what about the U.N. delegate who was supposed to go to Split? Well, he wasn't too happy about the change in plans, but he was also understanding. A brief conversation with operations personnel at Ancona revealed he could catch another plane to Split in the morning.

We took off in darkness, and on the return trip we saw, in the distance, a mass of white, green and red lights. It's a group of C–130s headed for Bosnia to airdrop supplies. For the crew of UN 19, the formation was of more than passing interest: we had done the same thing just a couple of days before.

The crew made an uneventful landing at Rhein-Main, but there were still hours of work that needed to be done.

After landing part of the crew went to turn in weapons, other members turned in operations plans, and still others went to be debriefed.

By the time the crew returned to their hotel, it was after 8 p.m., more than 18 hours after the day began.

Several of the Tennessee Volunteers said there were a lot of other things they could be doing this holiday season. All have family and friends back in the U.S., and all have other jobs they could be doing. "But this was what we were doing right now."

The crew of UN 19 went their separate ways for a while. They had no idea who got their supplies, or how many lives they might have saved. But they all agreed they were ready to go again, anytime, anywhere.

This was what they were trained to do, said SSgt. Gary Crawford of Smyrna, Tenn. "This is an historic opportunity for us to help people who are hanging onto life by a thread."

Crawford participated in the first rotation in the spring of 1993. He is an electrical technician who services the giant C–130H aircraft flown by the unit.

Crawford noted that the hardship of being away from family over the holiday season was eased by the fact that they were working towards a common goal. He compared members of the 118th to a family that was continually in training. He said the older Guardsmen helped train the younger, and there were always new things to learn. For some of the newer people, it's their first time away from home like this, so it got hard on them sometimes, but they looked out for each other.

Although the work is serious, there was still time for practical jokes as the older members tried to lighten up some of the work.

Crawford told a story of how they were taking a break one day with one of the younger members of the unit. He said they had been having a rough day, the weather was bad, and peoples' nerves were on edge. Someone had made up a composite picture of TSgt. Ben Atkinson holding an M-16, and got it out.

He said they then started telling the new troop how Atkinson had been on a mission to Sarajevo and had personally rescued several infants. Then someone else jumped in and said how on the same mission sarge had saved the plane when the pilot got shot.

Crawford said he didn't know at what point the story got so out of hand that the young person they were ribbing finally knew we were pulling his leg, but it helped break the tension of the work, and everything went smoother."

Maj. Randy Jones, of Murfreesboro, is a navigator on one of the three aircraft the unit flew to Germany, and he says the flying is different than it is in Tennessee.

"Well, in the first place, we don't have anyone shooting at us," he said with a grin.

The Volunteers arrived in Germany just as a second squadron was activated, and as officials planned to double the number of daily relief flights over Bosnia and Herzegovina. More than 40 C–130 aircraft would be assigned to Provide Promise said Col. D.L. Johnson, commander of the 435th Operations Group at Rhein-Main.

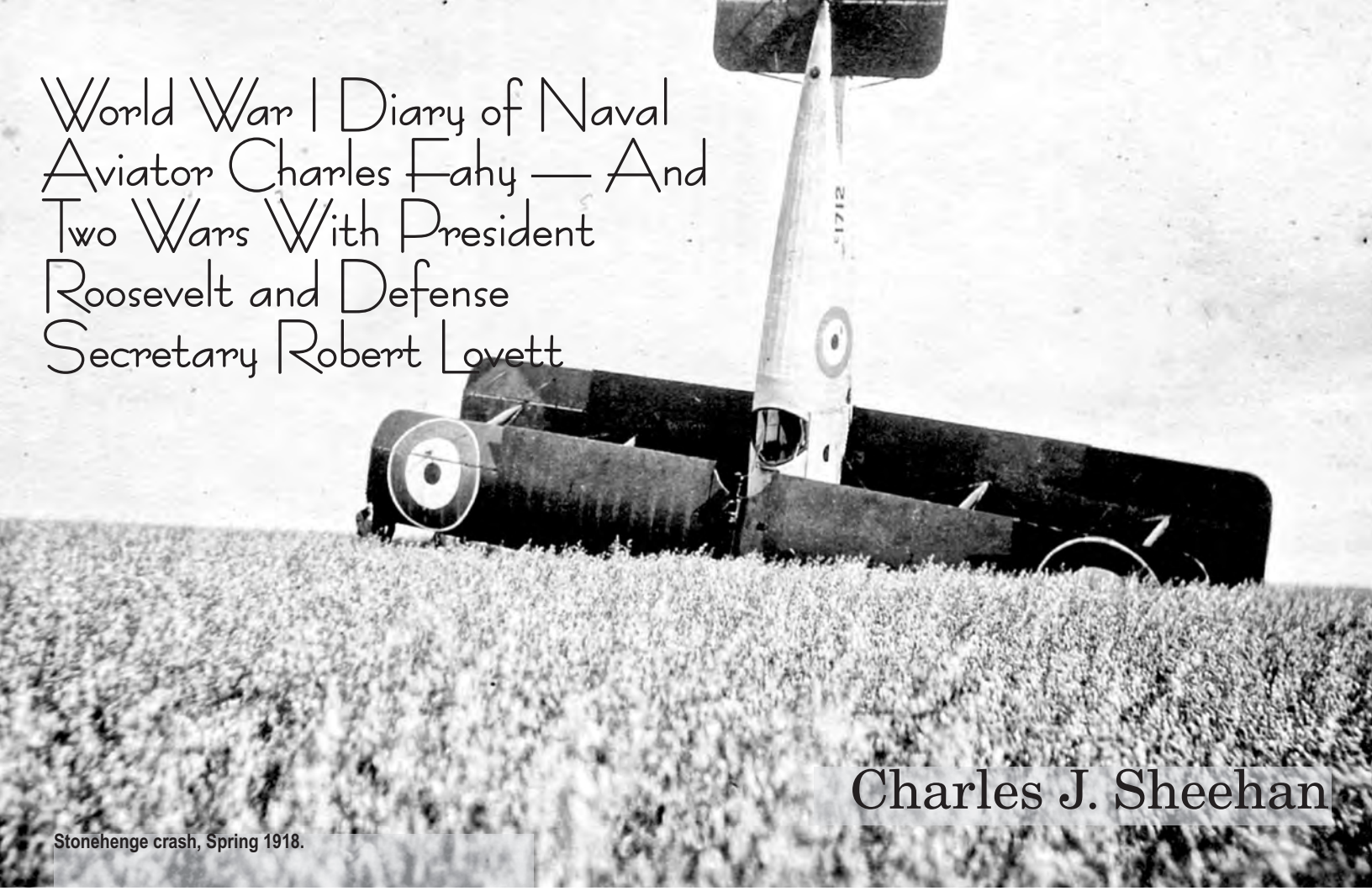
A standard C–130 squadron has 16 aircraft, so this would split the group so that it was more controllable.

Lt. Col. Max Hegler of the 328th Airlift Squadron at Niagara Falls became the new squadron's commander, and Lt. Col. Dan Callahan of the 118th became the unit's operation officer.

Said Callahan, "The fact that we are controlling our own aircraft and missions says a lot about how the regular Air Force thinks we can handle this assignment, and it is just one more demonstration that the Air National Guard is indeed a part of the total force."

Note: The 118th Tactical Airlift Wing was redesignated the 118th Wing and transitioned to the MQ–9 Reaper Remotely Piloted Aircraft (RPA) in 2012.

World War I Diary of Naval Aviator Charles Fahy — And Two Wars With President Roosevelt and Defense Secretary Robert Lovett



Stonehenge crash, Spring 1918.

Charles J. Sheehan

In 1917 many Americans had never seen an airplane. That year the Navy, under Assistant Secretary Franklin Roosevelt's leadership, bought its first. Only the year before had the Army put up a few unarmed "Jennies" to follow Pancho Villa's rebels. When America declared war on April 6, 1917, its aerial force was thirty-five pilots and fifty-five planes—all but four obsolete, none armed. As another Roosevelt lately lamented, "[W]hat is being done … to bring up our aeronautical engineering so that it will not be quite so many years behind that of Europe?"[1] Small wonder that, entering WWI, America "could not have flown one combat-ready plane."[2]

"I felt I should go"

Lurid headlines of German submarine attacks on passenger and commercial vessels appalled a young lawyer in Washington D.C. These outrages and the long friendship between America and France settled "my sympathies … I fairly quickly straightened out … where lay our interests and the relative morals of the matter … Being unmarried and with no dependents I felt I should go into the service."[3]

Born in 1892 in Rome, Georgia, one of eleven brothers and sisters, Charles Fahy attended the University of Notre Dame in 1910. The dry goods store founded in 1873 by his Irish immigrant father generally did well, but financial straits ended college after one year. In Fahy's pocket when he arrived in 1911 to attend Georgetown Law School at night was a letter from a Rome businessman introducing the newcomer in flourishing script: "One determined to be a lawyer." Fahy graduated in 1914, joined a small Washington firm and in August of 1917 decided on Naval aviation. The Bureau of Navigation's application asked whether he preferred flying "heavier-than-air craft or dirigibles."[4] He chose the former—with misgivings. The "best" were the younger set. "I was twenty-five, older than most of the boys who went into aviation [and years] away from an athletic life." But Fahy passed his physical test and was off to ground training at MIT. [5]

Submarine atrocities rattled beyond America. In July 1917, Britain's Minister of Munitions Winston Churchill had met in Washington with Roosevelt and President Wilson on "bottling up Germany's submarine fleet in the North Sea"—

Author's Note: The forty-some, loose leaf page handwritten diary (March 30, 1917–November 25, 1918), is in the Charles Fahy Collection, Manuscripts Division, Library of Congress. Diary pages are unnumbered and page citation not possible. All quotations not source-cited are to the diary. Excepting one, all photographs were in Fahy's (now the author's) possession. Lastly, many thanks to Margaret and Mike McCaleb for indispensable technical assistance.

MIT Ground School. (Fahy, middle row, far left)

the gravest concern for both nations after three months of torpedo attacks sunk two million tons of cargo.[6] "I dislike exaggeration," Roosevelt told Wilson, "but it is really true that the elimination of all [German] submarines … must of necessity be a vital factor in winning the war."[7] Should submarine carnage continue four months more without "new methods" to fight it, warned Commander of Naval Forces in European Waters Admiral William Sims, "the Allies would be obliged to surrender unconditionally."[8]

Under menacing clouds Yale Professor-turned-Colonel Hiram Bingham, who led Army pilot training, decreed the military's duty to "weed out those … mentally, morally, or physically unfitted to become flying officers," and one quarter were duly weeded out.[9] Senator Norris of Nebraska saw something intangible in the ideal aviator: "When [he] flies out over the enemy … he must … be his own commander. He is really supreme."[10] Ground training was three weeks of "how to be a soldier and an obedient one," then five weeks on signaling, machine guns, bombs, meteorology, map reading, internal combustion engines, air combat tactics—and night flying.[11]

After MIT, Fahy was sent to "basic flying" training at Pensacola's Naval air station. On the way he visited his ailing father who "conveyed to me the impression that this was his last illness, which proved to be so, for at Pensacola a few weeks later word came he was dying."[12] Fahy was unable to reach home before the end came.

Fahy practiced on single pontoon N-9 biplanes with 100 horsepower Curtis motors. "In the air flying itself was easy … but landing was the problem … I enjoyed flying, and preferred flying to joining the infantry, though I was often frightened."[13] At Ft. Worth beside Canada's Royal Flying Corps he trained to hit ground targets from the air and fire machine guns in flight. In January 1918 he was commissioned as Ensign, U.S.N.R.F., received his wings and made an instructor at Pensacola.

Last stop was New York City. Fahy and some fifteen Navy aviators boarded the USMS St. Louis on March 29th. "I kissed my brother Ambrose good-bye … mighty glad to be at last on the way across with the prospect of seeing actual service."

Packed away were boots, soap and woolen underwear. The fifty-some men had little occupation during mostly calm days across. The five big guns were occasionally fired in practice, "making quite a noise with a good deal of vibration," and close watch kept for enemy submarines. One night he and his roommate "Mac" played "rump" into the far hours. On the whole "Mac and I were almost beyond the realm of enjoyment" until they slipped into Europe

Charles J. Sheehan is a retired federal attorney. He began his career at the Department of Justice (1980-1995), chiefly as an attorney in the Environment and Natural Resources Division. During this period he was a Special Assistant U.S. Attorney for the District of Columbia (1989), and detailed to the Department of State, Legal Adviser's Office (1991) and National Service Corporation (1994). From 1999-2008 he served in the Dallas, Texas office of the Environmental Protection Agency (EPA), five years as Regional Counsel, then as Judge on the Environmental Appeals Board, EPA Headquarters (2008-2012) and Deputy Inspector General (2012-2022). He was Acting Inspector General from October 2018-January 2020. He received his B.A. from Boston College and J.D. from the Georgetown University Law Center. He taught sixth grade to Jicarilla Apache children (1985-1986) in Lumberton, New Mexico and is the grandson of Charles Fahy.

through the Irish Channel in the "rainy, chilly, gray" dawn of April 6th. The Isle of Man slid by. "Naturally my thoughts turned to Papa as Ireland … came into view." Two destroyers "zigzagging back and forth" led through choppy light green waters. At twilight they entered Liverpool's harbor, its light tower beaming as darkness drew on. Camouflaged vessels appeared. "I … set down here my admiration for the personnel of the St. Louis. We came right across and the way the boat was managed and armed seemed to inspire confidence."

In Liverpool food was scarce, little meat and sugar rationed. By the Cathedral lounged wounded soldiers in blue overall suits and red ties. Although initial orders directed the men to London, to their disappointment they were sent to Killingholme, an east coast seaplane station patrolling the North Sea. "There was not much doing" during Killingholme's blustery spring, but with "simple wooden frame huts … bunks, good blankets and bedclothes … we were as comfortable as young men will be."[14]

"this first whiff of actual war"

In late March began a massive German assault on British and French forces. European powers, to this point, had put far greater resources into air warfare than America, whose few flyers generally attached to bases in England and France and made bombing raids under foreign command. Not a moment too soon would America swell its naval air power to confront the German submarine menace in 1918—"the year of the big bombing raids."[15]

The night of April 12th was broken by sirens and "the first actual firing of the enemy that I heard."[16] Out went the "gas." Distant guns thundered and men fled their huts. Enemy zeppelins were overhead. "[O]ur guns were setting up a barrage. We could see the flashes of the nearer guns, then came the sharp report, followed by the humming whiz of the shrapnel shells, which seemed to pass over us not far up." The zeppelins moved inland. "[A]ll seemed to enjoy this first whiff of actual war. I enjoyed the sound of our guns … [although I] felt a little impatient that the station seemed ineffective to really go after the Zeps." At 2 A.M. zeppelins returned and out spilled the men again to the "flash, report, whir (a rather musical whiz) and reports following each other all along the line." He felt "a trembling of the ground—bombs surely." In a nearby village it was said two men, two women and a child perished.

At 4:50 A.M., April 24th, Fahy was "all dressed up in new high boots and helmet [for] my first flight overseas." He was the observer.[17] The pilot explained "the little contraption to show what compass course to steer," and after waiting in fog (engine "warms up for it seems an hour") they were up.[18] With them went a camera and basket with two carrier pigeons. "[T]he pigeon man [told us to] throw them clear of the wires if … stuck [or] lost [and] send both back if in great distress."[19] On the River Humber a submarine and several destroyers were moving from Scarborough. In early light glowed Immingham's "beautiful green fields." Forty minutes later they landed with a "crack" but, "wonder of wonders," no damage.

Fahy at Stonehenge, Spring 1918.

Mac and Wilcox had a different first flight. They left at 7:25 A.M. but their pigeons soon returned with a message: "down 20 miles north of Spurn, 4 miles off coast, sinking rapidly." At 1 P.M. trawlers were towing the plane but "men not on." The bare details were "[b]ad motor; landing in rough sea, smashed pontoons, floated 2 hrs sinking; picked up by sailing boat, brought to Grimsby." Fahy found them at a hotel, Mac in bed before a "good fire" and "glad greetings" all around.

On April 30th Fahy and three friends were ordered to the Salisbury Plains near Stonehenge to train for night flying on the new British-built marvel, the Handley-Page (HP). Seven tons, wings spanning over one hundred feet, they could carry over one ton of bombs and range two hundred miles on two Rolls-Royce engines. Their weakness was speed. Fully loaded they needed half a mile for lift off and topped out at sixty-five miles per hour. Vulnerable to pursuit planes in daylight, their principal use was night bombing. Beginning the spring of 1917, French and British HPs attacked railway yards, ammunition dumps and U-boat depots at Belgium ports.

Traveling to Stonehenge through London the men lodged at the Carleton, saw the Buckingham Palace Guards and appeared at the American Officer's Club. For Fahy, Stonehenge was the last step toward "service in France on the [HP] machine we had heard so much about"—and battle.

"my landings were not especially good"

On May 2nd "I soloed for the first time." His Maurice-Farnum was "one of the earliest planes [and] oldest then in use."[20] Later that day "I started on cross country in the M.F., with Tom Bergin as observer." Neither knew the countryside. Fahy had but a "scant" prior look at the map. They fol-

Handley-Page over Stonehenge, Spring 1918.

lowed the road below—the wrong road—were soon lost and forced down in a field outside Coombe Bisset, "inquiring our whereabouts of farmers." With a borrowed bicycle they found a telephone, called Stonehenge for gasoline, re-fueled and were up again. But balloons marking the base were lowered and once more they landed, lost. At 8 P.M. they finally made the airdrome. Bergin was "fed up."[21]

They were in good company. Two other men that day made "several [forced] landings [but] as the station did not know of it nothing was said." Only Fahy-Bergin mishaps were reported and the "rule in case of getting lost" sent both to "elementary land-plane school for practice." Bergin chafed and managed a return to Killingholme. Fahy went to school simmering at the "foolishness [in] wasting a couple of weeks."

On returning Fahy and Kirby practiced landings on the Farman Experimental (FE), a British night bomber cruising at sixty-five miles per hour amid "lots of gadgets" on "strong [undercarriage] springs." His "landings were not especially good, too heavy." On May 19th Fahy piloted an FE with Kirby and met "wind fairly strong tending always to turn head further south and making it difficult to keep … correct altitude and speed." After "drifting too much to right on return" and eight miles off track, they came back "hot and dirty" to showers, "tea … cigars and comfort." That night "Jack [Foster] creates stir, coming in drunk."

They flew next to Oxford. Assuming 3,000' and sixty miles per hour they calculated forty-two minutes out and fifty-six minutes back. They were out in forty-two and back in fifty-eight—"was fine for things to work out so well." It was Fahy's "best landing yet" in an FE and at ninety-four miles his longest flight. In bombing practice they loosed three "fairly wild" bombs and a "good" one (twenty–thirty yards from target circles) but on a final run were "tickled" at all four bombs striking within eight yards of the target—"better than average." They hoped their showing was "not mixed" with another crew's "scattering [bombs] all over the place."

A May 22nd holiday saw flyers off to London. With an ill-fitting suit altered and 30 pounds from the paymaster Fahy joined friends who, by bus, taxi and foot reached the officers' club by lunch. Dinner was at the Imperial—no meat "without a card" and potatoes the "prevalent vegetable." Then came the Savoy for "Nothing But The Truth … a good farce whose principal character appeared to be drunk."

"In case of my death over here"

On the "wonderful morning" of May 30th Fahy first piloted an HP, "really in love [and] hope I am put with a HP squadron." The night before he reveled as observer on an HP. "[N]ight flying is great sport, with its shooting of lights, flares … darkness and 2 eyed inhabitants of the night. Last night was glorious."

Stonehenge was a "fine, pleasant lot of fellows," the weather dry and living comfortable in a "frame hut … cots in a row." Family letters came and went. Food, "simple but adequate," featured Australian hare, a homeland pest welcome at English tables. [22] Tea and chocolate graced mornings, Holland cheese and biscuits the afternoons. For leisure was a YMCA tent with benches and a piano, but you "couldn't get a good razor over here" grumbled the barber. German prisoners built hangars "as slow as you please … rather quiet, bordering on sullenness [but] well treated here."

Over camaraderie hung shadows. "[I]n this flying world … a friend … alive beside you yesterday is dead today."[23] Late on May 30th, Fahy wrote home:

In case of my death over here, I hope these words reach mama. I have tried to do my duty in the service, and have desired to reach France and take active part in the hazards and suffering, if need be, of those who stand first against the foe … But what I want to say is how much I love [mama] and how often I think of her, and all at home, and Papa, and how great a help the constant thought of her has been. I know that her prayers have always been with me, keeping me … her sacrifices … fill the heart with unspeakable love … Let me in some measure deserve of her the love and righteous pride she deserves of me.

On June 17th Fahy was ordered to a night bombing unit in northwest France. He first had two days at Bournemouth, "that beautiful spot on the sea," but hearing that higher levels sought to keep him at Stonehenge as HP instructor quickly "got away." As one of "two best in squad" he received more leave—rescinded by Admiral Sims who (reasons unknown) called Fahy to London. He stayed at the American Officers' Club, attended a "musical given for American officers by Mrs. Palmer" and, with friends, "taxi[ed] around seeing the principal points of interest."

"[I] wonder how it feels up there"

The night of June 26th Fahy was in Paris enroute to Dunkirk when "claxons" rang and he "supposed the Gothas

Stonehenge aviators (Fahy, bottom row, middle) Spring 1918.

are coming."[24] Bombs fell on La Vendome, a block from his lodging, "with a great crash and shattering of glass around." Closer began another "heavy barrage." The next day a "Big Bertha … this remarkable piece of artillery [was] shooting into Paris."[25] It all "gives me an idea of what to expect when I go to night bombing, which I expect to do shortly."

His train pulled into Dunkirk, twelve miles from the front, early June 29th after a sleepless night crowded among allied officers. He entered a city like a "garden left to the weeds." Most inhabitants had fled shelled buildings. Shattered glass lay everywhere. Among the few civilians moved allied soldiers. The "white speck" of a German photographic plane appeared ringed with "white puffs" from pursuing planes. "Seldom do these Germans get back home." Later, remnant of the stricken city's former life, a "pretty bell tolled" during lulls in a "deuce of a barrage"—bombs falling, big ground guns "cracking away [and] bursting shrapnel [lighting up]" Fahy's room. Near midnight when the "[machine gun] magazine" went quiet, he slept.

He settled in a house on the beach. The first night brought a "dickens of a noise … shrapnel bursting and motors whizzing apparently right overhead." A "poker game [was] calmly going on in [the] next room" while bombs were falling. "I wonder how it feels up there … I suppose I will know soon, as expect to leave daily for the H.P. squadron." Then it was "lights … out … either a big bunch of Huns coming over or they are kept in the same place; lights out again; on now—going out, no—don't know what to do. Motors still close; barrage must have boxed them in … at it again now ... Motors dying out."[26]

By early July he was "at my [night bombing] squadron at last" in St. Inglevert, eighteen miles down the coast from Calais. It was RAF 214, equipped with HPs and manned by forces recently moved from Dunkirk after seven hundred bombs, "the worst on record," fell over two nights. For Americans it was a temporary post. From the British they would learn the country and acquire experience "until our own U.S. squadron is ready" in August.

"[L]iving by my lonesome," Fahy had a "good tent … small, with a good iron cot and exceptionally fine woolen Navy blankets."[27] Nearby quartered Navy officers and doctors in a "picturesque old chateau, red looking as the hills." From the chateau's excess came his mattress, from an RAF flyer his wooden washstand. "We have practically nothing to do during the day" but study maps and pictures of bombing targets. Americans were not altogether strangers:[28]

Our airdrome was in the country-side … There were … farmers and other French people in the vicinity, and contacts with them were only occasional but pleasant. There was a little estaminet down at the crossroads where we gathered … conducted by a French family who developed pleasant relations with the Americans and the British.

July 4th was feted in style, Calais "gaily bedecked with flags of all nations." The aviators and village priest convened at the chateau for a "splendid dinner—wine and champagne"— hosted by 214's commander Bigford, a "jolly fellow." The Americans expected to fly the next day and left early. The priest, they later learned, "asked for his hat and coat" at 11 P.M., when affairs had turned a bit too "atmospheric."

"over the line"

Fahy attended confession and mass the next morning, "feel[ing] better for what may come," a prospect hovering over any aviator:[29]

The lives of these earliest fighter pilots were unique in the history of war … terrifying combat … carried on at elevations … that only Edwardian mountain climbers … had experienced. The cold and wind, oxygen deprivation and

gravity forces could make a pilot sick and senseless—even without the tension of constant watch for attackers. Frostbite was common and debilitation and emotional casualties virtually universal … As many as one of four aviators were killed in action.

On July 8th Fahy "went over the line for the first time" after watching six HPs "lumber" down the runway, "turn with much snorting & flying dirt" and swoop across and off toward the docks of Bruges. The final crew, Fahy on the rear machine guns (two side, one tail), RAF Lieut. Ellison piloting and RAF Bell observing, lifted up at 9:35 P.M. They carried four 250 lb. and six 112 lb. bombs, and four 25 lb. Coopers, "two of the latter of which I was to drop through the tail." Seven "mammoth black birds," on each "a light on wing tip & tail," circled over the sea at 7,500.'

