

AIR POWER

History

WINTER 2018 - Volume 65, Number 4
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The Air Force *Historical* Foundation

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

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

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Winter 2018 - Volume 65, Number 4
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know the past
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From the Editor

In trying to maintain the commemorative theme of the conflict in Southeast Asia, we have three articles that discuss topics of interest. Our first article is by repeat contributor Darrel Whitcomb, whose many articles on combat search and rescue in Southeast Asia have graced our pages in the past, adds to that wealth with the detailed story of the attempted rescue of Jackel 33 during Linebacker II. It really is gripping reading.

Our second article continues the story of the Thanh Hoa bridge, when Dutch historian and writer Theo van Geffen moves on from the first attempts to destroy the bridge using F-105s to the attempts to float water-borne mines under the bridge. Great level of detail in this story, so don't miss it.

Our third article talks about the contribution of the Air National Guard to the conflict, when the chief historian of the Air National Guard, David P. Anderson, enumerates the many contributions of the Guard to the airlift mission workload in support of the fight. It also has several very interesting photos of the era.

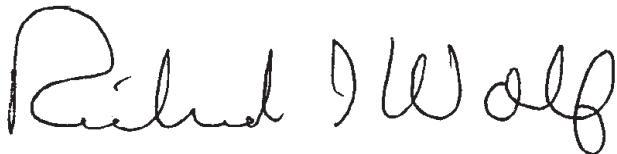
Our fourth article shifts gears as we return to World War II, when longtime contributor Daniel L. Haulman writes about the firebombing of cities during the extended war. It's a very interesting take on the controversial practice of firebombing. Be sure to look it over.

Our fifth and final article is by a first-time contributor, Jayson A. Altieri, with a history of one of the USAAF training bases in Alabama during World War II. Many thousand of men needed aerial training to contribute to the war effort, and Napier Field was one of many that produced pilots and other airmen for the conflict.

As usual, we have a bunch of book reviews, beginning on page 54, but the large volume of article content has reduced the usual number. There are still some interesting books in those pages though.

We also have our regular feature of the "new" History Mystery. Check it out on page 64.

In the days prior to publication, the Foundation conducted its annual awards ceremony and banquet, and also contributed to a symposium on the war in Vietnam. There are photos and the President's Message, beginning on page 4. If this issue arrives a day or two later than usual, you can blame the delay on waiting for the photos to be ready to include. Worth the wait I think. The best of holidays to all of you, our faithful readers.

A handwritten signature in black ink, appearing to read "Richard J. Wolf". The signature is fluid and cursive, with a large, stylized 'R' at the beginning.

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2018 Awards Presentation



(Above) Lt. Gen. Christopher Miller, AFHF President (left) looks on as Ms. Jonna Doolittle Hoppes hands the Doolittle Award to Col. Jason T. Hinds 1st TFW Commander.

(Below) The 2018 Major General I.B. Holley Award winner (left) Lt Gen John L. "Jack" Hudson, USAF (Ret.), the 2018 General Carl A. Spaatz Award winner (center) Mr. Sherman N. "Sherm" Mullin, and Col. Jason T. Hinds, 1st TFW commander whose unit earned the Jimmy Doolittle Award.

(The awards ceremony took place too close to this issue's publication date to show all the winners. We will have them in the next issue.)



From the President



Dear Members,

As the winter holidays draw near, I am pleased to report the Foundation has had a very full and eventful past few months. During the days before this message is being written, the world marked 100 years since the