With darkness they swung south and inland, skirting shelling from Dunkirk batteries "taking no chances." Entering Belgium with lights off, "objects practically invisible on the ground" and nearing Ostend, a barrage fired up and searchlights "pop[ped] out on all sides." Shafts caught them "at least 10 times … I thought surely they would pick us up … [two] played on us for 15 seconds." At 10,000 feet parachute flares lit swaths of sky while "green onion bombs" shot up.[30] Antiaircraft fire began. Ellison dodged in and out, "changing course as lights flared up too close."

Visibility was poor but "no shell seeming to burst very near" they sailed on. "I was on the look out for scouts … trying to 'learn the country' [up front] I could … see [Ellison and Bell] their heads together at times conferring, no doubt, as to … where the objective was." Ellison "put her nose down." At 8,000' Fahy let go two bombs. Up came onion bombs from "Mr. Fritz" illuminating the docks for a second drop, one by one, of "big brown destruction fellows." Fahy "saw some … burst far below." Only Coopers remained. Fahy "scrambled" below and with his sister "Janie's little scissors brought along for the purpose" cut their strings. They exploded beside the clearly seen canal. All the while "bursts of red were around the sky."

"Now to get away!" While they were making for sea "more search lights sprung up." Bell released two Coopers. A ground light went out. To lower engine noise they throttled down. Another searchlight rose 20,000 feet but missed them. Ellison turned back toward base and, when lights at last marked a coastal landing strip, in came his "beautiful landing." All seven machines returned. Hot chocolate and sandwiches awaited the crews and Fahy, "tired as the dickens," slept at 2 A.M.

Rest was brief but spirits high at 4 A.M. "One by one the machines took off for home. We raced along it seemed to me a few feet from the ground, nose down, 105 miles an hour, wires singing; on, on over tree tops, houses, villages, just over the top of Calais, out in the open again, swooping down to the ground occasionally to scare folds and cattle; then home … breakfast, & bed at 6:30 A.M."[31]

On July 17th, Ellison and Fahy took a leisurely HP jaunt toward Boulogne. Below moved English passenger ships escorted by destroyers. "Ellison spiraled down over them, several miles out in the English channel … a beautiful sight … this fine formation … the white wake traveling along." Decks were "brown with Tommies … we went down close over them" while they waved upward. Ellison gave control to Fahy, who flew over Calais toward the airdrome. As he came in to land an HP below was speeding for takeoff. Suddenly it "nosed into the ground and nearly turned over, its huge tail sticking up in the air in the opposite direction." Uncut wheat snaring the wheels hurtled three men over the crushed front. Bobby Stocker, with Fahy at Stonehenge—"a very fine boy, and a good pilot, having done much patrol work in England in seaplanes"—lay alive but unconscious from a brain concussion.[32]

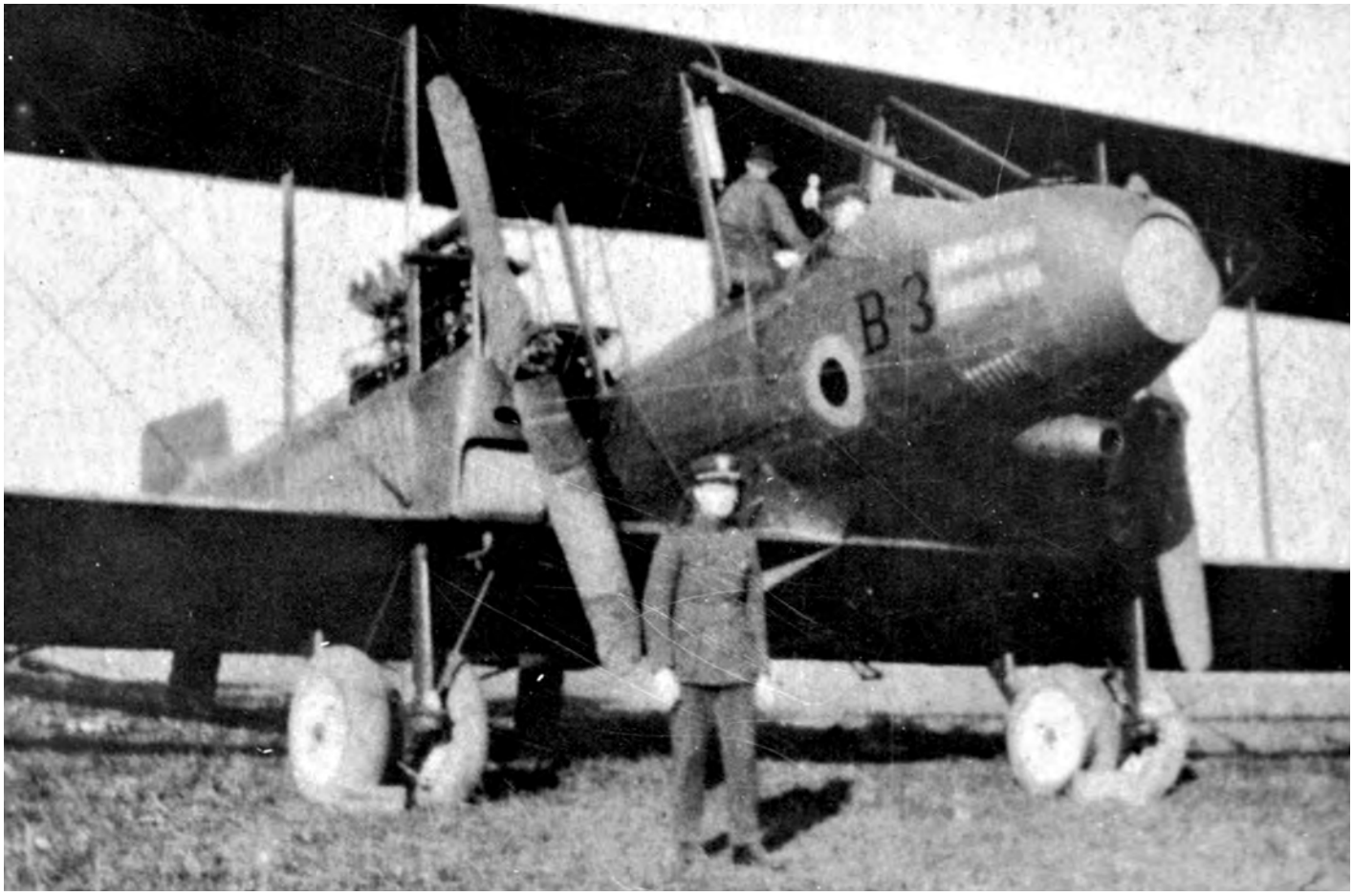
"to die in this cause in which I fully believe"

Ellison, Dell and Fahy flew a second mission on July 18th targeting U-boat docks at Ghistellis, Belgium. "It is a wonderful sight," Fahy marveled, "standing in the tail, after adjusting the guns and clearing goggles … to watch the others thunder away, and then to pass into the night yourself … big engines spraying a blue exhaust flame." Calais was "plainly visible in the half moon's light … lights across the channel clearly seen." At only 8,000' by midnight ("machine did not climb well") they started across the lines. Searchlights sprung up, anti-aircraft fire began. Several German fighter planes challenged them "& we replied."

Nearing Ostend a "mass" of green onions—a "weird sight"—encircled them. One "held us for some time." They shook it and released four 250 lb. and six 112 lb. bombs. Fahy went under and, with Janie's scissors as a shell burst "quite close by us," released two more bombs. Around them as they returned were "star shells going up & dying in their own reflections as they fall back." At 1:20 A.M. they landed to tea and sandwiches on the beach. "All machines returned safely." After two hours "attempted" sleep they started home at dawn. "The sun came up while we were in the air; a haze hung over the sea, and the sky and sea mingled as one."

Every few weeks several letters arrived in a packet. "I wish the home folks could realize how much their letters are enjoyed, and how completely my heart is with them all." He had taken his mother's injunction while training at Pensacola—"to say a prayer whenever I go up"—to the far French front: "If I should ever go up and not return, or return dead, I pray that God will give mother and all the dear loved ones at home, the grace to bear their loss calmly, and to know that I died thinking of them, as I know I shall do, and thinking, by His Grace, of Him … I shall be glad, if He wills, to die in this cause in which I fully believe."

"[A] pretty interesting time" awaited the three men on July 24th. They were to carry a 1660 lb. experimental bomb, a "terrific thing"—the largest ever produced by the allies, perhaps the Germans—requiring a special rack.[33] A crowd of officers gathered as Captain David Hanrahan urged the crew to observe "everything possible in regard to the bomb and its effects." By a "fine moon" the HP was then off to the ammunition dump at Middlekerk, Belgium. At 10:35 P.M. and 8,500 feet began the glide down, but to catch oncoming wind they flew over the dump and turned back. At 5,000 feet Dell was opening the bomb rack when Fahy



Turin: Fahy standing in front of his Caproni before flight over Alps, August 1918.

spotted the "black form" of a two seater enemy plane, at a few hundred yards, "looking for bombers."[34] "I cocked both upper guns and made ready; flashed a signal to Dell." Ellison sped to sea pursued by green onions and "sharp firing." The "Hun showed no disposition to follow."

Getting away they lost altitude. They climbed and circled back but "searchlights caught us … tremendous things—and antiaircraft fire."[35] Ellison ascended to evade them but "a battery must have seen us in the moonlight [and] shrapnel [came] bursting pretty close … we could hear [it] explode in the air above the sound of our motors."[36] It was "too hot." Again they turned to sea and back and at 6,000' dropped the great bomb. With "wicked noise [it] bounced the machine up a bit." Later photos showed it landed wide and did little damage.

Fahy had lately met old friends Torres and McKinnon, just arrived from England, in the Calais "Officers' Rest." One day Fahy and Torres took practice flights together. On August 1st and two hours notice, Fahy was ordered to join Squadron One of the Northern Bombing Group (NBG), close by RAF 214, at St. Inglevert.

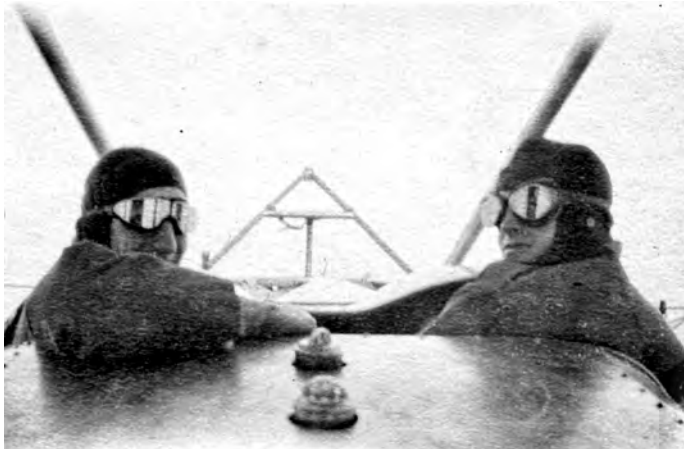
"Several of our finest young men were killed"

The Navy had assumed a large part in wartime aviation. "[T]he employment of aircraft supplies a new … instrument … It is believed that … it will be a fully as valuable a naval instrument of warfare as the torpedo boat destroyer or submarine has proved to be in this war."[37]

In the spring of 1918 the Navy left British command to form the all-American NBG—112 planes and 2,000 enlisted men under Captain Hanrahan. Four airdromes would launch a day and night bombing campaign against U-boat operations in occupied Belgium. Four night squadrons would each have ten Caproni Ca.5 bombers—Italian-made seventy-two foot wingspan bi-planes powered by three Fiat motors.[38] Fahy was dubious. "The British could not supply us with [HPs], which we preferred, and the United States aviation industry was not able to supply us with night bombers … I never thought [Capronis] were equal to the Handley-Page."[39]

That summer "Germans [were] preparing for … extensive operations in the North Sea" and NBG leadership ordered that night bombing "machines with their crews and ground personnel … be ready for active operations by August 15th."[40] First business was flying Capronis from their Milan factory seventy-five miles to Turin. From there it was over the Alps to Lyon, Paris, then dispersing Capronis to NBG bases.

It began ominously. The initial three-Caproni squad leaving Milan in late July lost one plane before reaching Turin and a second fifty miles from Paris. Fahy was sent to Sens, eighty miles southeast of Paris, to survey the third Caproni to crash—"due to trouble with the petrol supply."[41]



Fahy (left) and Otis in Caproni in flight over Alps. (Photo taken by Jenkins)

Undeterred, Hanrahan ordered six crews, including Fahy, to Milan to ferry back more Capronis.

With "our eyes full admiring the Alps" they arrived in Milan. Fahy piloted a Caproni to Turin. Otis was on the maps and Jenkins in the rear as they rose over Milan, its Cathedral "as beautiful a building as I have ever seen."[42] Bad weather in the Alps held the crews two days in Turin. On August 11th, all six crews lifted off and climbed to 14,000' heights.[43] "[O]nly three" crossed the Alps. Krum and Walker "got lost and crashed."[44] At noon the three remaining crews reached Lyon.

Fahy spared his sister Janie the harrows when writing her that night: [45]

[It was] the most wonderful trip I ever had; we looked down hundreds of feet on snow covered mountains; away on the right was Mt. Blanc, larger and whiter than the others. It was a clear, bright morning and it all seemed like a dream unfolding; only a score of people have ever made this trip, but I daresay when aeroplanes are like automobiles are today "over the Alps" will be one of the popular routes. When the mountains were passed, in a long line from horizon to horizon—white and rugged, a mist seemed to cling in the lower heights, leaving the peaks clear above, Mount Blanc a white robed king of them all.

Two days later the three crews reached St. Inglevert, but merely obtaining Capronis had been a calamity:[46]

We undertook to ferry seventeen or eighteen Capronis from Milan to northern France, but only seven finished the journey. Several of our finest young men were killed … I do not know quite what the trouble was. Perhaps our mechanics or pilots did not know the motors well, or we got a bad lot.

"Losses of flying personnel for Night Squadrons are estimated at 10% per month"

Squadron One "was composed of a fine group of men" headed by Lieut. Robert Lovett, three years younger than Fahy. [47] Lovett entered aviation in the First Yale Unit and brought "an attractive personality [with] qualities which

Roosevelt inspects Navy personnel at an American base in France, 1918.

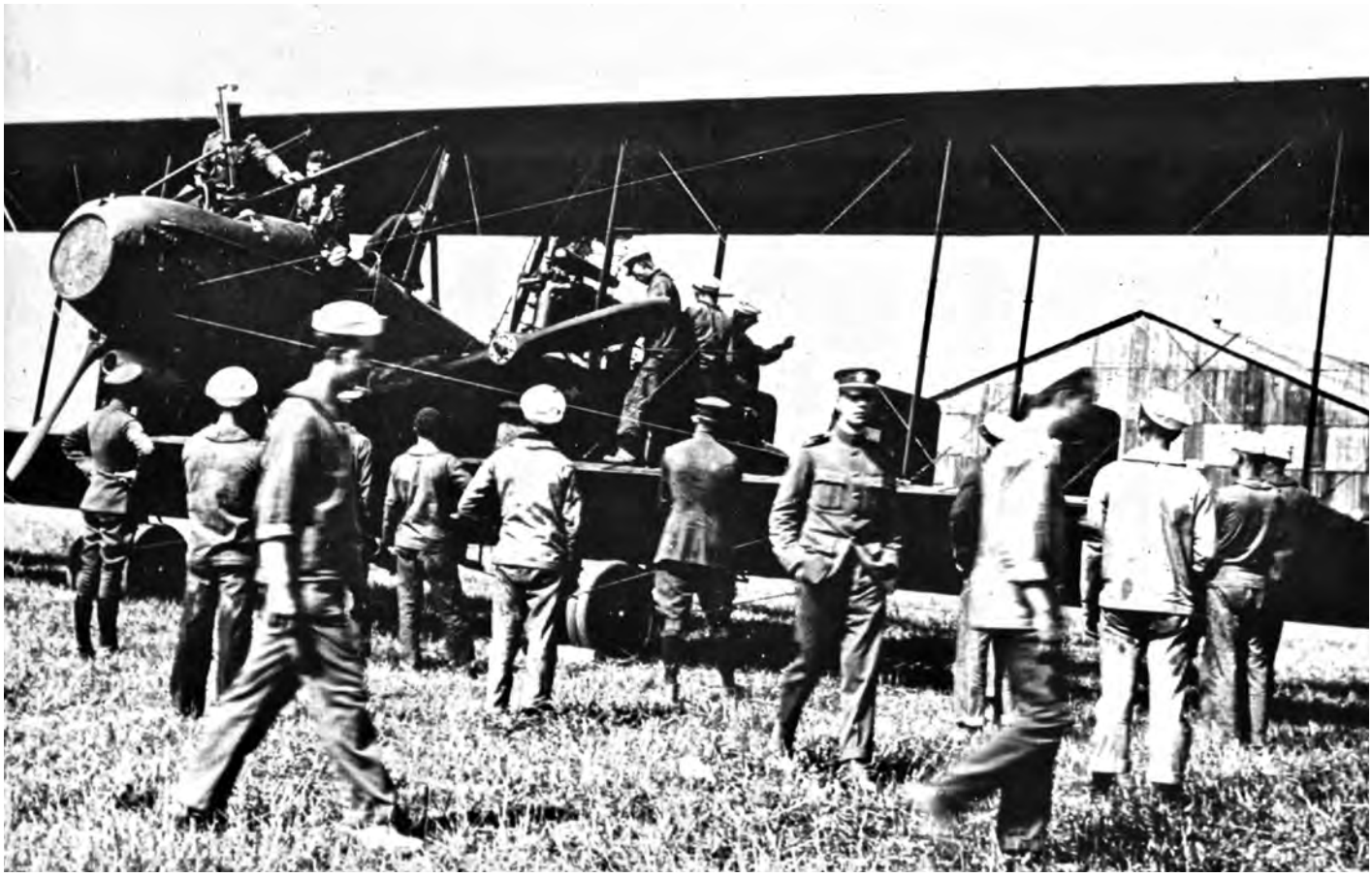
gave justification for his selection as commanding officer … We liked and respected him."[48] Assistant Secretary Roosevelt's grave 1917 warnings of the North Sea submarine menace kept Roosevelt keenly attentive to the Navy's bombing campaign, and he undertook a tour of NBG bases in 1918. In early August he "walked across [St. Inglevert's] airdrome … before his illness"—moving "with a swinging stride."[49]

In June the first American-led bombing raids, by day, struck the Belgian docks, ports and repair yards of Bruges, Ostend and Zeebrugge—the heart of Germany's war machine already nearly starving Britain into surrender. The next phase would be American-led night bombing.

On his NBG tour[50] Roosevelt noted the Navy's "finishing touches"for assuming command of night bombing, that Squadron One (Robert Lovett "seems like an awfully nice boy") would be the "first" American airdrome and that "new [Caproni] night bombers … fly[ing] here over the Alps" would carry bombs of enormous size.[51] Just "a few days ago," Roosevelt wrote in early August, "[o]ne of our pilots dropped [a massive bomb] on Middlekerke … from a British night bomber."[52] That pilot was certainly Fahy on his July 24th raid with RAFers Ellison and Bell—dropping their "terrific" new 1600 lb. bomb.

Night bombing added a far deadlier dimension to flying's already incalculable perils. While forming the NBG months before, Navy leadership had made a grim reckoning: "Losses of flying personnel for Night Squadrons are estimated at 10% per month. It will therefore be necessary to supply 6 pilots, 6 observers and 12 aerial gunners per month."[53] No such calculations attached to day bombing. Lovett understood attacking U-boat docks to be "the most dangerous objective there is [with] defenses far exceed[ing] anything one could imagine."[54] He sought "fighting plane" escorts to protect night bombers but superiors ignored his plea.[55]

Capronis were perhaps a greater menace than the enemy. Their Fiat engines "showed poor workmanship and



Fahy's Caproni being readied for first all American crew night bombing raid on August 15, 1918 (Fahy on nose behind slanting strut; Lovett walking away from plane, hands in pockets).

poor construction … necessitat[ing] their being completely taken down and re-built … Test after test [to] eradicate[e] … engine failures [were] unsatisfactory." Capronis lacked even basic equipment. Airdrome mechanics had to rig them with bomb gears, landing wires, lights and guns.[56]

On primitive tools aviators staked their lives—an altimeter, compass or unilluminated clock.[57] Only by clear skies and memory of "photographic maps" could the coast be tracked until the "turn inland [and] a fairly good chance of visually picking up our objectives."[58] Capronis had bomb sights ("theoretically we should hit the target") consisting of a thicket of moving parts.[59] Through bars the pilot sighted the target, then made further calibrations by assuming a fixed altitude and direction, but shifts in wind or speed threw everything off.

Each man was one bullet, engine spark or onion bomb from a fiery pyre. "[P]ilots did not carry parachutes; you jumped or you burned … a terrible choice," General Billy Mitchell, air combat commander in France, recalled. "The burning of a pilot in the air as his ship catches fire … is a terrible thing. He is there alone, suspended in space … When he is wounded and falls, it is for thousands of feet."[60]

"For a while it looked as if we were lost"

At 21.40 hours on August 15th—"the date … set for the beginning of operations"—carrying two 250 lb. bombs and one 550 lb. bomb with "extra petrol tanks," commenced history's first night bombing raid with an all American crew.[61] Taber was first pilot, Fahy second (with dual controls) and observer. He manned the forward-facing Lewis machine guns and Hale the Lewis gun guarding the rear. Their objective was U-boat repair and refueling docks at Ostend. They had photographic maps but needed good visibility to find their way.

After proceeding up the coast out over the North Sea the Caproni turned south and inland. "There was a good deal of anti-aircraft fire" but otherwise "clear sailing in getting over the objective."[62] At 22.50, 9,000 feet and visibility "good" they released their bombs and "were back in 2 hrs. 50 minutes."[63]

There had been a fearful passage. As they returned, haze blew in, they could not track their drift and the coastline disappeared. "For a while it looked as if we were lost."[64] Eventually they neared what they supposed the landing field. Fahy's flashlight signaled for ground lights but no reply came. They flew on, "lost for a bad little while." At last lights appeared and they landed to Lovett's greetings, "a happy man [and] a fine welcome all around." Later photographs showed a damaged railway station near the docks. Fahy "considered [it] a fairly successful raid," the official report "successful."[65] Hale recounted:[66]

[W]e made some very good hits on a repair station on the

docks. The raid was very successful in every way … We were a long time on the way back and could not distinguish the channel lights until we were very near them. We landed on the drome at 12:30 … Lieut. Lovett was very well pleased. Well I am lucky there's no doubt about it … I could not help asking myself "do you know who you are." I was told at Killingholme what I officially was and there is no denying it but I am finding my level in spite of all the previous opposition to it. Oh this is a great day in my life.

Years later the raid's main objective was identified. In a 1992 speech, Fahy's son recollected what his father had revealed long afterwards. On a train at the Ostend docks was believed to be the head of the German Army, Field Marshal General Paul von Hindenburg. As was learned thereafter, one bomb (perhaps the 550 lb. one) "hit von Hindenburg's train—but he was not aboard."[67]

The celebratory mood soon clouded. Fahy "learned the sad news of Torres' death in a Caproni near Turin" and Tom McKinnon had perished in a separate incident—"Both unusually fine boys, and good friends of mine." The Torres crash on August 17th ("Cause unknown") also took Ensign Nichols, and next day mortally wounded mechanic C.O. Hartie.[68]

Tom McKinnon's mother Margaret, in Minneapolis, Minnesota and Mary O'Gorman in Jamaica Plain, Massachusetts, both listed "next of kin," would have opened their doors to figures in uniform. On August 20th their boys went down three miles out at sea, off Dunkirk. RAF witnesses saw the de Havilland propellor "fly off intact into the water" at 400 feet, then a sharp ascent before spinning down. McKinnon's body, "submerged and carried down by the weight of the engine," was never recovered. Rescuers found only the four floating wings and Yeoman First Class gunner Matthew O'Gorman face down in the water, the "crash breaking the entire body [and his] skull fractured."[69]

A fearsome roll of NBG casualties had begun. Five weeks claimed nine men, including Palmer and Frothingham ("burns (entire bod[ies])," airdrome accident) and Alexander McCormick (night crash, "freed himself … went to extinguish the flares and assist [two comrades] was struck on the head by the propeller, which was still turning over").[70] In the final months Brewer, Wershiner and Robinson were "Wound[ed], Gunshot (Mult.)," Chapin Barr died "from machine gun wounds," Harvey Norman and Caleb Taylor "crashed [and died] after combat with E.A.," Ralph Talbot "burned to death after crash" and Kenneth MacLeish went missing "after combat with E.A."[71] Pneumonia killed seventeen men in October and November.[72]

"and we crashed"

On August 22nd Taber, Fahy and Hale went at the Zeebrugge Mole, a concrete U-boat harbor. They climbed slowly in "bright moonlight" until near Dunkirk, at 8,000 feet, Taber signaled a bad starboard engine. Fahy "pointed out the place" set for emergency landings. As they descended Fahy warned Hale to stay in the gunner's cage—"fortunately," said Hale.[73]

German bombers were abroad and Fahy's alert light to the ground crew "got the red danger light in reply." Taber circled, losing altitude. Fahy signaled again and "got no reply." In total blackness toward an invisible beach "Taber came down to land … failed to flatten out, and we crashed."[74] For Hale, "the noise of the crumbling machine is all I remember until I found myself staggering around on the beach and I caught a glimpse of the ruined machine out of my right eye, the left was completely closed up and the darkness and silence around the machine gave me fear that Taber and Fahy were badly injured."[75]

Fahy "jumped almost simultaneously with the impact … catapulted some distance [and revived] huddled up on the beach suffering the most terrible pains in the back. Thought it was broken … Got some relief by stretching out legs and arms." Taber was unhurt and called for "stretcher, Dr. Stevenson, ambulance, hospital." Beside the "contusion" to back and chest was a deep cut behind Fahy's knee.

Nine days later Fahy was "getting along fine" at Queen Alexandra's Hospital at Mal les Bains. Stitches were out of the knee, upper body pain mostly gone, "although I feel it will be some time before it is completely well." To Quaker nurses, doctors and "good sisters [doing] so much to lighten and cure … I owe a tremendous debt of gratitude for the most tender and efficient care." Hale was also taken with his caregivers. "[A]s soon as I saw Sister Evans, well cheereo." A month later Fahy's "principal difficulty was [the] back injury and [chest] concussion."[76]

On September 9th he and Foster left for treatment in London, where Stocker was recovering from his HP crash. Foster badly mangled his arm ejecting in a crash but rescued a comrade trapped in flames. The British decorated him for heroism. Fahy was offered a transfer to America to instruct flyers, but he asked to return to Squadron One. It was October and the end was sensed. Stocker was first back to St. Inglevert. Foster and Fahy returned by Dover where, at the Burlington Hotel, "brave" Foster took to the dance floor. On October 26th Stocker welcomed them home at the Cross Roads pub and "had places for us in the attic [where] we three bunk."[77]

Fahy's "totally wrecked" Caproni was the last straw. The plagued machines—of twenty Capronis even reaching St. Inglevert from Milan ten crashed or "caught fire in the air"—were permanently shelved and men dispersed to the British and HPs.[78] One "short … pay hop" in a de Havilland remained for Fahy. "I never considered myself a particularly skillful pilot."[79] He nowhere notes receiving the Navy Cross.

"bedecked to the brim"

Fahy's final excursion, in late October, was leading men to the "no man's land of Ypres … desolate, towers, forests, everything, leveled and completely shot up." Where a week ago the Germans had been driven back lay "terrible ruins [where] we eat our sandwiches." Red dust and a sign marked a vanished village. "Shell holes overlap … the cathedral and clock hall simply do not exist—only in two places are even part of their walls standing." Tanks were

Ypres, October 1918.

"riddled, lying about" among hundreds of unexploded shells, forests "blown out of existence, with only a few shattered, scarred trunks." But refugees, pushing carts, were "moving into shelled homes," British engineers restoring roads. In an "old hut, surrounded by trenches [I] picked up a hun rifle & bayonet … and a burned hun helmet."

Beyond France the scene brightened. "Austria is about to surrender, Germany crying for peace" until the armistice was signed on November 11th. "Packing up & goodbyes" were broken by Ensign Ries's "sad death."[80] Fahy and "Red" tended to his personal effects. On November 20th, Fahy, Foster and others, "after of course sitting all night," arrived to morning light in Paris. After baths and breakfast at a Canadian barracks they strolled to the "weird sight" in La Concorde of captured guns, airplanes, tanks and zeppelins "lined everywhere." They walked that afternoon to Notre Dame through a city flying flags of allied nations and "bedecked to the brim."

On November 29th Fahy sailed from St. Nazaire on the steamer Susquehanna. After a sixteen day crossing in bad weather they anchored off Norfolk. Land lighters bore the men ashore. At Christmastime, on the way north to see his mother in New York, "I stopped in Washington … to have a visit at the Lane household." In January 1919, back in Washington, "I began again to get a foothold in private practice."[81]

"Charlie was always a man of spirit"

The foothold would give way. In February 1924, three doctors X-rayed Fahy and reported his "pulmonary tuberculosis" to the Veteran's Bureau, which awarded him $80 monthly for "disability … from injury [chest concussion from Dunkirk crash] incurred in the line of duty."[82] Now badly ailing he took several months of Asheville's moist air. By August his lungs were weaker. His Washington doctor insisted that the only cure lay in a dry desert climate: "I would … advise against your return here [and] take no chances."[83] A friend connected Fahy to a lawyer in Santa Fe and by late August his home was a sanatorium in the ancient capital. After several years periodically coughing blood but gradually resuming law practice, Fahy recovered.

With his wife Agnes Lane and young family he returned for good in early 1933 to Washington and the new Roosevelt Administration. Fahy was a leading New Deal lawyer and first General Counsel of the National Labor Relations Board. "I saw Justice Brandeis," a colleague wrote Fahy, "[who] commented on the fine work you have done for the [NLRB] and said it was the opinion of the whole [Supreme Court] that no government agency is more competently represented than the [NLRB]."[84]

In early 1941, Assistant Solicitor General Fahy represented America's military in "base-destroyer" negotiations with Winston Churchill. Over the ocean to London on a Yankee Clipper, night flight's enchantments returned in musings on the:[85]

marvelous product of man's daring and infinitesimal attention to detail; a thing of great size and power, and yet dependent upon the finest care, skill and workmanship. I shall never forget the appreciation I felt of the workshops and workmen of America as I listened hour after hour to the un-

Charles Fahy. *(From Project Gutenberg EBook of "Integration of the Armed Forces, 1940-1965," by Morris J. MacGregor Jr.)*

Robert A. Lovett.

failing and coordinated hum of the orchestra, composed of thousands of pieces of metal brought together in four huge motors, as we sailed through the night winds above the Atlantic, catching on silvery wings and propellers white fragments from the moon.

Far from naval aviation and St. Inglevert, the Roosevelt-Lovett-Fahy roots endured through a second world war. In November of 1941 the President appointed Fahy Solicitor General of the United States, the national government's top legal post responsible for its Supreme Court litigation. Fahy served through mid 1945.

On the afternoon of December 7, 1941, the Attorney General was away and the President called Fahy. They "talked … on the telephone … [The President] spoke of the immediate steps Justice should take [and] told me generally what the situation was at Pearl Harbor. He was self-possessed and alert."[86] That evening Fahy conferred with the President at the White House. "Mrs. Roosevelt and their son James … were there. The President was sitting up in bed with a rather large pad and pencil working on a composition … which I assumed was his message to Congress asking for the declaration of a state of war."[87] The President immediately appointed Lovett Assistant Secretary of War for Air.[88] While Lovett launched a massive expansion of military air power from 1941-1945, Fahy represented the War Department in many highly charged wartime cases before the high Court.[89]

In early 1947 Roosevelt's Army Chief of Staff, the indispensable General George Marshall, became Secretary of State—and brought in Robert Lovett as Under Secretary. Fahy was then the Department's Legal Adviser, appointed in 1946 by former Secretary Byrnes. Fahy offered to resign but Marshall "wished me to stay" and Lovett prevailed upon him.[90] One last time he and Lovett "happily overlapped … reminiscent of … battles long ago … It was a pleasure … to work with [him] again, after the years since 1918 at the air station at St. Inglevert."[91]

Fahy had led negotiations on the United Nations Headquarters Agreement, which President Truman asked Marshall to sign for the United States at a ceremony in New York in late June, 1947. (Late June was Fahy's wedding anniversary; his wife Agnes would meet him in New York). Marshall asked Fahy to join him on his plane. Fahy "thoroughly enjoyed the visit … [o]nly the two of us and the small crew."[92] When Marshall met Agnes at a reception, however, "he was a little bit put out with me, saying I should have let him know she was coming up as he would have wanted her to come along on the plane trip up."[93]

A final military campaign remained for Fahy. In July 1948 President Truman, by Executive Order, directed desegregation of the Armed Services. He appointed Fahy Chair of the Committee established by the Order to implement it, in consultation with the Armed Services. For two years Fahy "packed the punch of a mule."[94] Beyond even "military or manpower considerations," as he pressed Secretary of the Army Gordon Gray and top brass from all branches, segregation in the ranks presented "the obvious injustice of the inequality of treatment of the individual."[95]

By 1950 the Armed Services had accepted all "Fahy Committee" recommendations to the President to implement the Executive Order. America had shown the world, said the President in May of 1950, that it could act "in accordance with … the belief that all men are created

equal."[96] One month later the United States entered the Korean War. The immediate heirs to Fahy's work and the military's commitment to desegregation became Secretary of Defense General Marshall and, in 1951, Marshall's successor for the duration of the War—Robert Lovett.

One last time the old comrades would engage, ever on familiar terms. Their third war was at its height. Fahy was a judge on the Court of Appeals for the District of Columbia Circuit and had no military role. Perhaps his sense of where the balance between personal rights and national interest was best struck, formed when advising the post World War II Military Government in Germany on the Geneva Convention's treatment of prisoners, stirred Fahy to speak. In late February of 1952, he wrote "Bob" to urge that no "prisoner in our hands … be returned to the enemy without the prisoner's consent … This would protect the individual … but would not … set them at liberty… I do not see how we can recede on that principle." Lovett answered "Charlie" three days later. Prisoner repatriation was being "discussed with the State Department … It was good of you to write and I thank you for your thoughtfulness."[97]

Fahy offered Lovett a "last" thought one week later. A "plague epidemic" was sweeping through North Korean civilians. Might not the United Nations or Red Cross relieve the suffering with "serums or … facilities"? Some might see this as "rehabilitat[ing] the enemy, but I believe the American people ... would approve." Lovett immediately replied that the Red Cross had attempted thus far "unsuccessful" plague relief in North Korea and that, Fahy's proposal being more political than military, "I suggest you write [Dean Acheson, Secretary of State] of your thought."[98]

In 1944 Lovett had written Supreme Court Justice Frankfurter about his long ago airman. "Charlie was always a man of spirit. He showed it as a fighting man when I knew him well and he is one of the fortunate ones who has been able to mature without fraying around the edges. I'll bet he would still be a darn good pilot."[99] A decade later Fahy sent Lovett the photo of Lovett walking near a Caproni at St. Inglevert, for Lovett a "very nostalgic reminder of youth and of what I cannot help but feel were better days."[100] ■

NOTES

1. Philip A. Roosevelt to (Navy) Captain Mark Bristol, April 27, 1916. [Roosevelt was Editor of American Defense Magazine and distant relation of Theodore and Franklin]. Box 145, Records of the Northern Bombing Group, RG 45, National Archives, Washington, D.C.).
2. Samuel Hynes, *The Unsubstantial Air: American Flyers in the First World War* (New York, 2015), pp. 15, 39.
3. Columbia University, Oral History Project, *Memoirs of Charles Fahy* (1958), pp. 35, 16.
4. Application, August 13, 1917, "Charles Fahy Personnel File," Bureau of Navigation, Navy Department, National Archives, St. Louis, MO.
5. Fahy, *Memoirs*, p. 17.
6. Elliott Roosevelt, ed., *F.D.R., His Personal Letters (1905-1928)* (New York, 1948), p. 355 [editor's commentary].
7. Roosevelt to Wilson, October 29, 1917, Roosevelt, ed., *FDR Letters*, p. 367.
8. *Ibid*., pp. 355-56 (*quoting* Admiral William Sims, *Victory at Sea* (New York,1920), p. 6.
9. Hynes, *Unsubstantial Air, p.* 48.
10. *Ibid*., p. 19.
11. *Ibid*., p. 47.
12. Fahy, *Memoirs*, pp. 18-19.
13. *Ibid*., pp. 17-18.
14. *Ibid*., p. 20.
15. Hynes, *Unsubstantial Air*, p. 196.
16. Fahy, *Memoirs,* p. 17.
17. "[S]ome observers attached strings … to the pilot's arms and ran them back to the rear cockpit … the observer tugged … this way and that to steer the pilot." Hynes, *Unsubstantial Air*, p. 181.
18. "Imagine … sitting up there … in an open cockpit the size of a barrel, with only a meager windshield to protect you from the slipstream that strikes your face … with no heating system except what blows back from the engine." *Ibid*., p. 164.
19. Carrier pigeons were near infallible messengers in the hottest conditions. Whether for aviators or front line tanks in peril, pigeons unvaryingly flew a straight line back to their coops. Many in the American 78th infantry and tank corps owed their lives to "President Wilson." During a battle in the 1918 Meuse-Argonne offensive he carried a desperate plea for artillery relief. Shot several times by German soldiers as he rose over the lines, he reached his base in time to spur reinforcements and save the troops. Jessie Kratz, "Unsung Heroes of World War I: The Carrier Pigeons," https://prologue.blogs.archives.gov (January 8, 2018).
20. Fahy, *Memoirs,* p. 31.
21. Unexpected landings in unknown fields were not so unexpected. "[N]early everybody gets lost," noted Fahy. "A clever young cross-country pilot would watch … for chateaus." Hynes, *Unsubstantial Air*, p. 73. "The proper thing to do," mused one, "is to bust directly over a nice chateau; make a skillful landing on the front lawn under the eyes of the admiring household and then be [a] guest for a few days." *Ibid*.
22. Fahy, *Memoirs*, p. 21.
23. Hynes, *Unsubstantial Air*, p. 91.
24. "Allied pilots didn't meet [the huge German bombers] in the air, but … heard them from the ground—rumbling ghosts in the darkness over Paris, or … Dunkerque, dropping destruction on the streets below." Hynes, *Unsubstantial Air,* p. 196.
25. Fahy, *Memoirs*, p. 31. "At other times [Big Bertha] shelling [took] many lives … a depressing influence on morale in Paris, but on the whole it caused the French to be more determined … Experience such as this no doubt had something to do with the French desire for a harsh exaction from the Germans." *Ibid*., pp. 31-32.
26. "Two Hun planes … brought down. Saw … remains in the square … days later."
27. Fahy, *Memoirs*, p. 22.
28. *Ibid*., p. 34.
29. Marc Wortman, "Flight to Glory," *Yale Alumni Magazine*, Sept.-Oct. 2003.
30. "Green onions" were "chains of fire [that] exploded into luminous nets of green flame, designed to entangle and set fire to the oil-splattered wooden frame and canvas skin of an aircraft." *Ibid*.
31. "Sometimes [flyers] flew very low and … fast … just for the thrill of the speed." Hynes, *Unsubstantial Air*, p. 113. Kenneth MacLeish wrote: "The fun was quite intense today. I went bush-bouncing … It's great sport to get going about 120 mph right around five feet above the ground." *Ibid*., p. 114.
32. One third of airman deaths were by mechanical failure or accidents. *Ibid*., p. 81.
33. Fahy, *Memoirs*, p. 24.
34. *Ibid*.

35. *Ibid*.
36. *Ibid*.
37. Commander to Force Commander, "Recommending Changes in Present Organization of U.S. Naval Forces," June 22, 1918, p. 3, Box 145, Records of the Northern Bombing Group.
38. Hynes, *Unsubstantial Air*, p. 196.
39. Fahy, *Memoirs,* p. 22.
40. B. Smith to Captain Cone, Aug. 9, 1918, Box 144, Records of the Northern Bombing Group; Force Commander to Secretary of the Admiralty, Whitehall, July 22, 1918, Box 144, Records of the Northern Bombing Group.
41. Commander, Northern Bombing Group to Commander, USNAF, "Report on Crashes to Caproni Planes," Aug. 24, 1918, p. 1, Box 144, Records of the Northern Bombing Group.
42. Fahy, *Memoirs*, p. 23.
43. In the first operation, "[a]t close to 14,000 feet without oxygen or heated suits, the three [Caproni] crewmen suffered mightily from the cold. Ice formed in Lewis' mustache." William Hallstead, *World War I: American Caproni Pilots in Italy*, Aviation History, (May 2003) [https://www.historynet.com].
44. At Brioude, France they made a safe but "forced landing, due to running short of petrol, pilots having lost their way." Commander, "Report on Caproni Crashes," p. 1. The mishap was perhaps good fortune, for on a test flight twelve days earlier the plane's "right hand motor caught fire in the air." The Aerodrome Forum, WW I Aviation (Dec. 2001) (http://theaerodrome.com) [Aerodrome Forum].
45. Fahy to Janie Fahy, August 11, 1918, (author's possession).
46. Fahy, *Memoirs*, p. 23.
47. *Ibid*., p. 24.
48. *Ibid*., pp. 23-24.
49. *Ibid*., p. 69; Fahy, "Remarks at Annual Dinner of Harvard Law Review," May 2, 1941, p. 4 (author's possession).
50. Roosevelt, ed., *FDR Letters,* p. 445.
51. *Ibid*., pp. 399-401.
52. *Ibid*., pp. 399-400.
53. Commander to Force Commander, April 18, 1918, "Dunkerque Bombing Project," p. 2, Box 144, Records of the Northern Bombing Group.
54. Wortman, "Flight."
55. Lovett to Commander, "Report of Marine Fighting Squadrons to Protect Navy Bombing Seaplanes," March 19, 1918, p. 1, Box 145, Records of the Northern Bombing Group.
56. A.H. Douglas, "Progress Report of Northern Bombing Group from July 1 to November 11, 1918," Dec. 13, 1918, p. 4, Box 144, Records of the Northern Bombing Group.
57. Hynes, *Unsubstantial Air*, p. 107.
58. Fahy, *Memoirs*, p. 25.
59. *Ibid*.
60. Hynes, *Unsubstantial Air*, p. 142.
61. "War Diary, Northern Bombing Group," August 18-20, 1918, p. 2, Box 144, Records of the Northern Bombing Group.
62. Fahy, *Memoirs*, p. 26.
63. *War Diary*, p. 2.
64. *Ibid*.
65. Douglas, "Progress Report," p. 5.
66. U.S. Militaria Forum, "WWI US Northern Bombing Group," handwritten diary of David C. Hale (http://usmilitariaforum.com).
67. Fr. Thomas Fahy, Biographical Reflections, *The Charles Fahy American Inns of Court Annual Banquet*, (April 22, 1993), p. 8 (author's possession).
68. Commander, "Report on Caproni Crashes," p. 1.
69. Commanding Officer to Commander, August 22, 1918, "Report of Death," pp. 1-2, Box 144, Records of the Northern Bombing Group. It seemed Mary O'Gorman was given a gentler account of "Matty's" death by "drowning." In 1921 his hometown named a square for its shoe cutter-turned hero, and in 1930 Mary visited her son's grave in the Somme Cemetery. jphs.org/20th-century/2019/8/12.
70. Operations Officer to Group Commander, September 21, 1918, "Weekly Report,", Box 144, Records of the Northern Bombing Group; Lovett, "Pilot's Raid Report," September 23-24, 1918," Box 144, Records of the Northern Bombing Group.
71. Senior Medical Officer to Commanding Officer, December 5, 1918, "Casualty Report," Box 144, Records of the Northern Bombing Group; Senior Medical Officer to Commanding Officer, December 5, 1918, "Accidents, Wounds, Report of," Box 144, Records of the Northern Bombing Group. In December, a returning Belgian farmer found MacLeish's body beside his plane. Hynes, *Unsubstantial Air*, p. 256.
72. Douglas, "Progress Report," p. 6.
73. Hale, *Diary*.
74. Before permanent landing lights, the best hope for blind night landings were ground flares (a bucket of ignited gasoline), bonfires or truck headlights. Many menaces (water towers, electricity lines or rocks) also lurked in the darkness. Hynes, *Unsubstantial Air*, p. 107.
75. Hale, *Diary*.
76. Hale, *Diary*; Fahy, *Memoirs*, p. 28.
77. "Stocker was killed [crashing in the Delaware River test flying a Navy plane on November 24, 1919] the early ending of the life of a very fine, attractive young American." Fahy, *Memoirs*, p. 28. He was buried in the family plot at St. John's Church, Hampton, VA. Decades later Fahy and Foster, then a lawyer in New Orleans, exchanged letters about commemorating "our dear Bobby" (Foster). On Thanksgiving Day, 1964, forty-five years after Bobby's death, Fahy and Foster had flowers placed on the Church altar (the minister wrote them) "for the decoration … for our service that day." Foster to Fahy, November 23, 1964, Box 6, Fahy Papers, Manuscript Division, Library of Congress.
78. Douglas, "Progress Report," p. 4.
79. Fahy, *Memoirs*, p. 18.
80. On November 17th, homeward looking Fred Ries was likely securing a bomb when an "explosion of shell" took him. Senior Medical Officer, "Casualty Report."
81. Fahy, *Memoirs*, p. 36.
82. Sterling Ruffin to U.S. Veteran's Bureau, April 8, 1924, (author's possession); U.S. Veteran's Bureau, "Disability Award," July 14, 1924, (author's possession).
83. Ruffin to Fahy, July 21, 1924, (author's possession).
84. Calvert Magruder to Fahy, June 21, 1938, Box 10, Fahy Papers.
85. Fahy, "Remarks at Annual Dinner," pp. 2-3.
86. Fahy, *Memoirs*, p. 151.
87. *Ibid*., pp. 150-151.
88. NBG pilot Artemus Gates, shot down in 1918 and taken prisoner, shared Lovett's mission as Assistant Secretary of the Navy for Air during all of WWII.
89. From July 1945-May 1946, Fahy served in Berlin as head of the Legal Division of the U.S. Office of Military Government and Legal Adviser to Military Governor General Eisenhower.
90. Fahy, *Memoirs*, p. 296.
91. *Ibid*., pp. 36, 296.
92. *Ibid*., p. 289.
93. *Ibid*. Fahy last worked with Marshall late in 1947. Fahy had left government but was appointed alternate representative of the United States—with Adlai Stevenson and others—to the U.N.'s General Assembly. Marshall, John Foster Dulles and Eleanor Roosevelt represented the United States. *Ibid*. at 316.
94. Lee Nichols, *Breakthrough on the Color Front* (New York, 1954) p. 89 [*quoting* White House adviser].
95. Fahy, *Memoirs*, p. 305.
96. Statement Responding to the Report of the Committee (May 22, 1950).
97. Fahy to Lovett, February 26, 1952, Lovett to Fahy, February 29, 1952, Box 9, Fahy Papers.
98. Fahy to Lovett, March 6, 1952, Lovett to Fahy, March 13, 1952. *Ibid*.
99. Lovett to Frankfurter, July 1, 1944. *Ibid*.
100. Lovett to Fahy, June 11, 1953. *Ibid*.

The DH. 4: The Foundational Combat Aircraft for the United States

This photograph of a DH. 4 Liberty plane comes from a book given to Spruce Production Division soldiers at the end of World War I. The U.S. Army's Spruce Production Division produced the wood that the massive production required.

Cole Coppess

When the United States entered the First World War, they were woefully underprepared. This was especially true in regard to the United States Army Air Service. This was the air arm attached to the army in France under Pershing. There were several reasons for the poor state of the air components leading up to the war. First, the United States Government did not adequately fund aerial domestic aerial technology on a level that was anywhere close to the European powers. With that said, the United States had no capable combat-ready aircraft that was domestically produced. Second, the United States did not prioritize aircraft development and aviator training in the same ways as the European powers. This was partly because they had a bad experience with airplanes in the Mexican excursion, and the fact America did not directly see the need for aircraft like the combatting nations in Europe. Lastly, domestic situations involving company patents and legal issues combined with little government funding slowed aircraft technology development to a snail's pace before entry into the war.[1] With that said, once the war came to America, they relied on foreign production to bolster their arms. This included anything from cannons to tanks to airplanes. One area where the United States was nearly entirely reliant on foreign production was aircraft.[2] All types of aircraft entered American service, anything from Sopwith Camels to SPAD XIIIs.[3] However, one aircraft entered American Service that was of British design, but American production. This aircraft was the DH. 4. The DH. 4 was designed by Geoffrey de Havilland and originally produced in the United Kingdom.[4] The American DH. 4 airframe was not only American-built, but a truly American engine was developed and incorporated into the design. This engine was the Liberty 12 which had about four-hundred horsepower. Since the DH. 4 was the only American-built aircraft to see service in World War One, it deserves more recognition and appreciation for the role it played as the backbone of the British bomber squadrons and especially the American bomber squadrons. Additionally, it helped jump-start the United States aviation industry as it influenced aviation in a multitude of ways after the war's conclusion.

The DH. 4 provided the United States with a crucial capability that the United States simply did not have time to develop on their own; light bombardment. In this regard, the D.H. 4 performed very well in British and American service. The British designed and perfected the usage of the DH. 4 in their service, which allowed the United States a fairly streamlined transition into using the platform. The DH. 4 was the backbone of British bombing in late 1917 and most of 1918. The DH. 4 was replaced by the British due to faulty assumptions about the DH. 9, but that still allowed the DH. 4 plenty of time to prove itself in combat. Once American aircraft production took off, the DH. 4 was again at the forefront of combat aviation, but with an upgraded and consistent version. The plane served until the end of the war and it remained in service for many years after the conclusion of World War One. However, the story of the DH. 4 begins with the British.

The first flight of the DH. 4 took place in August of 1916 and was fitted with a 230 h.p. engine.[5] It was constructed of wood and fabric, which was typical of the day. The standard armament was "one synchronized forward firing Vickers gun mounted on top of the fuselage, single or twin Lewis guns on a Scarff ring for the observer, and two 230 lb. and four 112 lb. bombs were carried in racks under the fuselage and wings respectively."[6] In quick succession, several improvements were incorporated into the original design. Some to note is a taller landing gear to allow for a larger propeller on bigger engines, and the Scarff ring was raised to allow for a wider range of fire.[7] An interesting aspect of this aircraft is the fact that it had a wide variety of aircraft engines installed into it. It had the Siddely Puma with 230 h.p., R.A.F. 3A with 200 h.p., Rolls-Royce III with 250 h.p., Fiat with 260 h.p. and then the Rolls Royce Eagle VIII with 375 h.p.[8] These are the engines that the British version had, and if we include the American DH. 4 as well, then add the Liberty 12 with 400 h.p. With the wide variety of engines and the heavy armament of the plane, it is clear to see why it was such a versatile aircraft.

The first use of the plane in combat occurred on April 6, 1917.[9] However, it took a while for the aircraft to be in sufficient numbers on the front to see continuous widespread combat. The initial usage of the airplane as a strategic bomber began to take shape in October of 1917. The War Cabinet was looking to begin raids on Germany with bombing missions and to do so, the "CIGS promised that 20 DeHavilland 4s in crates would be sent to Ochey, with a like quantity to follow within six weeks."[10] This little snippet demonstrates some excitement with the capabilities of the DH. 4 since prior to the DH. 4, Britain did not have a great platform for bomb delivery. The British were desperate for revenge against Germany for their bombing of London with Gotha bombers, and this prompted the rushing of DH. 4 bombers to the frontline for an attack on Germany.[11] That first attack from DH. 4's finally came on October 17, 1917, when "eight DH4 bombing machines—of 11 launched—from No. 55 Squadron dropped 1,792 pounds of bombs on the Burbach works at Saarbrücken."[12] The strategic bombardment role was one of the many roles that the DH. 4 had. Some of the other missions it took part in were coastal patrols, zeppelin defense, reconnaissance, and close air support.

The DH. 4 would go on to perform admirably for the British Air Service as its main bomber for the latter stages of the war. In fact, the DH. 4 is described as "without question one of the outstanding aeroplanes of the First World War."[13] Pilots described the mannerisms of the flight characteristics as "fine handling qualities, wide speed range and a performance which made it almost immune from interception."[14] The DH. 4 was so well-mannered that its performance was greater than the aircraft that replaced it—or was meant to replace it. This aircraft was the DH. 9, and "the DH9 represented a regression in performance: a service ceiling of 17,500 feet versus 23,000 feet for the DH4, and a cruising speed at altitude of 91 miles per hour versus 122.5 miles per hour for the DH4."[15] In fact, one aviation historian commented on the craft saying the DH9 "was rashly substituted for the 'Four' in the contracts."[16] The DH. 4 was a dependable aircraft for the time that had excellent performance for a light bomber. It was so well regarded that the British Air Service was mightily disappointed with the DH. 4's "replacement." The DH. 4 and DH. 9 were very similar aircraft except for the power plant. The DH. 9 had the Siddely Puma engine which "hampered it tactically."[17] This engine was the major downfall of the DH. 9, and the British shot themselves in the foot by committing to the DH. 9 without further analysis or better engines to incorporate into the design. The United States did not make this same mistake as they decided to build the DH. 4 with the best engine available, the Liberty L-12.

The American DH. 4 resulted from a lack of domestic war-ready aircraft designs. Luckily, there was a man by the name of Raynal Bolling who led a Commission to Europe to "determine what types of airplanes the United States should manufacture."[18] As Bolling went around Europe trying to figure out what America needed, he realized that nothing the United States could produce would suffice as "Bolling realized that American aviation technology was so far behind that it would be necessary, at least initially, to rely upon the European Allies for airplanes."[19] This "Bolling Commission" resulted in several aircraft being adopted into the military from foreign powers. These aircraft included the acquisition of Nieuport 28s, SPAD XIIs, Breguet 14s, and the Salmson 2A2s from France. We also acquired Sopwith Camels and SE-5s from Britain and Caproni Bombers from Italy.[20] However, only one aircraft was American made because of the Bolling Commission, and that is the DH-4. The Bolling Commission should go down as one of the greatest feats of American war acquisitions of all time because the results of this Commission built a powerful, and modern Air Service in the period of about 14 months.[21] Next, the Americans had to figure out how to build their own DH. 4's.

After the Bolling Commission, the DH.4 arrived in the United States in August of 1917 without an engine.[22] This aircraft was quickly fitted with the 400 h.p. Liberty engine and first flown on October 29, 1917.[23] By February of 1918, the DH. 4 was in full-fledged production, and "by October, production numbers were greater than 1000 a month."[24] Three aircraft companies were contracted to build American DH. 4's—Dayton-Wright, Fisher Body, and Standard. The first American DH. 4's arrived in France on May, 17 1918.[25] A total of 3431 American DH.4's were built before

This article began as an award-winning Senior Paper at the U.S. Air Force Academy in 2023. The Air Force Historical Foundation, our publisher, declared it the best student paper for 2023. A cadet senior at the time, he is now 2d Lt Cole Coppess.

The DH. 4 Liberty single-engine biplane was the only U.S.-built aircraft used in World War I.

the war ended, and 4846 were built when production ceased in 1919.[26] The United States was able to produce enough DH. 4's, that it was the second most numerous aircraft that was dispatched to the zone of advance.[27] A total of 696 American-built DH 4's made it to the zone of advance, second only to the SPAD XIII which had a total of 877.[28] The performance and capabilities of the DH. 4 are very obvious, but one of the biggest factors for this was the Liberty engine.

The state of aircraft engine development and production was in as bad of shape as the airplanes themselves prior to the United States entering the war. In fact, "no firm in this country was building aircraft engines that would have been of any value on the fighting line."[29] Once the war kicked off, hectic designing took place to produce an aircraft engine that would give the performance required in a modern aircraft engine. After the designers set to work, they created a plan for a line of engines that had 4,6,8, and 12 cylinders. These different engines would allow for a wide range of applications since the horsepower rating would increase with the weight of the engine.[30] The first engine was completed and shipped to Dayton, Ohio on Thanksgiving Day 1917.[31] To discuss the attributes of the engine, "Captains Clark and Marmon returned from Europe, and after going over the Liberty engine carefully in the light of what they had learned, agreed that we had been very wise in developing the Liberty engine."[32] The reason they were impressed with this engine is that, "in their opinion, an engine of 400 h.p. was essential for types of machines that it had been decided we should manufacture, and they stated that no proved 400 h.p. engine existed in Europe."[33] This is an impressive testimony for an engine that was designed, tested, and put into production in a matter of a few months. Now, the United States has an engine, but that is no guarantee that it will work properly in the airframes it was intended for. Once the Liberty was mated to an American-built DH. 4, the results were such that "it is now a well-known fact that the DeHavilland plane equipped with the Liberty Twelve did wonderful work at the front."[34] However, the best testament to the brilliance of the Liberty Twelve may be the fact that "England, France, and Italy were taking deliveries of these engines just as fast as they could get them."[35] The best testament to the effectiveness of a piece of equipment is when the demand for it out-paces production, and luckily American ingenuity allowed for a steady and increasing production stream of these engines. However, the story of the DH. 4 and the Liberty does not end there, instead, it is just beginning with World War One.

Following the conclusion of World War One, the DH. 4 remained in service with the United States. The first order of business with the DH. 4 was to cancel the remaining orders of the airplane, as they were no longer needed since the Central Powers collapsed. The total number of cancellations was 7,502 planes after the end of hostilities.[36] Despite the cancellation of future orders, the DH. 4's that remained formed the backbone of the post-war air service. By this time, the DH. 4's were upgraded to a new version called the DH. 4B.[37] This version improved some of the shortcomings of the original design such as the fuel tank sitting behind the pilot, and it being nose heavy.[38] The United States Air Service suffered from poor funding after the war, but maintenance funds were allocated to keep the existing DH. 4's afloat in the small force that remained. These maintenance funds "carefully distributed, kept the struggling American aircraft industry alive during the critical post-war years through extensive modification and rebuilding of DH. 4's."[39] One of the major recipients of this funding was Boeing. After the DH. 4B version went mainstream, the Army "studied German designs taken to the United States after the armistice, it was greatly impressed by the strength and maintenance efficiency of the welded steel tube fuselage of the Fokker D.VII."[40] As a result of this, a DH. 4 "modernization programme was initiated, this time to incorporate steel tube fuselages in rebuilt models

to be known as the DH-4M."[41] The Boeing Company wound up rebuilding 298 DH. 4's to either the DH. 4B or DH. 4M standard.[42] These early projects for Boeing helped get the company off the ground and made it what it is today. Some of the uses of these airplanes after the war are truly astonishing as well.

Both the United States and the Commonwealth nations used the DH. 4 in a plethora of civilian uses, just another example of the importance and versatility of this aircraft. The Canadians used a group of DH. 4's for forestry patrol, locating forest fires, and saving "millions of dollars worth of timber."[43] The British decided to use the DH. 4 for a fledgling air transport service that connected Brussels to London, Paris, and Amsterdam.[44] In the United States, DH. 4B's and M's "went into regular service with the United States Postal Department" where they carried "400 lb. of mail in a watertight compartment that had once been the front cockpit."[45]The wide range of tasks does not stop there as on 27 June 1923, the first in-flight aerial refueling took place enabling a record-breaking 37 hour and 15 minute flight that was the "first conclusive demonstration of flight refueling."[46] The variants of the DH. 4 were also used as a test bed for different engines, wings, and a multitude of other aviation-related testing.[47] The DH. 4 was doing all of these tasks and many others that warrant a discussion of their own, all the while it was still the primary attack aircraft for the air service.

The DH. 4 served admirably for many nations during World War One, with the majority of them serving the United States and Commonwealth nations. The British used it primarily for strategic bombing and close air support where it was slowly phased out by an aircraft that was not as effective. Then, the Bolling Commision picked the DH. 4 for production in the United States to supplement the ill-equipped United States Air Service's light bombardment squadrons. In addition to the American built DH. 4's, the United States designed, tested, and initiated production of a V-12 aircraft engine that competed with and outperformed most European models that had years of development. The Liberty V-12 engine was so impressive that we sent them to other Allied nations for use in their aircraft as well. Then, after the war ended, the DH. 4 served as the backbone of the fledgling air service and helped build up the aviation industry through the modification and maintenance programs that the government gave out to aircraft companies to keep the DH. 4 up to date and serviceable. Then, the DH. 4 was used for a wide variety of tasks such as being a test bed for aviation products, aerial refueling, air transport, airmail, and forestry service. The DH. 4 was an instrumental aircraft in American History based on its stellar combat performance and its versatility outside of combat. This paired with the Liberty aircraft engine shaped American aviation into what it is today. ■

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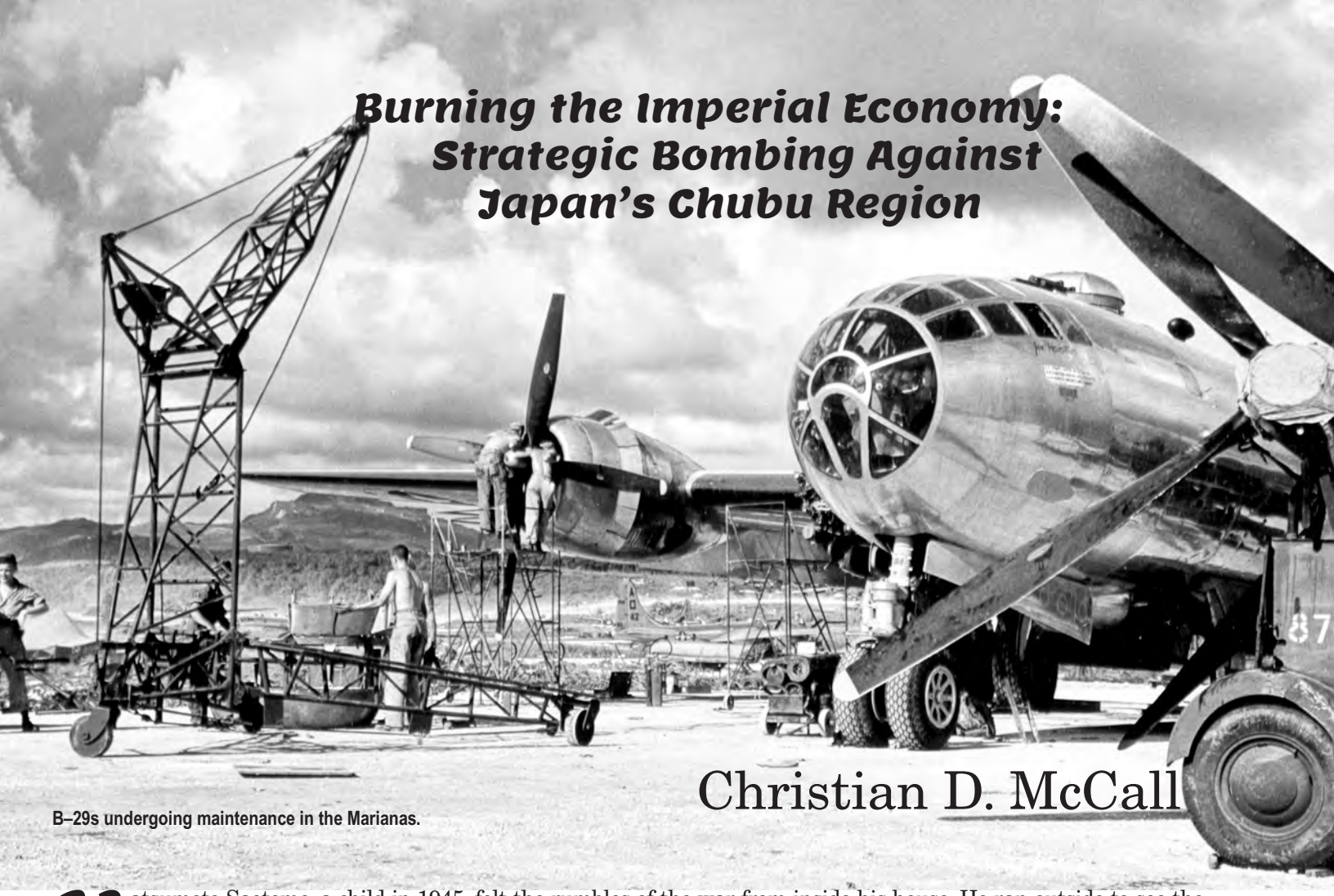
Burning the Imperial Economy: Strategic Bombing Against Japan's Chubu Region

Christian D. McCall



B–29s undergoing maintenance in the Marianas.

Katsumoto Saotome, a child in 1945, felt the rumbles of the war from inside his house. He ran outside to see the cause of the commotion. He saw American B–29s flying lower than usual, dropping a jellied substance cascading everything in a fire. Unknowingly to Japanese citizens, the United States Army Air Forces had begun Operation *Meetinghouse*. Katsumoto and his family escaped to a nearby river. They took turns dumping buckets of water on each other as "protection" from the raining inferno. The next day, they all returned to their home after American B–29 bombers unleashed a torrent of incendiaries in Tokyo. Surprisingly, his house remained intact. However, many Japanese citizens did not have a home to return to. As recent as 2020, Katsumoto struggled to retell the horrors he witnessed during the Pacific War. When he did recount the terrors of the March 9-10, 1945, American strategic bombing campaign, he mentioned his family's eyes had crusted shut from the ash, their gloves burnt off their hands, and heaps of burned bodies littered the streets.[1] Accounts similar to Katsumoto are rare in academic scholarship.

Katsumoto proposed a question twenty-five years after the war: Why are these raids hardly mentioned in scholarship? This lack of war remembrance is the catalyst of this academic research. However, the research will examine the Chubu region, not the Kanto region, where Tokyo resides. The objective for exploring the Chubu region centers around Japanese wartime manufacturers and the economy. During the war, several cities in the region formed Chubu as Japan's economic heart. The establishment of numerous wartime, predominantly aircraft manufacturers, made this region a prominent bombing target. It is essential to analyze these cities to see why they became targeted, the central point of this argument.

The fundamental argument this research seeks to provide is that bombing the Chubu region had significance in hampering Japan's ability to continue the Pacific War. It is no question that the atomic bombs had a monumental effect on concluding the war. There is no debate about that here. However, this argument centers on the downfall of the Japanese wartime economy in the Chubu region through the American strategic bombing campaign. This essay begins with the metamorphosis of the 58th bomber wing, the group that carried out the attacks against the Chubu region. This analysis will demonstrate the bomber wing's drastic leadership, technology, and doctrine changes. This assessment will be followed by how they carried out the destruction of Japan's wartime heavy manufacturing facilities in the Chubu region through the strategic bombing campaign and conclude with the impact these raids had on the war's outcome. These raids seem to be a consequential reason for America defeating Japan. These attacks did not solely defeat Japan but generally contributed to their surrender. Without the decimation of Japan's top wartime manufacturers, the atomic bombs would not have had the same outcome.

The Chubu region is located about midway on the largest island of the Japanese archipelago, Honshu. It is located in the middle between the two major regions of Japan, that of Tokyo to the west and that of Osaka and Kyoto to the east, and boasts one of the most famous symbols of Japan, Mount Fuji. The main town is Nagoya, Japan's fourth largest city and an important industrial center. (https://youinjapan.net/)

Lay of the Land

Basic geography is beneficial to gain familiarity with the devasted area. Located in the northcentral portion of the main Japanese island of Honshu is the Chubu region. Currently, Nagoya is the largest city in the region and the third-largest city in Japan, with a population of 2.3 million.[2] Smaller cities in the region are Gifu, Kofu, Toyama, and Ichinomiya. These cities are located within the three subregions that create the Chubu region—Tokai, Koshin'etsu, and Hokuriku. The Tokai subregion contains Nagoya, Ichinomiya, and Gifu, the Koshin'etsu subregion has Kofu, and Toyama is in the Hokuriku subregion. Analyzing these smaller cities and Nagoya provides a more precise analysis of the American strategic bombing raids had on the area overall.

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These cities in the Chubu region contained multiple wartime aircraft production facilities. Nagoya housed the largest Mitsubishi manufacturer. The Nagoya facility was 4.25 million square feet, making it the largest in Japan and one of the largest in the world.[3] Mitsubishi manufactured 38 percent of combat engines during the war and 23 percent of combat airframes. Depending on the plant, Mitsubishi built airframe and engines for their aircraft in Nagoya. Typically, plants Nos. 2 and 4 built engines, and plants Nos. 3 and 5 constructed the airframes.[4] Mitsubishi had an additional thirteen airframe and eight engine facilities scattered across Japan housing aircraft parts.[5] Nagoya also contained the smaller company Aichi Aircraft Co., which built aircraft and engines for the Japanese Navy. In 1944, the company produced 3 percent of the industry total during peak engine production. The company essentially produced the Type 97 and Type 99 Torpedo Bombers.[6] These two companies made Nagoya a critical target once the strategic bombing campaign began.

Nagoya was not the only Chubu city to house aircraft facilities. North of Nagoya in Kagamigahara, adjacent to Gifu, was one of the two Kawasaki plants. Kawasaki was the third-largest wartime aircraft producer for Japan behind Nakajima and Mitsubishi. Additionally, nearby Ichinomiya contained a small airframe production facility.[7] Smaller aircraft facilities, similar to Aichi Aircraft Co., manufactured aircraft parts in other Chubu cities. Kofu had a Tachikawa Aircraft Co. facility. Tachikawa produced 9 percent of Japan's aircraft in 1944. They made twin-engine trainer aircraft such as the Ki-54 (Hickory). These aircraft prepared inadequate pilots to understand flight basics before flying pristine Nakajima, Mitsubishi, or Kawasaki fighters. The facility was smaller but still a wartime target.

Chubu also contained raw material suppliers that contributed to the wartime economy. Aircraft facilities succumbed to damaged as the strategic bombing campaign progressed. The widespread damage to aircraft facilities led to American bombers seeking a new target. The raw material suppliers became the next target until the war concluded. Toyama contained aluminum and magnesium production sites. Toyama also housed six minor Mitsubishi production plants that produced airframes for the Mitsubishi Dinah, a reconnaissance plane.[8] These aircraft and raw resources facilities made the Chubu region a primary bombing target. By eliminating the aircraft production sites and the natural resources, Japan's likelihood of surrender increased. The goal of diminishing the wartime economy became the main reason for destroying the Chubu region.

The Path to Scorching the Mainland

The strategic bombing raids began in June 1944. The 58th Bomber Wing became the core group of the XX Bomber Command. This bomber wing went through a metamorphosis focused on aircraft and bombing technology, replacing leadership, and revised bombing doctrine. The introduction of strategic bombing brought about the

B–29 Superfortresses on Guam.

importance of new wartime technology. The strategic bombing campaign in Europe introduced the B–17 and B–24 bombers against Germany. The bomber had evolved by the time strategic bombing began in the Pacific. The European bombers developed into the B–29 Superfortress and carried out the strategic bombing campaign against the Japanese. The proposal for the B–29 had an empty weight of 58,600 pounds and a designed gross weight of 100,600 pounds. This weight made it twice the size of a B–17. Additionally, it had a maximum speed of 381 miles per hour, a 34,500-foot altitude ceiling, and could carry two tons of bombs to its target. An enormous capability the B–29 had was its 1,600-mile radius.[9] The B–17 or B–24 had a radius of 1,000 to 1,200-mile at best. However, early attacks proved that technology mattered little if the bombers could not successfully reach their target.

Pilots went through intense training to fly the B–29 bomber. They went through necessary primary training, basic training, and advanced training. Their last few weeks of training consisted of attending gunnery school. Gordon Bennett Robinson Jr. was one of the many pilots trained to be a World War II bomber. Throughout his training, Robinson remembered the importance of learning maps and aeronautical charts. He recalled flying all over the country with only observations and a chart resting upon his knees. Mastering maps and aeronautical charts allowed pilots to interpret the landscape below them. Understanding the landscape became a critical factor for those attempting to become B–29 pilots as they had to know where to bomb and the trajectory of their drops.[10] Those in pilot training attended courses on the theory of flight, navigation, meteorology, engines, aircraft identification, and other airpower-related courses.[11] These courses prepared the pilots before taking to the skies. Once the pilots finished the classes, they acquired flight hours. Usually, they accumulated sixty to seventy hours of training.[12] They awaited their first assignment once they completed the Aviation Cadet Pilot Training Program. By 1944, many received their first assignments located in the China, Burma, India Theatre.

Many of these new pilots received the assignment to prepare for Operation *Matterhorn*. This operation in early 1944 proved the importance of wartime geography and land-based operations in the Pacific. The idea behind *Matterhorn* came from an agreement between China's military chairman Chiang Kai-shek, British Prime Minister Winston Churchill, and U.S. President Franklin D. Roosevelt at the 1943 Cairo Conference. The objective of *Matterhorn* was to stage B–29s at air bases in India, fly the bombers to China, and then bomb Japan.[13] This operation led to the creation of the XX Bomber Command, tasked to carry out *Matterhorn*. Naval engineers and locals constructed airbases before the B–29s reached India. Since American resources were scarce, labor and materials had to be locally sourced. Around 350,000 men, women, and children were drafted into building runways made from crushed rock. Constructing a runway consisted of crushing rock, spreading it, and compacting it into a useable runway, all of this done manually.[14] Once runways became intact, nearly 150 B–29s made their way from America to India. However, the recently designed and produced B–29s had two early flaws that made military leaders worried about the success of bombing raids.

The B–29's engine overheating in the scorching Asian subcontinent tropical climate was the first critical issue.[15] Mechanics attempted to tweak engines to endure the harsh and humid climates, but this task was difficult due to the inexperienced workers and lack of parts. Furthermore, temperatures reached around 110 to 120 degrees Fahrenheit by mid-day, making metal impossible to touch.[16] The other main issue came from the lack of logistics. Once an airfield became established in Chengdu, China, B–29s resided there until the missions to bomb Japan commenced. The logistics concern developed in Chengdu as supplies had to be flown in from India, over the Himalayas or "the hump." On average, it took eight trips to supply one B–29 for a single mission to Japan.[17] Flying over the Himalayas was no simple task either. The mountain range spans six countries, consists of 1,500 miles, has over 100 peaks of 22,000 feet, and often brutal weather conditions make air travel more treacherous. Around 450 aircraft failed to cross over "The Hump" and formed the "aluminum trail during the entire war."[18] Once aircraft arrived in Chengdu, B–29s received the necessary supplies to conduct bombing raids against Japan. However, planes still struggled to cross the Himalayas, and engines continued to hamper the operation as they frequently failed.

The operation relied on leadership and logistics. Initially, Gen. Kenneth B. Wolfe assumed command of XX Bomber Command. However, General of the United States Army Air Forces Henry "Hap" Arnold grew impatient with Wolfe. He replaced him, temporarily, with Gen. LaVern G. Saunders until Gen. Curtis LeMay permanently took over. LeMay's first command quickened the tempo of the raids. At most, eighteen days went by without the 58th Bomber Wing attacking Japan.[19] Formosa and Southern Japan contained the bulk of the targets for the bombers from China.[20] Wartime facilities became the primary targets. Those flying

An incendiary bomb on display at the Aichi-Nagoya War Museum in Nagoya, Japan.

from India and Burma targeted the Dutch East Indies.[21] The purpose was to destroy the oil reserves the Japanese had captured, a critical resource to the Imperial military. However, as the operation continued throughout 1944, it became evident that these raids were not the answer to diminishing Japan's wartime economy.

By late 1944, Operation *Matterhorn* proved unsuccessful as XX Bomber Command launched only forty-nine missions. Out of the forty-nine raids, only nine targeted Japan and caused any damage.[22] The lack of logistics was part of the reason for the unsuccessful raids from China, but the overwhelming issue came from the B–29s' technological failures. The engines accounted for 45 percent of mechanical failures from the start of Operation *Matterhorn* until November 1944. Likewise, the oil system accounted for 16 percent, the fuel system 10 percent, and the propellers 9 percent.[23] The other issue was many bombs not reaching their targets. Only 13 percent of the 573 tons of bombs dropped hit their targets, striking within 1,000 feet of their aimed objective.[24] Radar aiming proved to be a vital issue behind the bombs' failure to hit their target.

However, the bombs themselves, M-47 fragmentation clusters, also accounted for blame. The development of bomb technology, primarily incendiaries or "firebombs," is critical when understanding the success of Pacific War strategic bombing. Initially, aircrews dropped 100-pound M-47 incendiaries on their targets in Germany and Japan. Because of the sheer weight, leaks, and inconsistencies, they were replaced by M-50s and M-69s.[25] The M-69 became the main incendiary used against Japan. The M-69, a six-pound tube, consisted of jellied gasoline, similar to napalm. Once the M-69 contacted the target, a black powder substance shot the jellied gasoline out of the tube and ignited it. The flame stream had a radius of 100 feet.[26] Aircrews loaded the incendiaries in honeycomb clusters, so they dispersed over their target after the bombs fell from the bombers. This dispersal of M-69s and M-50s had a better chance of hitting their objective than the heavy M-47.[27] Compared to the M-47s, the M-69s had lower penetration damage, burn time, and velocity drop. However, the M-47 favored these categories due to the massive weight difference between the two.[28] After experimental tests, the USSAF Forces elected to use largely M-69s in the strategic bombing raids against Japan.

USAAF kept detailed records on the usage of M-69s dropped in both Japan and Germany. Three classifications developed from the bombings: 1) fires that lasted beyond six minutes became challenging to put out by trained fire guards and burned out of control, 2) fires became highly destructive if left unattended, and 3) rarely fires went out if unattended with little destruction to infrastructure.[29] The 1923 earthquake foreshadowed these factors nearly two decades before 1944. The destruction in the Kanto region predicted the destruction of Japanese cities caused by widespread firebombing. Luckily, as the M-69 developed and military leaders noticed the problems with Operation *Matterhorn,* American forces captured the Mariana Islands. U.S. forces utilized the strip of islands for building airbases and flying bombing raids from them due to their closer proximity to Japan and American resources.

The capture of the Marianas came in June 1944 during America's island-hopping campaign. The day after the invasion of Saipan, June 15, American aviator engineers went ashore and began construction on the previously held Japanese airstrips. The construction process consisted of leveling coral mountains and crushing the material with bulldozers and by hand. Engineers loaded the crushed coral onto trucks that carried four tons to the airfield. At the airfield, with the crushed coral, the longest runway in the Pacific was constructed. This airfield became known as Isley Field.[30] USSAF could not have conducted numerous bombings against the Chubu region without these runways. These new runways allowed bombers adequate proximity to Japan's wartime manufacturers.

Nearby, Tinian experienced a similar feat after Americans captured it in July 1944. The construction of the airfield on Tinian is an engineering marvel. The process to build one required clearing jungles, uprooting cane fields and large trees, leveling hills, filling ravines, and crushing coral.[31] The Seabees, navy engineering workers, used the same process as on Saipan to turn crushed coral into runways. Additionally, the Seabees built 500-foot-wide drainage ditches to handle the constant subtropical rain that was constantly present. The construction of North Field, the world's largest airbase at the time, was completed by May 1945. North Field had four bomber runways suitable for B–29s to take off and land from their missions to Japan. Nearly 500 B–29s called North Field their home in the Pacific War's last year.[32] The construction of airbases in the Marianas allowed the B–29s closer access to Japan and American resources. This new success did not begin until 1945 and came under new leadership.

Gen. Haywood Hansell became the commander of the XXI Bomber Command, but he never achieved success.

"Hap" Arnold ordered Maj. Gen. Curtis E. LeMay (left) to the Pacific theater to replace Brig. Gen. Haywood S. Hansell, Jr. (right).

Hansell became tasked with precision raids against Japanese aircraft manufacturers and assembly plants. The first precision raid had meager results, and Hansell's higher command noticed. Lt. Gen. Millard F. Harmon, the commanding general of the USAAF in the South Pacific, informed Hansell of the lack of substantial destruction and directed that additional raids continue.[33] These further precision raids coincided with the second order Hansell received. Hansell became tasked with testing the M-69 incendiary bombs against Japanese cities.[34] Hansell was reluctant to use incendiary bombs but sent 5,500 pounds of incendiaries abroad eighty-two aircraft to bomb Nagoya in December 1944. Similar to the November raid, these incendiary raids achieved little destruction. The bombing altitude, number of planes, and daytime raids all contributed to the minor success of the December raids.[35] This series of disappointing attacks led to the replacement of Hansell.

The unsatisfactory raids were only part of the reason Harmon wanted Hansell replaced. Hansell disinclined to try a full-scale incendiary attack on a Japanese city. He had the resources, incendiaries, B–29s, the world's most extensive bomber base, and closer proximity to Japan. However, he failed to utilize these tools to achieve substantial damage to Japanese wartime production. Hansell's missions contained numerous errors, primarily the loss of a B–29 on nearly every one. Bombers often plunged into the Pacific Ocean due to their slim chances of returning to the Marianas, never to be seen again.[36] These lackluster bombing raids led to a decrease in morale, another reason for higher command ousting Hansell. The second in command of the USAAF, Lauris Norstad, gave direct orders for Hansell to continue incendiary attacks after the initial one on Nagoya, and Hansell refused to do so. Hansell did not want to switch his bombing strategy from precision to area raids. He claimed the Bomber Command was starting to achieve results, and switching strategies would undermine their progress.[37] Hansell's rebuttal sealed his fate as commander of the XXI Bomber Command. In late 1944, Norstad flew to the Marianas to visit Hansell and inform him that he was no longer in command and that Gen. Curtis LeMay was replacing him.[38]

LeMay was no stranger to World War II air combat. The Columbus, Ohio native joined the Army Air Corps in 1928 and ten years later trained at the Air Corps Tactical School. When America entered World War II, LeMay commanded the 305th Bomb Group and flew precision raids against Germany in 1942. During these raids, LeMay noticed bombers had to take evasive actions over their targets, which led to decreases in targets attacked. He ordered his Eighth Air Force pilots to stop evasive actions. After initial protests, the pilots followed orders, and a higher yield of damage to German industrial sectors occurred. The pilots had fewer repeating attempts, and the "no evasive action" rule became implemented for the Eighth Air Force. [39]

This newfound success led to Arnold promoting LeMay and transferring him to the Pacific Theatre, where airpower success lacked in 1943. LeMay took over the XX Bomber Command once Hansell left for the Marianas. LeMay achieved a promising outcome from the few raids the XX Bomber Command did in 1944. LeMay's group dropped 41 percent of the bombs within 1000 feet, and the best Hansell achieved in the Marianas was 14 percent.[40] This difference in success gradually earned the respect of LeMay's predecessor Gen. Arnold. Hansell's mediocre results and refusal to switch bombing strategies, coinciding with LeMay's triumph in both theatres of war, a change of command in the Marianas was inevitable. Once Hansell got the pink slip, LeMay acquired the reigns of the XXI Bomber Command.

Gen. LeMay took command on January 19, 1945.[41] The skeleton of LeMay's XX Bomber Command stayed in India but remained inactivated for the war's remainder. Once LeMay took over, he spent numerous days around the Marianas, notably his headquarters on Guam and usually in his office. On February 1st, he began a series of Thursday talks to the officers and men of the bombing crew. In these talks, he described aerial operations from Europe and compared them to potential Pacific raids.[42] During these talks, he implemented the changes on how to bomb Japan successfully. These talks led to a complete revision of the strategic bombing doctrine.

The first significant change of the strategic bombing doctrine came in lowering bombing attitudes from 30,000 feet to 5,000-10,000 feet. The reason for the change was because harsh weather often threw the B–29 Superfortress bombers off course and their bombing attacks were inaccurate.[43] Bombing from 5,000 to 10,000 feet also put less strain on the B–29 engines, burning less fuel and allowing more extended bombing missions.[44] The lower altitude put the bombers under the jet stream instead of above it—the primary reason behind their failed attempts to hit their targets. The next obstacle became the clouds. Meteorologists at the Marianas informed LeMay that Japan had seven days, at best, of clear skies each month. Aiming and

B–29s in formation head for the Japanese mainland.

successfully hitting targets became impossible if clouds constantly impeded bombing missions. The constant clouds meant bombers had to fly under the jet stream and the clouds.

These lower altitude bombings forced LeMay to switch the timing of the raids too. LeMay decided to do the air raids at night. Flying at low attitudes made the bombing raids incredibly risky, which was why Gen. LeMay wanted to fly at night as it made his bomber commands less vulnerable to Japanese flak and fighters.[45] The bomber commands also aimed their nighttime attacks at existing flames or used night radar to locate an easy target.[46] Gen. LeMay decided to lighten the B–29 aircraft by removing the guns, ammunition, and gunners. This decision resulted in a removal of around 2,700 pounds, which allowed the B–29 bombers to carry more bomb tonnage.[47] Because of these changes, Gen. LeMay's B–29s bombed Nagoya more precisely. This strategic bombing yielded more destruction of the city's infrastructure and decreased the population. Japanese cities might have sustained minor damage without Gen. LeMay's changes to bombing tactics.

Unleashing the Scorching on Nagoya

The changes in technology, leadership, and doctrine paved the way for the American strategic bombing campaign against Japan. New pilots made their way from America to the Marianas. At this time, Gordon Robinson Jr. made the journey from California to Guam. Robinson made it to Guam on February 23rd and recalled the unreal construction that had unfolded on the island. In a few months, American marines had captured the island from the Japanese and constructed runways made from earthen materials.[48] Upon the pilots' arrival, a quick debriefing occurred. Leaders warned pilots not to venture into the jungle as a few hidden Japanese soldiers hid there. Two days later, Robinson had to participate in a practice mission before bombing Japan. The practice mission consisted of flying to Maug, a small island in the Marianas that contained nothing but an abandoned Japanese weather station. The practice mission lasted nearly eight hours. It was the most prolonged period of formation Robinson had flown, and nervous beads of sweat dripped down his forehead the entire time.[49] With the mass changes from top to bottom, Gen. LeMay began unleashing bombers in a widespread fashion to destroy Japan's wartime economy.

The American strategic bombing raids attacked sixty-six cities, but only six before the final three months of the war.[50] The American military bombed Nagoya from December 1944 to August 1945. The first few raids targeted the four Mitsubishi plants in the city. It did not help that a natural disaster occurred during the first raids in December and further the destruction of the aircraft facilities. In late 1944, two earthquakes weakened the foundations of Nagoya's industry. The 7.9 magnitude Tonanaki earthquake on December 7, 1944, was followed by the 6.8 magnitude Mikawa earthquake on January 13, 1945. The combination of these two earthquakes impacted aircraft production. The No. 11 plant in Dotoku ward suffered 50 percent of damage from the Tonanaki earthquake. Plant Nos. 1, 3, and 5 in the Oe-machi ward received less than 5 percent damage, a minor but significant portion of devastation.[51] Between the earthquakes and the initial bombing raids that started on December 12th, Mitsubishi's production decreased by ninety-seven aircraft in December 1944.[52] Had the earthquakes been the only source of damage, Mitsubishi would likely have recovered in a couple of weeks. For Aichi Air Works, the two earthquakes only had a minor impact on production. While production capacity declined in December, it rebounded with peak production of 125 engines per month for the following two months.[53] The earthquakes occurring a few days before the first air raids on Nagoya were an ominous beginning to the decline of the city's aircraft manufacturers, population, and economy.[54]

During 1945, the bombings intensified. In March, the first target was the Aichi Aircraft plant in Nagoya, the first time B–29s attacked it.[55] During these attacks, air sirens warned those that an attack was imminent. However, the air sirens went off nearly every day and signaled if the attack was bombers or reconnaissance plane(s) circling the skies. Yoshiharu Matsue was one of the many fire wardens in charge of signaling alarms whenever anything threatening flew above. On March 9th, during Operation *Meetinghouse*, Matsue underestimated the number of attacking aircraft. Once an initial wave had passed south, Matsue assumed all the planes were gone. However, an additional wave came from a different route. It was the first time Matsue saw the planes fly and bomb from low altitudes. Matsue escorted his mother to safety at a primary school.

Aerial view of Nagoya, Japan after a raid in mid-May, 1945.

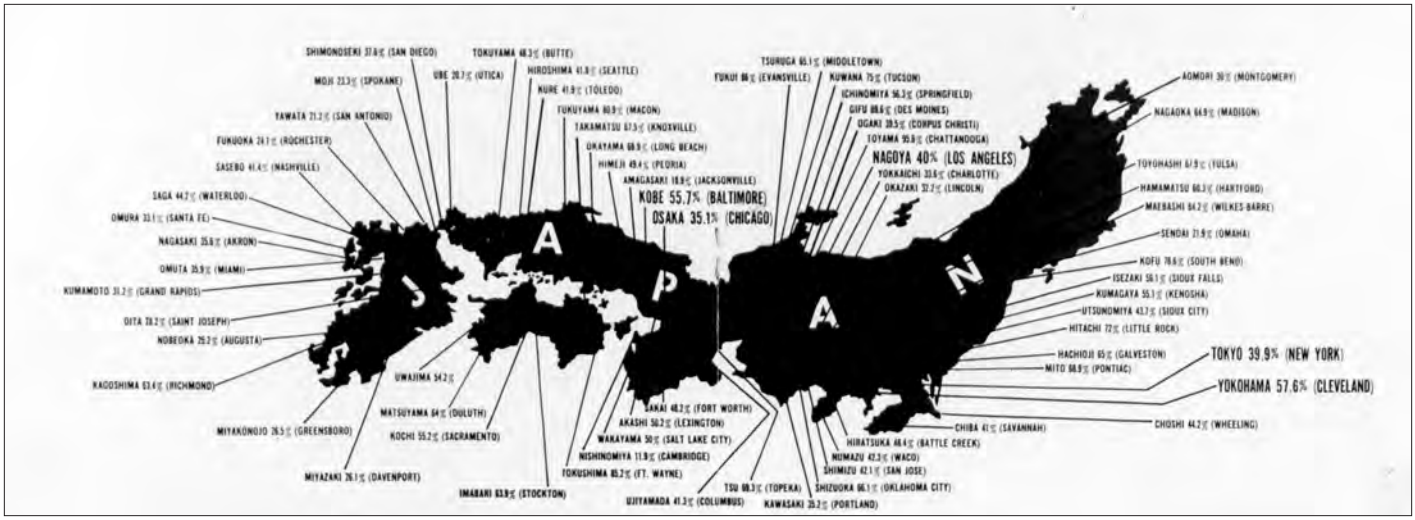
However, he saw flames engulf anyone who attempted to extinguish them. The windows of buildings melted due to the sheer heat. Anyone inside the air-raid shelters suffocated as smoke and heat crept into the makeshift structures. Matsue and his mother nearly escaped from the horrors of the March air raids.[56] However, it was one of many more raids that would occur.

On March 24th, the sirens blared at an alarming rate once more. This warning was not reconnaissance planes observing the landscape but another bombing raid. The sirens warned of the thirty aircraft that flew above.[57] The bombers attacked Mitsubishi's Nos. 2 and 4 facilities. A total of 1,510 tons of bombs rained down upon the Mitsubishi plants.[58] This attack was one of the most successful against Nagoya's Mitsubishi plants. The bomb tonnage that fell on Nagoya was the most of the entire war against any Japanese city. This successful attack was only one of the many that put fear into the citizens of Japan.

The northeast and southwest sections took the brunt of the blows. The northeast section contained the Nagoya Castle, which was transformed into a military barrack and training facility during the war. The 3rd Division headquarters and 5th Brigade headquarters, along with the 6th Infantry Regiment, 3rd Field Artillery Regiment, and 3rd Battalion Engineer corps as well were stationed within the castle compound. The grounds contained a few military necessities, such as a garrison hospital, drill ground, and storage facilities.[59] The southwest section included the cluster of aircraft production factories. Mitsubishi Air Works was adjacent to Aichi Air Works in Ise Bay, making them vulnerable to the same airstrikes.[60] These production factories became the primary targets in southwest Nagoya.[61] The remainder of the southwest portion of the city remained relatively unscathed.

The Japanese had limited success in their counterattacks to the air raids against Nagoya. On January 23, 1945, sixty-three out of seventy American planes were shot at and damaged. Thirteen were downed, providing partial success against the American raids.[62] However, these instances were rare. Mitsubishi was targeted a total of twenty-two times, between December and July, with only six raids failing to hit the production site. American B–29 bombers dropped 4,356 tons of bombs, with 2,911 targeting engine production facilities and 1,445 aimed at airframe plants. The most effective attack came on April 6, 1945, when American aircrews dropped 614 tons of bombs on the factories. This single bombing incident put nearly one-half of production at the Nagoya site out of action.[63] When the Japanese surrendered on August 15, 1945, Nagoya's Mitsubishi facilities had been entirely changed from their pre-bombed state. Statistics vary on the percentage destroyed for each plant ranging from five percent to sixty percent. Overall, the square footage of the production floor area decreased from its peak in April 1944 of 9.25 million square feet to slightly above 6 million square feet in August 1945.[64] Mitsubishi remained on the map, but enough damage occurred to halt the Japanese aircraft production at the latter stages of the war. Between the earthquakes and the bombings, the strategic bombing campaign destroyed Nagoya's aircraft industry.

At the culmination of the bombings, the raids had damaged Nagoya significantly. The largest Chubu city had



This map of Japan shows the principal industrial cities which were burned out by B–29 incendiary attacks. Figures indicate what percent of the city was destroyed. For comparison, each city is paired with a U.S. city of approximately the same size.

been damaged by 37 percent overall, with 21 percent of the city's industrial infrastructure destroyed.[65] The twenty-two raids that targeted Nagoya were divided by precision and area bombings. The precision bombings used more conventional bombs than the area bombs that used M-69 incendiary bombs, causing widespread damage. There were only six area bombing raids, but they dropped roughly 10,000 tons of incendiaries, accounting for 71 percent of the bomb tonnage dropped on the city.[66] The precision raids led to more deaths than the destruction of infrastructure. The bombings killed 8,152 people in Nagoya, but the precision raids accounted for 5,669 of those deaths. However, area bombings caused more damage to infrastructure. There were 60,877 houses destroyed, with 54,959 coming from area bombings. Likewise, 519,205 citizens lost their homes or became homeless, with 434,032 resulting from area bombings.[67] The population had decreased to 597,941 by the war's end, the lowest since 1920.[68] These raids set Nagoya back economically, infrastructurally, and their population was at a two-decade low.

Table 1: Nagoya-Summary of Bombing Attacks[69]

Yr-Mth	Attack Type (Nmbr)	Tons of Bombs
1944-Dec	Precision (3) Area (0)	470 (Precision)
1945-Jan	Precision (2) Area (2)	183 (Precision) 232 (Area)
1945-Feb	Precision (1) Area (0)	105 (Precision)
1945-Mar	Precision (2) Area (2)	1,597 (Precision) 3,746 (Area)
1945-Apr	Precision (1) Area (0)	153 (Precision)
1945-May	Area (2)	6,023 (Area)
1945-Jun	Precision (5)	1,094 (Precision)
1945-Jul	Precision (1)	451 (Precision)

The Scorching Spreads Across the Chubu Region: Gifu, Ichinomiya, and Toyama

Aiko Matani sat and listened to the radio to get the most recent war reports at home and abroad. Whenever she ventured outside, it was not uncommon to see the vapor trails of a distant plane. On March 9th, Matani saw incendiaries from B–29s drop one after another in her neighborhood. Her father ordered Matani and her siblings to evacuate. She carried her younger sister, but her older sister had vanished. They attempted to flee to a nearby park, but flames had engulfed all the roads, bridges, and buildings along the way. They took safety underneath a bridge until the following morning. Once the sun rose, they traveled back to their home only to find it in ruins. They went to the local movie theatre that had been converted into the area's temporary shelter. They came across Matani's older sister along the way to the shelter. She was weak and covered with soot but relatively unscathed.[70]

Matani's account is one of the many that detail the horrors of the strategic bombing raids. Once American aircrews destroyed large cities, they turned their sights to smaller cities. In June 1945, the incendiary raids against smaller cities began. The first cities attacked were Hamamatsu, Kagoshima, Omuta, and Yokkaichi. From June until August, cities across Japan were bombed, including Himeji, Gifu, Shimonoseki, Nishinomiya, and nearby Ichinomiya.[71] In the midst of firebombing smaller cities, XXI Bomber Command dropped millions of propaganda leaflets.[72] The American objective was to warn the Japanese about upcoming bombing raids and encourage quick surrender. Around the same time as American aircrews dropped leaflets, preparations went into planning the largest raids of the entire war. In the last few weeks of the war, over 800 bombers dropped 6,100 tons of bombs on Mito, Toyama, Nagaoka, and Hachioji.[73] During these last months of the war, Chubu's smaller cities experienced mass devastation. Gifu, Ichinomiya, and Toyama became three of the region's smaller cities to succumb to American hellfire.

As B–29s continued to bomb Nagoya into submission, additional cities in Chubu had similar experiences. By June, the attacks shifted toward the other Chubu cities. Gifu and the neighboring town of Kagamigahara started to feel the wrath of the bombing raids. The first attack

B–29s unloading their payload over Japan. ***(Robert F. Dorr Collection.)***

began on June 21st against Mitsubishi's No. 5 plant in Kagamigahara. American B–29s dropped ninety-eight tons of bombs on the airframe facility. After the first raid, four additional attacks occurred on Gifu's aircraft facilities. The last one occurred on July 28th, with only two tons of bombs dropped on the wartime plants.[74]

The attacks against Gifu concentrated on the sites of the wartime manufacturers. The central portion of the city contained textile factories. The leading textile manufacturers in Gifu were the Katakana Spinning Mill, Kyodo Textile Mill No. 4, Nippon Wool Mill, and the Dai Nippon Spinning Mill. These factories spread across the city but were all located around the railroads that ran through the city. The wartime facilities fell on the outskirts of Gifu. Labeled as an "unidentified industry" on maps, the aircraft manufacturers were in the west portion of the city, away from the urban population. The military barracks were on the outskirts too but in the east. The 68th Infantry Regiment, drill ground, and garrison hospital was in rural Gifu, away from the city.[75] The city's layout resembled Nagoya as the wartime manufacturers fell away from the main population. The five strategic bombing raids fell on the sparsely populated portions of the city. However, some of the bombs did hit the urbanized part of Gifu.

These raids led to around 70 percent of damage to the area of the city by the war's end. A United States equivalent, at the time, would have been Des Moines, Iowa. Both cities had roughly a 150,000 population.[76] Gifu's population suffered from the nearly 900 incendiary bombs that fell on the city. The population went from 176,000 in 1944 to 143,000 a year later. A total of 818 people died from the Gifu bombings, and 1,059 suffered injuries. Shockingly, Gifu is one of the few cities where no one became homeless. However, the raids destroyed a total of 20,300 buildings.[77]

Ichinomiya experienced a similar fate as Gifu. Ichinomiya became one of the smaller cities that American bombers attacked but still an important one that produced wartime aircraft supplies. One of the primary attacks against Ichinomiya came on July 12-13th, when bombers targeted smaller Japanese cities. At this point in the war, the bombing campaign severely damaged the large-scale aircraft manufacturers. This sheer damage led to American bombers seeking new but important wartime targets. The small cities that contained production sites for aircraft parts became the new targets. The July 12-13th raids targeted Ichinomiya, Utsunomiya, Tsuruga, and Uwajima. A total of 560 B–29s targeted the Kawasaki Petroleum centers these cities contained.[78] The B–29s dropped 1,650 tons of bombs on Ichinomiya.[79] Before the war, Ichinomiya had several textile mills. These textile mills had been converted into aircraft production facilities once the war broke out. The Dai Nippon Cotton Spinning Mill had turned into a Kawasaki Aircraft plant. A Morbiyashi Textile Mill in the southern rural portion of the city had transformed into a Nakajima Aircraft facility. Additional facilities had turned into munition storage sites. Both the Woolen Mill and the Toyo Cotton Spinning Mill housed munitions.[80]

The locations of the Kawasaki Aircraft plant and the munition storage sites put the urbanized portion of the city at risk. All three of these facilities fell in the central portion of the city. Because of the location of these wartime producers, the central portion of Ichinomiya received substantial bombing. The southern part of the city, where the Nakajima plant stood, received minor damage. The raids resulted in 56 percent of Ichinomiya being destroyed, with the majority of that being the central portion of the city.[81] Ichinomiya had a smaller population in 1944, with 66,000 citizens. That number decreased a year later to 58,000 citizens. A total of 1,330 casualties occurred, with nearly 650 citizens killed. The bombings destroyed 10,000 buildings and left 41,000 people homeless.[82] The raids left this smaller city in shambles by the end of the war.

The city of Toyama in the Chubu region became one of the final victims of the American strategic bombing raids. Ieshiro Tatsuro labeled the B–29s as demons. The first bombs fell on Toyama on August 2nd, four days before the first atomic bomb exploded over Hiroshima. Tatsuro stayed in Toyama to hurry families along to safety. Tatsuro and his older brother listened as the first incendiaries fell on Toyama. They had a heavy rain sound and echoed every time they dropped. Fire cascaded everything around and made Tatsuro feel as if demons had plunged from the sky.[83] The "demons" attacked anything that resembled a wartime manufacturer this late in the war. A total of nearly 1,500 tons of bombs fell on the city.[84] Toyama had a Mitsubishi aircraft facility that produced airframes for the Dinah reconnaissance aircraft. Intelligence knew that the Dinah airframes were being built in Toyama but had no precise location where the facility was or the extent of production.[85] Intelligence assumed it was near the Toyama airfield. A total of 766 B–29s attacked Toyama and surrounding cities to destroy the production site.[86]

The bombings left the entire city of Toyama damaged. The raids hit the urbanized portion of the city and a few rural areas.[87] The raids led to the destruction of the Toyama daily newspaper, the police station, the grade

Damage from an incendiary raid. ***(Aichi-Nagoya War Museum.)***

school, and several wards that contained numerous civilians. Surprisingly, the 35th Infantry Regiment in the west part of the city received relatively minor damage.[88] As the war began, citizens fled the larger cities of Tokyo, Osaka, and Nagoya and escaped to smaller cities such as Toyama. They assumed these small cities would never be under attack as military forces focused on the larger metropolises. This migration led to a spike in population by 1944, with the total eclipsing 161,000 citizens. By the war's end, the population had dropped to 101,000 people.[89] The bombings destroyed 99 percent of Toyama and killed 2,275 people.[90] Along with the high death toll, the attacks injured nearly 3,800 people. The raids destroyed 22,000 buildings and left 11,000 people searching for new homes.[91] Toyama was a small city, similar to Chattanooga, Tennessee, in 1945, but the destruction of any city had a devasting effect on wartime morale and economy. Toyama was the last Chubu city to be bombed before the Japanese surrendered.

The End of the Scorching

The bombings in Chubu resulted in massive damage to the Japanese economy. Before the air raids began, wartime production across Japan had gradually declined. The shortages of raw materials and labor led to the decline. The strategic bombing raids created an economic freefall. Without the bombing raids, economic production would have been at 60 percent. The bombing raids lowered that number to 30 percent.[92] Japan had a total of nearly 2,400 wartime industries scattered across the archipelago. Aircraft assembly, subassembly, and mechanical repair facilities took place in eighty-six wartime factories. Metal production constituted the largest wartime industry with 389 facilities, creating anything derived from metal. However, aircraft production had the most employed labor force, with 360,000 workers in early 1945. This employment accounted for 21 percent of Japan's entire wartime labor force and the most significant percentage for a single producer.[93] The labor force in the aircraft industry started to suffer losses of hours by the end of the war. By July 1945, laborers had lost 51 percent of their original wartime hours. This decline in hours led to a 31 percent increase overall.[94]

Nagoya contained the most facilities outside of Osaka and Tokyo, with 231. Gifu had thirty-seven, and Ichinomiya had twenty-three.[95] Attacking Chubu's aircraft facilities led to a financial loss by July 1945. In 1944, the aircraft industry peaked with a 1.1-million-yen profit, but by July 1945 fell to 304,000 yen.[96] A nearly 800,000-yen loss within a year. In Chubu specifically, there were ninety-six direct or indirect attacks against Mitsubishi, Kawasaki, and Aichi Aircraft manufacturers. These attacks led to Chubu being the most targeted region for aircraft manufacturers. Due to the bombings, nearly a quarter of the engine, airframe, and propeller production suffered severe damage. In one bombing, Nagoya's Mitsubishi plants Nos. 2 and 4 lost 860 out of 2,200 machine tools. The most severe case of aircraft

Hiroshima after the atomic bomb was used. Note the similar amount of damage as that from incendiary attack.

machine tool loss from any bombing attack.[97] The bombing raids that targeted Chubu's aircraft facilities led to a decline in labor hours, machine tools, aircraft engines and airframes, and, most notably, economic production. While bombing Chubu did not solely win the Pacific War, it was essential for diminishing Japanese wartime production and economy. These are two aspects are vital to achieving victory in a war.

Some cities remained untouched by the hellacious embers. American B–29s never attacked Koromo (Toyota City), a small town located near Nagoya. The town contained Toyota Automotive, a newer company specialized in producing wartime trucks. Because of Japan's diminished resources, dropping bombs on Toyota's production facilities was not prioritized. Japanese limited resources meant the trucks Toyota put together were often incomplete, and a lack of fuel meant they had a limited range, if any at all. The salvaging of Koromo implies that American Bomber Command did not see any major significance in attacking the Toyota production site. Also, during the Nagoya raids, Koromo served as a landmark as aircrews prepared to attack Mitsubishi Air Works. Once American bombers made it to Koromo, the pilots knew to veer left, setting their sights on the Mitsubishi factories. Once they turned to the left, the canals framed the target within the B–29's bombsights.[98] Koromo's survival meant that Nagoya had a path to postwar economic recovery. Toyota had the opportunity to become Aichi Prefecture's top economic producer in the future.

At 8:15 A.M., on August 6th, the first atomic bomb, nicknamed Little Boy, exploded above Hiroshima. The Imperial Japanese government debated if surrender was necessary. The Supreme Council for the Direction of the War and the Cabinet of Japan came to a gridlock over the decision. Three days later, the second atomic bomb went off over Nagasaki. Sachiko Matsuo, a child, recalled the nuclear bomb in Nagasaki and how she survived it. American B–29s dropped propaganda leaflets across the city with a warning that Nagasaki would fall to ashes on August 8th. Her father took the notice seriously and hid the family away at a barrack within the local mountains.

The family remained in the barrack for three days. However, after an argument between her parents, Matsuo's father left the barrack. At 11:02 A.M., the second bomb, Fat Man, detonated. Matsuo's father died from the radiation three weeks later.[99] After the second atomic bomb, on August 15th, Emperor Hirohito broadcasted to his citizens for the first time. He announced that the empire accepted the joint declaration of the United States, Great Britain, China, and Soviet governments. The emperor never stated surrender, but Japan formally surrendered on September 2nd by signing documents aboard the USS *Missouri*.[100] The nation had nearly seventy cities to rebuild, lost millions of citizens, and experienced the power of nuclear warfare. The 58th bomb wing established a path to American victory. The atomic bombs brought Japan to its knees and ended a hellacious war. The Chubu region smoldered in ruins as most Japanese regions did. The American strategic bombing campaign in the Chubu region decimated Japan's wartime aircraft industry. The crippling of wartime aircraft manufacturers hampered Japan's wartime efforts and their ability to carry out the war. Bombing the Chubu region had a detrimental effect on the Japanese war effort. Japan's economic heart had a faint beat in mid-1945. The American bombers had achieved their objective, destroy the aircraft facilities in the Chubu region. Once the pens signed the surrender documents the war officially ended. No more hellacious embers would rain down upon Japan. ■

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Operation Black Buck 1982: The Vulcan's Extraordinary Falkland War Raids. By Andrew E Bird. Oxford UK: Osprey. 2023. Photographs. Drawings. Maps. Pp. 96. $25.00 paperback. ISBN: 978-1-47285666-1 & **The Blitz 1940-41: The Luftwaffe's Biggest Strategic Bombing Campaign**. By Julian Hale. Oxford UK: Osprey. 2023. Photographs. Drawings. Maps. Pp. 96. $25.00 paperback. ISBN: 978-1-472857880-1

These two volumes are part of Osprey Publishing's Air Campaigns series. The authors use the first few pages to establish the context for the campaign and then discuss, in greater detail, the capabilities of the attacking and defending forces. They talk about the specific campaign objectives before presenting the campaigns. Finally, both authors present a short synopsis of the aftermath with their analysis of the campaign. As with all Osprey products, the writing is clear and concise; the narratives move along quickly. The books are nicely illustrated with clearly curated images that support the narratives. However, the maps in both volumes were a bit confusing, and captioning was too brief for the maps to be effective.

Although the campaigns described took place almost 50 years apart, the similar formats made common themes almost leap off the pages. For example, neither the Luftwaffe in 1940 nor the Royal Air Force in 1982 was equipped or trained to conduct the campaign it was tasked to perform. While Hale considered the Luftwaffe to be "in its prime," it had no heavy bombers with the range and payload capabilities to strike targets across the British Isles. And the same was true of the RAF in 1982. Already scheduled for retirement, only 18 of 36 remaining Vulcans had the requisite engines to accomplish the mission. And, in an interesting confluence of circumstances, neither the Luftwaffe nor RAF bombers had effective bombing and navigation systems and required on-the-fly modification and upgrades.

In both the Falklands and Blitz campaigns, providing sufficient fuel to attacking aircraft was a major issue. While the Luftwaffe experimented with air-to-air refueling in the 1930s and 40s, it never fielded operational systems, so its tactical bombers sacrificed payload to carry fuel. While the RAF had aerial-refueling aircraft, few tanker and receiver aircrews were qualified to perform the maneuver, and almost half of Britain's air refueling tankers were pulled from NATO missions to support the Vulcan missions.

Lastly, neither the RAF nor the Luftwaffe had weapons appropriate to the task at hand. The Luftwaffe modified maritime mines to provide large explosive devices. And the RAF depended on the US to provide air-to-air missiles, anti-radiation missiles, and a myriad of spares in addition to intelligence information.

At the end of the day, the only question of significance is whether the campaigns achieved their objectives. In the case of the Blitz, the answer is a clear "no." In the Falklands case, the answer is a bit more nuanced. For *Black Buck 1*, Great Britain moved heaven and earth to put a single Vulcan over the Port Stanley runway. Of the 21 bombs dropped, one was a near miss and one a direct hit that cratered the runway. The crater was repaired, and the runway was operational a day later. But just as in the case of the famous 1942 Doolittle raid on Tokyo, the Argentines were stunned with the possibility that the Argentine mainland could be struck. Even after *Black Buck 2* totally missed the target, the psychological damage was significant and contributed to the eventual Argentine surrender.

Osprey's product quality is always impressive. Both books were well researched and presented. The narratives flowed smoothly, and the reading experience is positive. Reading the books together serendipitously identified trends and themes that enhanced the reading experience. I look forward to reading other books in this series.

Gary Connor, Cortland OH

Air War Vietnam. By Martin W Bowman. Barnsley UK: Air World/Pen and Sword Books, 2022. Photographs. Index. Pp. 319. $39.95. ISBN: 978-1-52674627-6

Bowman is a prolific writer who has, literally, hundreds of book titles to his credit. He usually focuses on World War II-aviation subjects, with occasional detours into other non-aviation titles. *Air War Vietnam* is his first foray into this subject, and it is a rare miss from someone so accomplished. If we give Bowman a pass, then responsibility for this product must fall on the shoulders of his editor/publisher.

At face value, the book is conventionally organized into subject chapters such as "Thuds," "Arc Light," "Rolling Thunder," etc. Most of the chapters are filled with a combination of war stories, unit history extracts, and a lot of jargon that will be lost on some readers. But as a reader get into the meat of the subject, the chaotic narrative goes off the tracks as editorial oversights become rife. The HU–16 Albatross transforms from an amphibian to a "rescue helicopter." In one sentence, aircraft are short on fuel; in the next, the same pilots are "dirtying up the airplane" to burn fuel to avoid a heavy-weight landing. A discussion of the evolution of the gunship completely omits the AC–119 Shadow and Stinger and jumps directly from the AC–47 to the AC–130. There is no meaningful discussion of the contributions of the ground-support personnel who worked the same grueling tours as aircrew in miserable conditions. At Anderson AFB on Guam, aircrew lived in airconditioned barracks, while support personnel lived in "tent city." Throughout the book, standard writing conventions such as "all sentences in a paragraph should support the premise of the topic sentence" are abandoned, so there is no real narrative flow—just disconnected thoughts and stories.

There are some nuggets that reward the patient and forgiving reader. Bowman shares that the source of the F–

105 Thunderchief's nickname of "Thud" is the 1950's tv show "Howdy Doody." And some often-overlooked airpower topics, such as tactical cargo operations and ANZAC aviators, receive recognition. The contributions of the B–52s receive a significant amount of attention, but the KC–135 "Young Tigers" that refueled theater aircraft receive little mention at all.

Bowman tags his summary comments onto the end of the book's final chapter, "The Eleven Days of Christmas." He revisits the POW experience and the losses of the war—not just aviation-related, but all losses. But there are no conclusions about the aviation component of counter-insurgency warfare or the cost effectiveness of "smart weapons." The folly of unrealistic Rules of Engagement and managing wars from the Commander-in-Chief's desk escapes mention.

I believe that Bowman intended for *Air War Vietnam* to be a high-level overview given meaning and readability by including war stories and anecdotes. To a limited extent, it does that. But the editorial oversight is so poor, that the message is lost in the medium. In good conscience, I cannot recommend this book.

Gary Connor, Cortland OH

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Under the Southern Cross: The South Pacific Air Campaign Against Rabaul. By Thomas McKelvey Cleaver. New York: Osprey Publishing, 2021; Maps. Illustrations. Photographs. Bibliography. Index. Pp. 352. $22.00. ISBN: 978-1-47283822-3

The Japanese capture of the island of New Britain in February 1942 created an immediate threat to New Guinea, Australia, and the US lifeline to Australia. Rabaul had the best harbor in the area and was seen as the key to victory in the South Pacific. It quickly became the most important Japanese base south of Truk. From Rabaul, the Japanese could take New Guinea and the Solomon Islands and cut off the path of reinforcements from the US to Australia.

This is Cleaver's follow-on to his book *I Will Run Wild*. He weaves a strong and detailed narrative of the Allies' efforts to neutralize the Japanese stronghold and open the way to the Philippines and Tokyo. Cleaver, A US Navy veteran, screen writer, producer of TV and cable series, and author of many Osprey titles, uses his writing skills to write a well-researched examination of the campaign to neutralize Rabaul.

He sets the scene with Japanese attempts to take New Guinea and Port Moresby and the resulting Battle of the Coral Sea. The Allies were faced with a too-large area of ocean and too-few resources. The Japanese, on the other hand, had a large number of very experienced pilots and an advantage in capital ships and carriers. Cleaver points out Japanese strengths in night actions which were consequential during the battles for Guadalcanal and the waters surrounding the Solomons. His map of the Battle of Savo Island clearly illustrates the combat and makes the text easy to follow.

Cleaver details the development and deployment of equipment, armament, and tactics by both sides. The Allies (particularly the US) demonstrated a lack of cohesiveness in battle. The Japanese had extensively practiced night actions, but the Americans had refrained based on the potential dangers. American use of radar was both a boon and bust. The Allies could detect the enemy at extreme ranges at night, but unfamiliarity with its limitations—especially when the enemy was in the land shadow—cost the Allies dearly. Early on the Allies' lack of appreciation for the Japanese *Longlance* torpedo resulted in catastrophic losses, especially in night actions. Another shock to the Allies was the effectiveness of Japanese searchlights in night actions.

Action in the air is also discussed in depth. Employment at Guadalcanal of Marine air and the USAAF P–400/P–39 in close air support, and Pappy Gunn's development and employment of the A–20 and later the B–25 as strafers are thoroughly treated.

After securing Guadalcanal, the Allies set about neutralizing Rabaul. The use of parafrags—small, 25-lb bombs dropped from low flying B–25s—on the airfields at Rabaul wreaked havoc on the Japanese. The bombers paid heavily, however. Lack of coordination between them and their escorting fighters frequently meant that bombers got through the lines of thunderstorms frequently lying between Port Moresby and Rabaul and arrived at the target unescorted. However, the combination of nose-mounted .50 cal. machine guns and 25-lb parafrags decimated personnel and airplanes caught on the ground.

I recommend this book to a wide audience. Reading can be accomplished at several levels. The detail, bibliography, and index will be very valuable to researchers; and the plethora of maps and easy-to-follow writing style make it attractive to people interested in a less-well-known area of World War II.

Al Mongeon, MSgt, USAF (Ret.), Fairfax VA

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How'd They Do That?: Grandparents Answer Questions about the Wright Brothers and Amelia Earhart. By Joseph Howard Cooper. Altona, Manitoba, Canada: FriesenPress, 2023. Maps. Illustrations. Photographs. Bibliography. Pp. 121. $39.99. ISBN: 978-1-03-917626-3

This book came to me for possible review in December 2023. My first reaction was, "somebody has to be kidding sending this to AFHF." But, as I was scanning through it, I quickly realized that this was no joke and that I had

something both unique and worth looking at.

Cooper is my age and another grandfather. A teacher and writer by trade, during Covid-19 he came up with his first illustrated children's book, *Grandpa's Lonely, Isn't He?* He has since written several other similar books, one of which explains what it was like on D-Day. Books that try to break down complex life situations into terms that can be understood by youngsters.

So, what does this have to do with readers of this journal—a book filled with great illustrations of cute, furry, all-dressed-up animals? The format is certainly something that appeals to most preschoolers. But it is the subject matter that makes this book important for many of the *AFHF Journal*'s readers. Two icons from the birth of aviation—the Wright Brothers and Amelia Earhart—are the subjects. Their ties to military aviation are minimal, but the achievements they made certainly formed the foundation of much of what we students of airpower get to read about. How to explain those achievements to grandchildren—or any young people who are generationally and experientially far removed from us—is what Cooper addresses.

I have some experience in this area. As a docent for 44 years, I have had to attempt to explain why airplanes fly, why we were in this or that war, and many other complex scientific and historic topics. Try standing in front of *Enola Gay* and answering a second-grader's question about nuclear war in terms they can understand. It's not easy. All parents and grandparents know this to be true.

Cooper presents running dialogs between grandparents and grandchildren to show how two brothers with high-school educations worked out the complex problem of controlled, powered flight. Through dogged observation, experimentation, and perseverance, they developed a solution. Amelia Earhart—a woman in the days when women just didn't do this stuff (another thing to explain to kids growing up in a far-more gender-neutral society)—became the first to accomplish many aerial feats. Determination and study were essential factors for both the brothers and Earhart.

I think many of the words used in Cooper's dialogs are, themselves, too advanced to answer young people's questions. We can quibble about that and adjust as the situation warrants, but that's not what this book's message is. The message is really at several levels. We adults need to have these kinds of conversations to motivate young people. They need to study and learn—STEM education comes through loud and clear. Success is generally not an overnight event. It comes from grabbing hold of a problem and applying knowledge and determination. And gender should be no barrier.

I liked the book. It's a fine introduction to some great pioneers in aviation, but it is so much more.

Col Scott A. Willey, USAF (Ret), Book Review Editor, and former National Air and Space Museum docent

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Bloody April 1917: The Birth of Modern Air Power. By James S. Corum. Oxford UK: Osprey Publishing, 2022. Photographs. Maps. Diagrams. Bibliography. Index. Pp. 96. ISBN: 978-1-4728-5305-9

April 1917, the month of the World War I French/British offensive known as the Second Battle of the Aisne, is regarded by historians as particularly difficult for the Allies. The offensive involved twin thrusts by the British and French armies at the neck of a salient located roughly between Arras and Chemin des Dames. The planner, French General Robert Nivelle, intended to trap the enemy army and, hopefully, end the war. The Germans withdrew from the salient, however, and the offensive failed with heavy losses, resulting in a mutiny by the French Army. Order was restored when General Philippe Pétain replaced Nivelle as commander of the French Army.

Aerial strategies similarly met with failure, resulting in heavy aircraft losses by the British (the book cites 178, although sources vary) and French (88), causing this air campaign to be labeled "Bloody April." James Corum, who has published *The Luftwaffe: Creating the Operational Air War 1918-1940* (1997) and *Field Marshal Wolfram von Richthofen* (2008), is well suited to the task of explaining the significance of this month.

The air battles of April 1917 are well-trodden ground, with works by Hart (2012); Morris (1968); and Franks, Guest, and Bailey (2017) and even more general World War I air war histories (Uffindell, 2015, and Morrow, 1993) covering the same points. Corum goes into more detail than other authors and more effectively emphasizes the deleterious effect of bad weather and non-operational losses on the aerial operations of the combatants.

Corum's thesis is that the aerial operations accompanying this set of offensives influenced the birth of modern air power by driving technology, strategies, and tactics in a way that set a course for the future. The book is not convincing on this point, however. Other authors, notably Hallion (1984), trace trends to current-day programs and technologies more conclusively than this effort. As many histories have noted, such dramatic changes had been a constant in all three air forces—French, British and German—since the start of the war. The rapid evolution of fighter technology in particular during World War I—Guttman (2009) describes five generations—has been studied extensively. If five generations of aircraft technology occurred during an approximately 52-month war, then the larger lesson of this book would appear to be the appearance of a new set of airpower capabilities roughly every ten months. It seems as though the respective air forces and aircraft designers honed the ability to recognize rapidly evolving requirements and quickly design, build, and deploy aircraft that produced desired airpower effects. The narrative touches on this, particularly on the part of French aircraft designers, but does not emphasize its significance. That rapid turnaround capability, which air

forces of the twenty-first century aspire to achieve, seems to be the chief lesson of this book.

The book contains numerous carefully selected photographs, closely keyed to the text, and the usual fine Osprey aviation art. Corum's writing style is lively. Clearly labeled maps and diagrams illustrate major points in the text. This book is an important addition to World War I air war historiography and is highly recommended.

Steve Agoratus, Hamilton NJ

War in Ukraine. Volume 1: Armed Formations of the Donetsk People's Republic, 2014-2022. By Edward Crowther. & **Volume 2: Russian Invasion, February 2022**. By Tom Cooper, Adrien Fontanellaz, Edward Crowther, and Milos Sipos. & **Volume 3: Armed Formations of the Luhansk People's Republic**. By Edward Crowther. Warwick UK: Helion & Company, 2022, 2023, and 2023. Illustrations. Photographs. Maps. Notes. Bibliography. Pp. 78, 76, and 54. $26.00, $20.00, and $19.00 paperback. ISBN: 978-1-91507066-1, 978-1-804512-16-6, and 978-1-804512-17-3

Many erroneously assume that the Russo-Ukrainian War—the largest conflict in Europe since World War Two—began on the morning of February 24, 2022 with the massive Russian military invasion of Ukraine. The war really began eight years earlier, when Russian forces quickly occupied Ukrainian Crimea in February 2014. Why Ukrainian armed forces were unable to respond to an invasion helps explain why a more robust Ukrainian military was much better prepared for a Russian onslaught in 2022.

Volume 1 examines key events that led to a full-blown struggle between Ukraine and Russian Federation forces. For many Russians, there was a sense of loss when the USSR collapsed in 1991. The economic stagnation that followed hit industrial workers in eastern Ukraine's Donbas region (Donetsk and Luhansk provinces) especially hard. This is important, because many of the volunteers for units formed to resist Ukrainian authority came from those workers. The 2014 annexation of Crimea created an expectation that separatist aspirations in the Donbas would lead to Russian annexation.

In 2014, there were internal weaknesses in Ukraine due to mass anti-government protests and violent counterattacks by the authorities. The pro-Russian president, in defiance of Ukraine's majority, had refused to sign an agreement for better ties to the European Union and was driven from office. This all happened immediately prior to Crimea's seizure and was soon followed by the establishment of "republics" in the Donbas, one of these being the Donetsk People's Republic (DPR). Soon, DPR military formations (small, ad hoc units raised by popular locals) were created. The initial struggle by these units against Ukrainian forces often had predictably poor results. That summer, to prevent defeat of the insurrectionists, Russian armed formations entered the Donbas and engaged Ukrainian forces, successfully forcing them back from the heart of the DPR.

Because the rebels badly needed to create a viable defense capability to resist Ukrainian counterattacks, a reorganization of units into something resembling a military formation was initiated. Crowther describes units, commanders, and the standardization of weaponry and equipment. Russian air defense systems, tanks, and artillery were transferred to DPR forces, giving them some equivalency to Ukrainian firepower. Perhaps more telling was the ongoing internal factional power struggles which resulted in the deaths of popular, but independent-minded, unit leaders and the killing of the DPR's head of state.

Volume 1 ends on the eve of Russia's massive invasion of Ukraine in February 2022. It is important to recognize the participation of DPR forces in the invasion alongside Russian units as they advanced on Ukraine.

Volume 2 begins with the actual invasion. The Ukrainian army, having been significantly reduced in size since independence in 1991, was marginally functional in 2014, with only a minimum of operational equipment and seriously undermanned units. In contrast Putin badly underestimated the capabilities of this resurgent Ukrainian army in 2022. He also totally discounted the possible turnout of civilians to resist the invasion. His staff barely prepared a comprehensive plan for defeat of Ukraine (expecting the operation to last just three-to-five days) and arrogantly began an assault with minimal guidance to the attacking units. Both Russian and Western intelligence underestimated Ukrainian resistance and expected a brief war ending in Ukraine's defeat.

What had changed since 2014? The authors explain the changes that had taken place within the Ukrainian military. The reader is then presented with the Putin plan of attack in which he deployed nine invading armies around Ukraine. The authors then reconstruct the early, critical days of the invasion that would determine the fate of the country.

The most visible thrust of the Russian army was the advance from the north on Kyiv. With the capital's capture and the president killed or arrested, Russia would decapitate and paralyze the government and military and immediately install a puppet government. If all went according to plan, the war would end before any world leaders could react. Instead, the advance for many reasons was a debacle. To explain this outcome, the authors reconstruct the attack step-by-step, noting Ukraine's impressive small-unit tactics that exacted a toll on attacking units. Most important, the Ukrainian military had divorced itself from Soviet doctrine and learned lessons from Western instructors. In the end, entire Russian units were decimated. The narrative then covers Russian attacks from the Donbas and out of the south toward the Ukrainian port city of Odessa.

Volume 2 closes on the abysmal failure of Putin's initial plan for a quick victory. By early March 2022, the Russians had lost the initiative and were in no position to win their war of aggression.

Volume 3 relates to the other 2014 breakaway province, the Luhansk People's Republic (LPR) immediately to the north of the DPR. Crowther is, again, the author and describes all the units raised in the LPR, their philosophical motivation (if any), to whom their loyalties lay, and which direction they wanted the rebellion to go. He discusses the leadership (and who replaced whom), the equipment and weapons used, and unit organizational structure in some detail. He describes the disorganized elements in Luhansk Oblast who, in the beginning, acted to drive out Ukraine's military and government officials and place local leaders in power. It was almost as if competing gangs not only dominated their area of control but also guarded it against competitors. At first, they were armed with whatever was available. Russia asserted more control as it introduced standardization of weapons, albeit not as modern as weapons fielded with Russian Federation forces. This allowed plausible deniability about involvement, while positioning Russian officers in militia leadership positions to lessen the unpredictability of the local militias and to focus their efforts. When homegrown militia leaders ran afoul of the Kremlin, however, they soon encountered assassination teams, whom Moscow disingenuously claimed were working for Ukraine.

Moscow's financial support for the LPR and DPR was not insignificant, being equal to some $2 billion in 2018. Yet, despite the investment and recruiting efforts—attracting unemployed workers from shuttered industries—LPR forces never exceeded 15,000. Consequently, as early as August 2014, Russian ground forces were deployed to the LPR to prevent its total defeat. Thus began Operation Northern Wind, during which Russia intervened with troops supported by armor and artillery. The Russians also targeted Ukrainian forces with artillery fire originating from within Russia itself. It was only in February 2022, on the eve of Russia's massive invasion, that the LPR, following the lead of the DPR, announced a general mobilization of men between the ages of 18 and 55, with none allowed to leave the country—not even to Russia. To justify the draft, the LPR warned its citizens that Ukraine was about to launch an offensive to retake the Donbas. Volume 3 ends in 2022, soon after the invasion of Ukraine had begun. It may surprise some readers that, during this period, Russia vacillated in its ultimate objectives in the Donbas and actually contemplated returning the separatist provinces to Ukraine. The intent was not to benefit Ukraine. Rather, they wanted the rebels to maintain a disruptive presence as they challenged Ukrainian authority, thus contributing to Russia's ultimate goal of weakening Ukraine internally.

These volumes have provided greater clarity about the war, since the media's reporting on the war has been, by necessity, lacking in important details. If one is interested in the background to the war and, especially, who has been fighting it, then read these volumes. The authors intend to use future volumes to examine the war that followed the initial invasion.

John Cirafici, Milford DE

Day Fighter Aces of the Luftwaffe: Knight's Cross Holders 1939-1942. By Jeremy Dixon. Place: Barnsley UK: Pen and Sword Military. 2023. Photographs. Bibliography. Index. Pp. 310. $42.95. ISBN: 9781526778642

Jeremy Dixon has been interested in Nazi Germany for decades and has written seven books on various aspects of the Third Reich. *Day Fighter Aces of the Luftwaffe* is a comprehensive reference work on a very narrow niche of the European air war prior to 1943. It is not presented as a recreational read. Once I understood the form and format of the book, I awarded it a special place on my bookshelf so that when I felt the urge, I could pick up the book and read several of the biographical profiles it contained. Once satisfied, I put the book back on the shelf until I felt the urge for another session. The biographical profiles, many with a photograph, are well written and meticulously researched. Each contained perfunctory biographical and career data but elaborated on special accomplishments and awards.

Dixon does the Luftwaffe novice-historian a great favor by including an introduction that explains the Luftwaffe victory-credit system and how the system related to qualifying for the award of the coveted Knight's Cross in its various forms. When combined with anecdotes, I found these stories to be the real reward for wading through the extraordinary amount of detail that Dixon provides. For example, Oberst Werner Mölders was one of the truly elite day-fighter pilots. He died in the crash of a transport while attempting to land during a thunderstorm. Dixon discovered that the crash was survivable. Had Mölders been wearing a seatbelt, he might have walked away. Similar stories bring pilots such as Galland and Marseilles to life for the dedicated reader.

Dixon's work should be a "must read" to the aviation historian who specializes in the Luftwaffe or the early European air war. Taken in small digestible portions, the reader will come away with a much deeper understanding of these aviators. For the most part, biographies are politically neutral. Dixon notes that of the 387 day-fighter pilots recognized for their successes, 212 were killed in action or accidents. That works out to less than a 50-50 chance of survival for the best of the *experten* before the Americans took an active role. Those are not odds that I would care to wager on.

I highly recommend this book to readers interested in its narrow subject niche.

Gary Connor, Cortland OH

In Furious Skies: Flying with Hitler's Luftwaffe in the Second World War. By Tim Heath. Barnsley UK: Pen and Sword, 2022. Photographs. Appendices. Pp. 261. ISBN: 978-1-52678-523-7

This book is a compilation of the experiences of Luftwaffe veterans of World War II in the words of the veterans themselves. It differs from the usual such collection, however, in that it is all new material. Heath has many publications to his credit in this field, including *Hitler's Girls* (2017). He communicated extensively with Luftwaffe veterans and their families over many years for this book. While there are new quotes from such familiar names as Heinz Knoke and Adolf Galland, the focus is on the rank and file—the aircrew who flew their missions with little fanfare, and sometimes did not survive. All theaters and major battles that the Luftwaffe fought in, starting with the Spanish Civil War, are covered.

While the bibliography is somewhat scanty, this book's value is the fresh information it contains on familiar topics (e.g., the Battle of Britain, Defense of the Reich) as well as such lesser-told operations as the "tip-and-run" raids on southern England in 1942, or even just a tense contest between a high-altitude reconnaissance Ju 86P over England and an RAF Spitfire Mk IX interceptor. The photos are all new, supplied by the veterans and Luftwaffe archives. Heath's text flows along quickly from one campaign to another—the Battle of France, Barbarossa, North Africa—in a seamless and absorbing manner.

Heath is transparent about his original research and the circumstances under which he met and interviewed veterans. This lends the book authority. He lets interviewees tell their own stories, with some quotes running on for multiple pages. Far from the usual battle narration, he includes thoughts of the interviewees on the personal costs of war and its impact on the families. The book pulls the reader into the story by adopting Luftwaffe slang. For instance, the word *Heer* refers to the army, and *hare* refers to new pilots just out of training. Heath traces the development of the bombs, guns, engines, planes with which the Luftwaffe was armed in order to better relate to readers the impact of war.

This book joins such other works as Caldwell (1998) and Heaton and Lewis (2011) in relating personal accounts of the wartime Luftwaffe. It traces origins of the Luftwaffe, family, training, and experiences of his subjects. It's not one-dimensional: early chapters cover the post-World War I birth of the Luftwaffe and the gliding clubs in the 1930s. The stories are well rounded, as Heath interviewed civilian victims of bombings conducted by his Luftwaffe subjects. This book is a vivid depiction of war by those who fought it.

Surprisingly, there is no index. For a book centered on names, organizations, battles, and military technology, it would have been helpful. This is a minor nit, however. *Furious Skies* is an important contribution to the historiography of those who fought the war. This book is a reference to be returned to again and again and should be on the shelf of every airpower historian, or even just general-interest readers.

Steven Agoratus, Hamilton NJ

Sanctuary Lost: Portugal's Air War for Guinea 1961-1974, Volume 1 - Outbreak and Escalation (1961-1966). By Matthew M. Hurley and Jose Augusto Matos. Warwick UK: Helion, 2022. Photographs. Illustrations. Bibliography. Notes. Maps. Tables. Pp. ii, 92. $29.95. ISBN: 978-1-914059-99-5

This is a highly interesting book on one of the sparsely covered African colonial wars of the mid-Cold War era that were largely overlooked because of events in Angola and Vietnam during the same time. It is the first in a three-volume series and well worth a read.

Hurley is a former USAF intelligence officer who has published numerous articles on airpower history and campaign analysis. Matos is a Portuguese military historian who has focused on the Portuguese Air Force during the African colonial wars. Matos is also a regular contributor to history and military publications. This is the first @War-series book for both.

Beginning in 1963, a fierce war for independence was fought over the colony of Portuguese Guinea (now Guinea-Bissau). The rise of nationalist thinking had grown to such a distressing level that Portugal sent its military throughout its colony in an effort to stop any insurgent activity. The Portuguese Air Force was relied on heavily and showed itself to be a responsive and adaptable organization against the pro-independence forces. However, by the time conflict ended in 1974, Portugal's air force was essentially rendered irrelevant, thus degrading ground and naval operations. The war against the insurgents was lost, and the independence of Guinea was at hand.

The book does an outstanding job of setting up terms and frames of reference for navigating Volume 1 and subsequent volumes—military terminology, Portuguese Air Force organization, personalities, areas of operation, orders of battle, and a cursory background on the state of the Portuguese empire and associated anti-colonial forces of the period. The area of action in Guinea consisted of 36,000 sq km of land with 350 km of coastline along the Atlantic Ocean. The terrain largely consisted of heavy forest, permanent swampland, an extensive river network, and only 60 km of paved roads. Hence the heavy reliance on air power to provide the backbone for the counter-insurgency effort. The Portuguese Air Force rose to the challenge, adapting and improvising solutions to combat and logistics—including use of helicopters, close air support, and airborne logistics networks—in a very short timeframe.

There are five main chapters. Each opens with a single contemporaneous quote that conforms with the content of the chapter. The authors drew the quotes from insurgents, politicians, military leadership, and even a Methodist minister. Each chapter discusses a phase of the counter-insurgency campaign from 1961 to 1966—from the political to the military and the operational to the tactical. The copious use of maps and other graphics and tables makes it easy to follow the changing fortunes of the Portuguese Air Force and its impact on ground operations over time. As much for historians, this work is also an excellent resource for modelers. While the numerous color illustrations provide wonderful detail of pristine aircraft paint schemes, the color- and black-and-white photographs of aircraft in use show excellent detail of "wear and tear" on those airframes. Candid images, excellently curated and captioned, show actual conditions experienced during the conflict.

This volume is well researched, contains excellent images and graphics, and presents extensive discussions of all aspects of the campaign. All in all, it is an outstanding addition to the library of historians and modelers alike. I look forward to the subsequent two volumes.

Tim Hosek, USG (Ret)

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I hesitated to include the next book, as it is a bit outside the AFHF Journal *wheelhouse. Upon further reflection, however, it occurred to me that, in the 3500 years of recorded military history since the Battle of Megiddo, aerospace power has been a factor for only the past 100 years. Perhaps it is well for* Journal *readers to contemplate this occasionally.* Book Review Editor

100 Greatest Battles. By Angus Konstam. Oxford UK: Osprey Publishing, 2023. Illustrations. $20.00. Pp. 223. ISBN: 978-1-4728-5694-4

This book's discussion of one hundred battles of major consequence opens with the 490 B.C. battle of Marathon and concludes with the 1991 Persian Gulf War. At first, I thought that to deliver informed accounts for one hundred of the greatest battles, the effort would require an immense volume. However, Konstam has not attempted to give the reader a running account of events at the tactical level on the battlefield. Instead, he has nicely summarized what makes each battle important in a greater context and selects critical instances in a battle that decided the outcome. It is essentially a recounting of moments in history when what happened on a battlefield had an impact far beyond the clash of arms. As an example, the Greek struggle against Persian domination during the fifth century B.C. is captured in four battles: Marathon, Thermopylae, Salamis, and Plataea. Likewise, ten key battles spanning some 670 years were chosen to illustrate the Roman Republic's ascendency to power and empire and, finally, demise. Napoleon's battlefield successes and failures are examined through nine engagements beginning with Toulon, where, as an artillery captain, he demonstrated both tactical insight and strategic vision, helping him to win his first significant battle.

For the purpose of this book, critical battles are divided into nine general sections taking the reader from the ancient to the modern world. The battles span the globe from Europe, to Asia, the Americas, southern Africa, and the Middle East. World War II is examined through sixteen battles, and the First World War with eight battles. The American Civil War is treated with three battles. *Desert Storm* is captured in its one key battle leading to Kuwait's liberation.

As a veteran of the 1968 siege of Khe Sanh, I was curious how Konstam would evaluate that battle's significance. As he points out, the battle ultimately was not of strategic importance, and it contributed little to the overall conflict. It's resemblance to the 1954 battle of Diem Bien Phu amplified its importance beyond the actual situation. However, had US forces lost the battle, only then would it have been momentous. Instead, US forces prevailed over the North Vietnamese, denying a victory for them that would have measurably increased pressure on President Johnson to end the "American" war. Thus, its importance was that it had not ended in defeat for the United States. In contrast, the month-and-a-half long 1968 battle of Hue, also in this collection, demonstrated that, for the United States, the war was politically unwinnable.

As a Desert Storm participant, I especially felt that President George H.W. Bush demonstrated impressive strategic vision and remarkable diplomacy in building a dynamic coalition for Kuwait's liberation. However, as Konstam points out in his closing comment on *Desert Storm*, the subsequent Iraq War, in which I also served, was a costly error. In that case a well-executed campaign to overwhelm Iraq's military was of no consequence, because what followed was a tragic mess and a significant strategic error.

Readers should find this collection stimulating, especially where it gives one pause to consider how battles have shaped history.

John Cirafici, Milford DE

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90 Years of the Indian Air Force: Present Capabilities and Future Prospects. By Sanjay Badri-Maharaj. Warwick UK: Helion and Co, 2022. Maps. Tables. Diagrams. Illustrations. Photographs. Notes. Bibliography. Pp. 70. $29.95 paperback. ISBN: 978-1-915070-58-6

Maharaj is a practicing attorney who holds a PhD in Weapons of Mass Destruction and MA in Internal Security Forces and Counter-Terrorism (both from King's College),

as well as a BA in History and South Asian Studies. In his latest book, he gives the reader a very nice, single-volume reference work on the Indian Air Force (IAF). About one-third of the book is devoted to history, with the balance dedicated to current organization and capabilities and hints on future "prospects." To his credit, Maharaj doesn't shy away from "hot button" subjects such as nuclear weapons or political/commercial alliances and partnerships. But there are several topics that are noteworthy for their absence.

The historical section makes no mention of the Indian Air Force's roots in Britain's Royal Air Force. Shabour and Mazhar's *Eagles of Destiny*, shows how the Pakistani Air Force's RAF heritage is a major factor in current doctrines and plans. Maharaj leads the reader to believe the Indian Air Force was born wholly formed immediately upon independence. The omission is significant. Historically, the RAF equips units with spare airframes in lieu of large spare parts holdings. This approach allows a unit to carry higher operational readiness rates as airframes down for maintenance are immediately replaced; but it comes at a significantly higher acquisition cost, as the customer must buy more airframes. The offset is a significant difference in spares inventories as well as requiring fewer support personnel.

I found the short section on IAF doctrine very insightful. On paper, the doctrine reflects a "one-and-a-half-war" strategy—a full-on war with Pakistan coincident with a "half war" with China. It doesn't take much more thought to realize that without India's nuclear capability, such a doctrine is problematic at best.

The bulk of the book is dedicated to the current equipment and organization of the IAF. It contains a wealth of high-quality photographs, many of which come from Indian government sources. The book has a very large bibliography and copious notes, making it a useful foundation for future research.

What I found lacking was any semblance of context or objectivity. For example, there is no discussion of finance or budget matters. The unique licensed-production agreements Hindustani Aircraft Industries enjoys with several foreign aerospace companies are mentioned, as are its relationship with the Israeli defense establishment. But the impact of these partnerships is not explored. In a similar vein, Maharaj provides information on the Indian space program and its potential impact on the IAF, but he doesn't mention the impact of the space program on the IAF budget. Bottom line: the book lacks context. It provides information in a smooth, comfortable format, but it fails to put that information in perspective. Absent context, the book becomes little more than a glossy propaganda piece for public consumption—something one might find at a trade show in India's pavilion.

Gary Connor, Cortland OH

Standing Up Space Force: The Road to the Nation's Sixth Armed Service. By Forrest L. Marion. Annapolis MD: Naval Institute Press, 2023. Illustrations. Appendix. Notes. Bibliography. Index. Pp. xxxvi, 276. $39.95. ISBN: 978-1-68247239-2

This book's release might have surprised some space historians. After all, United States Space Force (USSF) establishment had occurred barely four years earlier. It certainly seemed premature to assess historically the impact and significance of the new service's appearance on the world stage. Nonetheless, while working as the Air Force Historical Research Agency oral historian a few weeks after USSF activation, Marion was assigned to research and write an "administrative-legislative, anecdote-filled history . . . a layman's narrative" about how the US had gained its first new military service since the Air Force in 1947.

After plumbing an impressively broad variety of primary and secondary sources for useful content, he has crafted a reasonably sound narrative about the top-level congressional and presidential machinations behind creation of the USSF. Oral history interviews of numerous individual participants, along with his more recent telephone or in-person discussions with others, give the book a supportive foundation. Details from congressional and White House records, punctuated with information from the personal papers of retired Air Force officers and a former acting Secretary of the Air Force, suggest the depth of Marion's research. A plethora of citations for information derived from published books, pamphlets, and articles, along with others from internet sources, direct curious readers beyond the specific content of Marion's book.

Fundamentally, this book examines several interrelated historical vectors. The first is evolving US national security space policy from presidents Clinton through Trump. The second is congressional assessments and the actions of specific USSF proponents in the House and Senate. Growing awareness of emerging space threats, especially Russia and China, affected how presidential administrations and elected officials viewed the need for organizational change within the US defense establishment. How the most senior US military officers and their appointed civilian leaders in the DoD responded to appeals for change—both in and out of the Pentagon—constituted yet another vector. By spinning these vectors into threads and examining the warp and woof of his woven narrative, Marion does his utmost to explain the "who, what, when, where, how, and why" of USSF establishment.

No historical study, however, appears without flaws; this is no exception. Early on, Marion refers incorrectly to Gen Charles Horner as commander of US Strategic Command (instead of the first USSPACECOM) and a few pages later, to Gen John Hyten as USSPACECOM commander (instead of AFSPC). Despite his impressive bibliographic citations, Marion neglects to mention at least two espe-

cially important works: *United States Space Force: Some Origins of the Idea "Whose Time Has Come"* by Priscilla Dale Jones and *Assured Access: A History of the US Air Force Space Launch Enterprise, 1945–2020* by David N. Spires. Furthermore, a careful perusal of the oral histories cited in his bibliography might cause some readers to wonder why he failed to perform more recent follow-on sessions or to question whether he sought to interview other key participants such as Gen John Raymond, Vice President Mike Pence, and Gen John Hyten. The coverage of some topics lacks valuable explanation: the relationship between establishment of the second US Space Command and a USSF; exactly how the legislative designation of Air Force Space Command as HQ USSF and its subsequent redesignation in 2020 as Space Operations Command (SpOC) left the USSF without an official headquarters; or efforts to infuse space units with an Intelligence Community presence well before 2017. Last, but not least, the rambling epilogue fails to mention what might become one of Space Training and Readiness Command's most noteworthy contributions—creation of a National Space Test and Training Complex (NSTTC) with unique range environments.

Marion deserves commendation for endeavoring, so early in USSF history, to expose its underlying roots. He has plowed relatively fertile ground for future scholars to till and, hopefully, to harvest even richer, more refined explanations for the Space Force's origin. Certainly, there is more to investigate: proposals for a space force in the 1950s by von Braun and LTG James Gavin; Gen Bernard Schriever's visionary reference to a "space force" when he commissioned production of a *Space Planner's Guide* in the 1960s; and others. Some researchers might even ponder whether the science fiction of a writer such as Robert Heinlein, whose early novels placed a military space training academy and launch base in Colorado Springs, might have influenced thinking about an actual space force. Be that as it may, *Standing Up Space Force* sets a high mark for others to surpass.

Dr. Rick W. Sturdevant, Director of History, HQ Space Training and Readiness Command

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Shooting Down the Stealth Fighter: Eyewitness Accounts from Those Who Were There. By Mihajlo Mihajlović and Djordje S. Aničić . Barnsley UK: Pen & Sword Books, 2021. Maps. Tables. Diagrams. Photographs. Appendices. Glossary. Bibliography. Index. Pp. xx, 364. $34.95. ISBN: 978-1-526678-042-3

On the night of March 27, 1999, Yugoslav air defense forces shot down a USAF F–117 stealth fighter, a feat that many people thought was impossible. In this book, Mihajlovi and Ani i give us a work that goes far beyond the title, with extensive details about all aspects of the technology and tactics associated with this remarkable accomplishment.

The shootdown occurred during Operation *Allied Force*, the air campaign NATO conducted from March to June 1999. From the NATO perspective, the objective was to stop the Yugoslavs' bloody ethnic cleansing of Albanians. From the Yugoslav perspective (as espoused by the authors), *Allied Force* was an act of calculated aggression, in which one small independent country was brutally attacked by a mighty alliance for controversial political reasons. To their credit, they do not allow this point of view to bias their narrative, and the book comes across as a factual description of a military operation and its associated technologies.

The most interesting part of the book comes in two chapters that give us what the title promises: riveting eyewitness accounts from the missile crews of the 3rd Battalion, 250th Air Defense Missile Brigade who shot down the stealth fighter, and from USAF Lt Col Darrell Zelko, the pilot of the F–117. There is a man-by-man description of the duties of each soldier in the missile crew who succeeded in shooting down a state-of-the-art aircraft with the nearly obsolete SA–3 missile system. And there is a minute-by-minute account, in the pilot's own words, of how he saw the shootdown and how he conducted the evasion that led to his fairly quick return to friendly forces. These chapters also contain a third set of eyewitness accounts, from the crews of the combat-search-and-rescue team that extracted Zelko.

The rest of the book, which precedes the narrative discussion of the engagement, provides in-depth descriptions of all the technologies involved. This would be a good addition to your library if you're looking for a single reference source that explains how radars work, how the SA–3 was developed and evolved, how missile guidance systems function, how the US stealth program was based on ideas published by an obscure Soviet engineer in 1962, and how the F–117 was designed. Perhaps the most relevant point drawn from these technical descriptions is the authors' explanation of why it's difficult, but not impossible, to shoot down a stealthy aircraft: A stealthy, or low-radar-observable, airplane cannot be detected beyond 8-16 miles by a typical radar, but at closer range the airplane becomes detectable and can be successfully engaged by a well-trained missile crew.

All told, this is a good read. But if technical descriptions aren't your cup of tea, just be prepared to skip major chunks of the narrative.

Lt Col Joseph Romito, USA (Ret), docent, National Air and Space Museum

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Air Power and the Arab World: 1909-1955 - Volume 6: The World Crisis 1939-March 1941 & Volume 7: The Arab Air Forces in Crisis, April 1941-December 1942

& **Volume 8: The Revival in Egypt and Iraq, 1943-1945.** All by Dr. David Nicolle & Air Vice Marshall Gabr Ali Gabr. Warwick UK: Helion & Co., 2022 (Vol. 6) and 2023 (Vols 7 and 8). Map. Illustrations. Photographs. Bibliography. Pp. viii, 66, 76, and 68 respectively. $29.95 paperback (each). ISBN: 978-1-915070-76-0, 978-1-804510-34-6, and 978-1-804510-34-6 respectively.

Dr. Nicolle has devoted much of his research and publishing to military affairs in the Middle East. He has authored more than 100 books, mostly on warfare in the Middle East. Air Marshall Gabr is a veteran of the Egyptian Air Force having flown the De Havilland Vampire in the 1956 Suez Conflict and directed air operations in the 1973 war with Israel. This multi-volume series encompasses the history of Arab states' use of air power.

Volume 6 initially discusses the British position in the Middle East after the outbreak of the war in Europe in September 1939. The first chapter also summarizes the status of the Egyptian and Iraqi air forces and those nations' political situations. From a geopolitical perspective, the British viewed Iraq as at least a neutral party and, better yet, an ally. Britain's aerial connection with the Far East included Baghdad and Basra on the way to the Persian Gulf and points east. Before the war, however, the Iraqi leadership had turned to Italy to bolster its air force. Italy entered the war in June 1940, by which time the British were pressuring the Iraqis to end the relationship. Meanwhile, the RAF continued to maintain a significant presence in Iraq.

The authors devote about two thirds of the narrative to Egypt. It operated the region's largest air force (almost exclusively British-built aircraft), controlled the Suez Canal, and served as a base of operations to help the British defeat the Italians in east Africa. Besides examining squadron operations in considerable detail, the authors also look at the internal and external politics affecting the Egyptian air force.

Slightly more than a quarter of Volume 7's narrative covers the Anglo-Iraq War of May 1941. An April coup led to a government opposed to British interests. London deployed troops to Iraq while expanding its air power at bases already under its control. The Iraqis, in turn, besieged the British airfield at Habbaniya. The RAF played a significant role in limiting the Iraqis' effectiveness. Meanwhile, the Germans assisted the Iraqis, sending 30 aircraft and support personnel to Mosul via Syria, part of Vichy-controlled France. The combination of air and ground power ultimately enabled the British to prevail. At the same time, however, the British lost the Greek island of Crete to the Germans.

About half the narrative is devoted to the Royal Egyptian Air Force. the activities of the various squadrons, and how they interacted with the British. As in Iraq, the Egyptians relied primarily on the Gloster Gladiator. The British increasingly relied on the Egyptians as the Germans threatened the Nile Delta and the Italians launched nightly raids against ports and shipping. In February 1942, British troops surrounded the royal palace to force King Faruq to install a different government. Many Egyptians resented this move, and some air force personnel unsuccessfully attempted to coordinate their activities with the Germans. British advisors realized Egyptians increasingly believed the Germans would proceed toward Cairo. The British victory at El Alamein in the fall of 1942 ended the Germans' eastward drive.

Volume 7 concludes with the British takeover of Syria and Lebanon in June 1941. In some instances, British and Vichy French fighters tangled in the battle for air supremacy.

In Volume 8, both the Royal Iraqi and Royal Egyptian Air Forces were dealing with significant equipment shortages in the latter years of World War II. Besides combat aircraft, the Iraqis lacked trainers for new pilots. By late 1943, the British realized a competent Iraqi air force could be a plus. The Iraqis improved substantially using new hand-me-down aircraft. They demonstrated their competence in a month of combat operations against Kurdish fighters in 1945. Egypt received significant numbers of monoplane fighters. While the Curtiss P–40 proved a huge disappointment, Egyptians successfully transitioned to the Hawker Hurricane IIc and, later, the Supermarine Spitfire V. They also received better trainers (North American T-6 and the Miles Master). Because of political considerations, the Egyptians had suspended flight training for almost two years, resuming it in February 1944.

Besides discussing Egyptian squadron activities in great detail, the authors also mention the role played by anti-aircraft and barrage-balloon units. As the overall professionalism of the Egyptians improved, they proved their worth by flying numerous aircraft for the RAF Transport and Ferry Group. In doing so, they gained multi-engine experience.

After briefly commenting on air power elsewhere in the Arab world, the authors conclude by pointing out that the Egyptians in a few years would oppose Jewish forces attempting to establish the independent state of Israel in Palestine.

Helion's relatively large format allows this series to pack in plenty of information along with a generous selection of photographs. These volumes are best suited for readers with a special interest in the Middle East, smaller air forces, or both.

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

Military Air Power in Europe Preparing for War: A Study of European Nations' Air Forces Leading Up To 1939. By Norman Ridley. Barnsley UK: Air World. 2022.

Photographs. Notes. Pp. 309. $42.95. ISBN: 978-1-39906685-3

To a large extent, all wars are "come-as-you-are" affairs. If the war lasts long enough, some combatants may be able to develop and field new weapons that influence the war's outcome; but that is the exception rather than the rule. While the Hundred Years and Thirty Years Wars were historical footnotes, nuclear weapons and modern delivery systems mean wars will be measured in minutes, not years. Ridley's book examines how major European countries used the period from the end of World War I until the beginning of World War II to develop national air forces that would fight World War II. He surveys the personalities involved and their ability to influence events. He also spends significant time exploring the development of air power doctrine, noting that proper doctrine should/would provide a roadmap to develop the air forces needed to execute the doctrine.

Ridley's work focuses on Germany, Britain, France, Poland, the USSR, and Italy. Germany receives the lion's share of attention, with each subsequent chapter decreasing in size until Italy receives a relatively cursory discussion. I found this interesting, because Italy used the theoretical work of Douhet to form relatively cogent doctrinal statements and then used that doctrine, and its World War I experience, to form a modern functional air force by 1939. Granted, that air force was under-equipped and poorly trained and led; but it was academically at the front of the class.

Each of the countries examined had numerous characteristics in common. All had extensive combat experience in the First World War, and their airpower advocates struggled against established army and navy power structures to gain recognition and resources. And, during the interwar period, all were involved in "wars" of some sort that they used to develop both doctrine and technology.

While I found Ridely's book informative and quite interesting, he missed a significant part of the equation: a nation's capacity to turn abstract ideas into fieldable hardware. In the case of Germany, personalities such as Milch, Kesselring, and Wever receive a lot of attention; but there is no meaningful mention of the industrialists needed to respond to Hitler's arbitrary demands to field "50 new squadrons." In the same vein, larger-than-life personalities such as Trenchard and Smuts always garner attention, while little mention is made of the composition and structures of their staffs—the nameless and faceless squadron leaders and wing commanders who wrote the thousands of white papers needed to implement their ethereal ideas. When Stalinist purges killed 75% of the Soviet air force leadership and imprisoned designers such as Tupolev, Ridley doesn't tell us who stepped in to fill the leadership void.

Ridley's book is very readable. Citations and notes are plentiful and compiled at the end. The narrative is formal and a bit stiff but is eminently readable. There are several areas where his editors really let him down. For example, "Roland Garros" is introduced as "Roland Georges" and the multi-engine Caudron G4 is confused with the single engine G3. Minor glitches, but such errors make the knowledgeable reader wonder what other errors are hiding in plain sight.

Sloppy editing aside, this is an excellent book. It presents a wealth of information in a digestible size. Ridley properly emphasizes the importance of doctrine during the formative stages of fielding a new combat capability. Hopefully, US Space Command has Ridley's book on its summer reading list.

Gary Connor, Cortland OH

Air Forces of Latin America: Colombia. By Santiago Rivas. Stamford UK: Key Publishing, 2022. Photographs. Glossary. Pp. iv, 95. $24.95. ISBN: 978-1-80282-3

The Colombian air forces are among the most powerful in the region and are one of the largest combined aviation forces in the world. Their four branches are the Air Force, aviation units of the National Army and the National Navy, and the National Police of Colombia. This book, the fifth volume in the series on Latin American air forces, traces the roots of Colombian air power (more than a century old) and highlights today's air power. Colombia's air power is incredibly diverse as a result of nearly 60 years of operations against insurgents and drug traffickers, as well as countering conventional threats from Peru in the early 1930s and, most recently, Venezuela.

Rivas began working as an aviation and defense journalist and photographer in 1997, specializing in Latin America. His first book, published in 2007, was about the Falklands War. Since then, he added eighteen books and articles in over fifty magazines to his bibliography. He manages one of the main defense and aviation archives in Argentina (it provides material for more than 40 magazines around the world) and manages the Pucará Defensa website (www.pucara.org) and Pucará military aviation magazine.

Following an introductory section on the overall history and organization of the air forces, the book presents each component in four individual chapters: Air Force, Naval Aviation, Army Aviation, and National Police. Each chapter includes a fairly detailed, if dry, section on the history and organization of the specific component, each unit and subunit from the early 20th century to the 2020s, and identifies all aircraft types for each unit as well as transition dates between types. Type dispositions are included in many cases. The work concludes with a table-style section on orders of battle with units, subunits, and equipment.

This book is an excellent resource for modelers. The aircraft in the Columbian inventory are vast, some indige-

nously modified, and highly photogenic. Rivas does not disappoint with the excellent color photography of subject such as the IAI Kfir, Schweizer SA–2-37B Vampiro, Antonov An-32, IAI 201 Arava, UAVs, and Apria III (AH-60 variant) and Dauphin helicopters. All photographs are current, in color, and provide sufficient detail to identify individual aircraft color schemes, configuration details, and unit specific markings. Likewise, aviation historians, war gamers, and Latin American military aviation "buffs" will find this book an easy read with extensive details.

Unfortunately, the book does not contain a bibliography, citations, or notes—items that help a reader further study the topic or better understand specific issues, events, claims, or statistics. There are no citations for the excellent photographs. The absence of maps detracts from understanding the historical and operational aspects of the units in each air component. And there are a few misspellings and photo-caption problems.

Overall, however, this is a good book to learn about the development of the Columbian air arms, airframes, and missions, and to gain a better appreciation of the impressive Colombian air forces.

Tim Hosek, USG (Ret)

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France's War in Indochina, Volume 1: The Tiger versus the Elephant, 1946-1949. By Stephen Rookes. Warwick UK: Helion Books, 2023. Photographs. Illustrations. Glossary. Maps. Pp. 74. $29.95 paperback. ISBN: 978-1-80451014-8

This is another quality monograph by Helion. Besides its well-researched narrative, it is richly illustrated and filled with plentiful photographs and maps. Most importantly, Rookes has provided an understanding of how the Indochina War came about, years before it evolved into the "American War."

This is the first of a planned three-volume history. It examines the initial phase (1946-194) of the First Indochina War. Rookes addresses the early successes of the French followed by increasing difficulty in defeating the Viet Minh. A number of factors worked against the French: their misreading of the enemy, difficulties in adjusting to jungle warfare and the Viet Minh's tactics, and a failure to recognize the tenacity and patience of the Viet Minh. All of these would later become familiar to US forces during the much more violent Vietnam War. Tactics developed by the French, and later employed by US forces, included a "brown water" navy and a strategy of area pacification. Equally important was denying hamlet access to the Viet Minh, thus minimizing recruitment of soldiers and acquisition of food. The French, however. never came close to fielding a force necessary to effectively execute their strategy.

Just how did the war in Indochina begin? Following the First World War, there was agitation for independence in many colonies of the European powers. Indochina, with Ho Chi Minh as its voice, was no different. What rearranged the pieces on the chessboard and accelerated the move toward independence was the Second World War, with France's early defeat by Germany and the subsequent Japanese occupation of Indochina. At war's end, the French landed forces to reestablish their authority over their colonies. However, under Ho Chi Minh's leadership, the Viet Minh had formally declared independence on 2 September 1945, thus creating the conditions ultimately leading to a full-blown conflict. The resulting war was not popular in France. There was political agitation at home as the French Communist Party, opposed to the government's colonial policies, gained in popularity. Rookes illustrates how, within this setting, the French military strove to gain the upper hand in Indochina by adjusting its strategy to the reality of fighting a tenacious enemy who avoided combat in conventional engagements.

Rookes provides interesting insights. Because France had only recently emerged from four years of German occupation, it lacked much in military equipment. Consequently, its air force units in Indochina not only employed British and American fighters but also flew a variety of captured Japanese aircraft, using them in many roles.

The 1945 Potsdam Agreement had addressed the immediate post-war period and called for the Chinese and British militaries to temporarily divide Indochina at the 16th Parallel to disarm Japanese troops. The British quickly found themselves actively engaged in combat with Viet Minh forces, killing 2000 of them. To augment their forces, they often employed Japanese troops—soldiers who were only recently the enemy. Other Japanese deserted to the Viet Minh to aid them in their efforts to fight the French. Likewise, French Foreign Legion units were filled with former German prisoners of war, some of whom went over to the Viet Minh's side.

All in all, this is a very interesting monograph with insights into how French forces dealt with the Viet Minh, anticipating the very same problems faced by American forces nearly twenty years later.

John Cirafici, Milford DE

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Eagles of Destiny: Volume 1, Birth and Growth of the Royal Pakistan Air Force 1947-1956 & **Volume 2, Growth and Wars of the Pakistan Air Force 1956-1971**. By Usman Shabbir and Yawar Mazhar. Warwick UK: Helion and Company. 2022. Photographs. Drawings. Maps. Pp. 68 and 92. $29.95 paperback (each). ISBN: 978-1-80451017-9 and 978-1-91437703-7 respectively

These are part of Helion's *Asia@War* series, and the authors have made a valuable contribution to the topic.

The two volumes can be read independently; each offers detailed and unique historical perspectives. Taken together, they offer the reader a valuable insight into this troubled and misunderstood corner of the globe. Any article or discussion of potential nuclear "flashpoints" will include India and Pakistan. For no other reason, these volumes help the reader understand the all-important backstory to the current state of affairs.

Volume One offers so much more than its title indicates. The discussion of the Indian independence movement and eventual partitioning is detailed and significant. The authors make the case that, while the British may have offered independence, they still maintained close control over the Indian and Pakistani military establishments. In the case of Pakistan's air force, most senior officers and commanders were RAF Officers seconded to Pakistan: they wore Pakistani uniforms and exercised full command and control of Pakistan's forces, but their allegiance remained with the Crown and British commercial interests. The authors note that, in some cases, these officers were helpful—e.g., emphasizing recruiting and training. They were less helpful when directing Pakistan to buy British-designed and -manufactured equipment of dubious utility. Procurement of the troubled Supermarine Attacker is an example of seconded RAF senior leaders placing British commercial interests above Pakistan's national interests. Volume 1 ends with Pakistan becoming a republic, appointing Pakistani officers to senior leadership positions in the air force, and opening a new relationship with the United States. All were fortunate changes given the imminent conflict with India.

Volume 2 picks up with Pakistan's new constitution coming into force. "Royal" was dropped from its name; Pakistani officers replaced seconded British commanders; and Pakistan partnered with the US through a Mutual Defense Assistance Program (MDAP). The MDAP gave the Pakistan Air Force (PAF) access to technology and training that would keep them on a par with India and its Russian-sourced aircraft. Access to the US logistics system allowed Pakistan to maintain operational-readiness rates significantly higher than those of their larger neighbor. Better readiness reduced the effect of India's greater numbers and allowed the PAF to punch well above its weight. These efficiencies would be tested in short order by the first and second Indo-Pakistani Wars. Much of this volume is filled with detailed first-person accounts from these conflicts with stories from both Indian and Pakistani aircrews. I was particularly impressed that the authors usually used both Indian and Pakistani sources to confirm the results of aerial combat. The detailed appendices provide a convenient quick reference. History proved that the benefits of the MDAP were short lived. A political arms embargo against Pakistan cut off the supply of spare parts for US-sourced equipment and forced Pakistan to turn to other countries for more modern systems. China, France, Germany, and others were happy to accept their business.

As with most Helion books in the *Asia@War* series, both of these have extensive color plates designed to support modelers. The captions for aircraft color profiles frequently contain specific information on color codes and paint schemes. Both volumes have extensive photographs, many drawn from personal collections and unlikely to be found elsewhere.

I continue to be impressed by the Asia@*War* series. *Eagles of Destiny 1 & 2* are well written, solidly researched with detailed citation, and filled with historical facts and personal anecdotes. These books offer reader a unique insight into the growth of the PAF into a first-rate tactical air force. The books are also something of a case study into the challenges facing a small developing nation that chooses to find its place on the world stage.

Gary Connor, Cortland OH

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Reggiane RE 2000, RE 2002, RE 2003. By Przemysław Skulski. Sandomierz, Poland: Stratus (MMP Books), 2023. Tables. Diagrams. Illustrations. Photographs. Pp. 174. $35.00 paperback. ISBN: 978-83-66549-81-4

I would bet that many—if not most—readers of the *AFHF Journal* have ever heard of Reggiane or know anything about the fighters they produced. Most of the Italian aircraft manufacturers—Savoia-Marchetti, FIAT, Macchi, Caproni, and others—are far less familiar names than Boeing, Messerschmitt, Mitsubishi, Mikoyan, Supermarine, and the many companies that produced thousands of aircraft during World War II.

As a company, Reggiane's story began in 1901, when it manufactured primarily railway carriages. By World War I, they had moved into agricultural, armaments, and aviation products. Eventually, Caproni took over the company, but it later split off and manufactured aircraft under license. Several engineers who had worked for a number of US manufacturers became the real sparkplugs of the company and moved into the production of fighters of their design. The RE 2000 - RE 2008s were the results. This book covers the RE 2000, 2002, and 2003—the radial-engine fighter, fighter-bomber, and reconnaissance versions of the series. Perhaps MMP will come out with a companion volume on the more successful inline-engine RE 2001, 2004, 2005, and 2006 aircraft at a later date.

And that brings us to why I guess that many readers are unfamiliar with the aircraft. The 2000, 2001, 2002, and 2005 were produced and employed in limited numbers. The 2003, 2004, and 2006 never went into production. And the 2007 and 2008 are alleged jet designs that never left the drafting tables. Why was this so? Italy is often portrayed as the bumbling, junior partner in the European Axis (bolstered by its combat performance in the Battle of Britain, southern France, North Africa, and Sicily). Looking as the

state of their aircraft industry in World War II further reinforces this view. The RE 2000 was a relatively well-performing aircraft. But the design was hampered by fuel-tank problems and the limited availability of inline engines (license-produced DB 601s from Germany). That dictated use of Piaggio radials that suffered from unreliability and slow production. Limited production capacity wasn't helped much by USAAF and RAF bombing that put factories out of commission. Fewer than 400 RE 2000s were built (over half of those by the Hungarians). There were only a couple hundred each of the 2001 and 2002 and 48 of the 2005.

In the end, only Italy (both sides after the September 1943 surrender), Germany, and Hungary flew these aircraft in combat. A few even soldiered on until V-E Day. Skulski did an excellent job of presenting their operational use—in a small fraction of this book. It is good history, but it is just as limited as the use of the aircraft. The majority of Skulski's volume is a wonderful collection of pictures (with useful captions), art, and drawings that detail these three Regianne models. MMP has done a number of books in this format. They are certainly aimed at modelers or those interested in the technical aspects of these designs. While the airpower history is very good, I doubt that many readers will want to make the rather hefty investment.

Col Scott A. Willey, USAF (Ret), Book Review Editor, and former National Air and Space Museum docent

F6F Hellcat: Philippines 1944. By Edward M. Young. Oxford UK: Osprey Publishing, 2022. Map. Tables. Diagrams. Illustrations. Photographs. Bibliography. Index. Pp. 80. $22.00. ISBN: 978-1-4728-5056-0

This is another entry in Osprey's Dogfight Series of monographs. As such, it chronicles a specific area of combat in a specific period, namely, the actions of the Grumman F6F Hellcats assigned to Halsey's Fast Carrier Task Force (TF38) in and around the Philippines in September and October of 1944. Author Ed Young has again demonstrated his considerable abilities as an historian and author by telling the detailed story of how these Naval Aviators cleared the skies in preparation for MacArthur's landings on Leyte.

This is an excellent read for anyone interested in the details of aerial combat in the propeller fighter days. Young went to the best sources available for part of his research: the Aircraft Action Reports written right after the engagements by the men who had flown them. Rather than summarizing these, Young quotes large parts of the reports—the reader gets the story as it had happened only a short time before. The details of several of these engagements were then put into Osprey's tactical ribbon diagrams to help one visualize the action described in the reports.

Although he covers only a brief period of combat, Young gives the reader a concise scene-setter in Chapter 2—the situation in 1944 and the decision making involved in the selection and timing of MacArthur's Return to the Philippines. This is important and provides much of the rationale for what was about to take place in the air.

The most significant combat occurred during the October 10-30 period. Navy pilots claimed 977 aerial victories and destroyed another 545 aircraft on the ground. Their own losses were 67 to enemy fighters and 128 to anti-aircraft fire. While many of the kills were aging Japanese Navy *Zekes*, the Hellcats also ran up against the new (and roughly equivalent) *George* and a lot of the Army's *Oscar*, *Tony*, and *Frank* fighters in addition to a number of other Japanese types. It is these combats that the action reports so vividly bring to life.

So, why the lopsided results? A great deal of it can be explained by relative levels of experience of the two sides, the aircraft the combatants flew, and the tactics involved. In Chapter 4, Young well describes Grumman's magnificent Hellcat. It's not a complete history of the F6F, but it certainly lays out the virtues of the Navy's fighter. Chapter 5 takes care of the tactics question: the changes that had been made as a result of the hard-fought campaigns early in the war. But I particularly liked his third chapter in which Young provides a fascinating look at the training of Naval Aviators—one of the best I've read.

Osprey always turns out a quality product: picture resolution, text editing, layout, and the like. Without question, this is another one and a monograph that anyone interested in naval air combat in World War II should read.

Col Scott A. Willey, USAF (Ret), Book Review Editor, and former National Air and Space Museum docent

PROSPECTIVE REVIEWERS

Anyone who believes he or she is qualified to substantively assess books for the journal should contact our Book Review Editor for a list of books available and instructions. The Editor can be contacted at:

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Compiled by
George W. Cully

March 20-22, 2024
The **American Astronautical Society** will present its annual Goddard Space Science Symposium at the University of Maryland at College Park, Maryland. For more details, see the Society's website at Robert H. Goddard Memorial Symposium | American Astronautical Society.

April 8-11, 2024
The **Space Foundation** will hold its 39th annual symposium at the Broadmoor Hotel in Colorado Springs, Colorado. For more information as it becomes available, see the Foundation's website at www.spacesymposium.org/, Industry Events> Space Symposium.

April 10-13, 2024
The **National Council on Public History** will offer its annual meeting in partnership with the Utah Historical Society at the Hilton Salt Lake City Hotel in Salt Lake, Utah. The theme of this year's gathering is "Historical Urgency." For registration and other information, see the Council's website at 2024 Annual Meeting | National Council on Public History (ncph.org).

April 11-13, 2024
The **Vietnam Center & Sam Johnson Vietnam Archive** will host a conference entitled "1974: Shattered Peace, Continued Conflict, and Preparing for the Final Battle for Vietnam" at Texas Tech University in Lubbock, Texas. For details, see the Center's website at The Vietnam Center and Sam Johnson Vietnam Archive: Events (ttu.edu).

April 11-14, 2024
The **Organization of American Historians** will offer its annual conference at the New Orleans Marriott Hotel in New Orleans, Louisiana. This year's theme will be "Public Dialogue, Relevance and Change: Being in Service to Communities and the Nation." For more information, see the Organization's website at oah.org/conferences/oah24/.

April 18-21, 2024
The **Society of Military History** will host its annual conference at the Crystal Gateway Marriott convention center in Arlington, Virginia. To register, visit the Society's website at 2024 Annual Meeting | The Society for Military History (smh-hq.org).

April 22-25, 2024
The **Association for Uncrewed Vehicle Systems International** will present Xponential 2024, its premier annual event, at the San Diego Convention Center in San Diego, California. More details can be had at the Association's website at XPONENTIAL 2024 | AUVSI.

April 24-26, 2024
The **Army Aviation Association of America** will offer its 2024 Mission Solutions Summit and symposium at the Gaylord Rockies Hotel and Convention Center in Denver, Colorado. For registration, see the Association's website at Home (goeshow.com).

May 9, 2024
The Air Force Historical Foundation Annual Membership Meeting will be held at the Arlington, VA, Army-Navy Country Club at 3 PM on May 9, 2024. All AFHF members in good standing are invited to attend (bring your current membership card).

May 9, 2024
The Foundation's Annual Awards Banquet will be held at the Army-Navy Country Club at 5:30 PM, and the Banquet at 6:30 PM. The Annual Awards Banquet is open to the public and tickets for the event may be purchased at: https://www.afhistory.org/events/ .

May 30-31, 2024
The **Society for History in the Federal Government** will hold its annual meeting in the James Madison Memorial Building at the Library of Congress in Washington, D.C. For further details and registration, see the Society's website at Society for History in the Federal Government - Home (wildapricot.org).

July 3-7, 2024
The International Organization of Women Pilots, better known as **The Ninety-Nines**, will hold its annual International Conference and Career Expo at the Pinnacle Harbourfront Hotel in Vancouver, British Columbia, Canada. More information can be found at What We Do - Advancing Women Pilots (The Ninety-Nines, Inc.).

July 15-17, 2024
The **American Astronautical Society** will present its annual Glenn Space Technology Symposium at Case Western Reserve University in Cleveland, Ohio. For additional information, see the Society's website at John Glenn Memorial Symposium | American Astronautical Society.

November 4-7, 2024
AFHF will offer its Air Force Historical Foundation Symposium, Literary Awards, and Museums Conference at the Doubletree by Hilton Tucson - Reid Park, 445 South Alvernon Way, Tucson, AZ 85711-4198. The theme for the Conference is "Technological Change in the Air and in Space, 1920-2020," and is being co-hosted by the Pima Air and Space Museum. To propose a panel or register for the conference go to https://www.afhistory.org/events/ or contact the foundation at xd@afhistory.org.

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: warty0001@gmail.com

History Mystery Answer

Answer: In order, the Air Force's jet trainers are the Lockheed T–33 Thunderbird, Cessna T–37 Tweet (Short for Tweety Bird), Northrop T–38 Talon, and Raytheon J-1 Jayhawk. From 1948 until 1957 the T–33 was the Air Force's sole jet trainer. In 1958, the T–37 entered service followed less than five years later by the T–38 in 1961. The T–38 Talon was the Air Force's first supersonic jet trainer. Finally, in 1991, the T–1 Jayhawk entered the USAF inventory to be used as an advanced trainer. The newest jet and fifth jet in this 70+ year history of jet training is the Boeing T–7A Redtail. Built by Boeing in collaboration with Saab, the T–7A is a supersonic trainer that will prepare new pilots for the demands of flying a Fifth-generation fighter. Finally, the name Redtail is a tribute to the Tuskegee Airman. During World War II, the Tuskegee Airman painted their aircraft with a distinctive Red Tail to identify their aircraft. Their tenacity in air combat was legendary. The T–7A's name is a fitting tribute to the Tuskegee Airman's courage in battle and their fight for civil rights.

To learn more about the USAF's jet trainers and the Tuskegee Airman:

T–33: https://www.nationalmuseum.af.mil/Visit/Museum-Exhibits/Fact-Sheets/Display/Article/198079/lockheed-t-33a-shooting-star/

T–37: https://www.nationalmuseum.af.mil/Visit/Museum-Exhibits/Fact-Sheets/Display/Article/198031/cessna-t-37b-tweet/

T–38: https://www.af.mil/About-Us/Fact-Sheets/Display/Article/104569/t-38-talon/

T–1: https://www.af.mil/About-Us/Fact-Sheets/Display/Article/104542/t-1a-jayhawk/

T–7: https://www.af.mil/News/Article-Display/Article/1960964/air-force-announces-newest-red-tail-t-7a-red-hawk/

Tuskegee Airmen: https://www.afhistory.af.mil/FAQs/Fact-Sheets/Article/458979/tuskegee-airmen/
https://www.afhra.af.mil/Portals/16/documents/Studies/AFD-141119-020.pdf

New History Mystery

by Dan Simonsen

This Issue's Quiz: Question: Beginning in 1948, as part of Undergraduate Pilot Training, the U.S. Air Force has used four different jet aircraft to teach pilots to fly. List the four aircraft in order, including their names. This past September 2023, the Air Force accepted its fifth jet aircraft for use during Undergraduate Pilot Training. Name the Air Force's new jet trainer. What is the historical significance of the new jet's name?

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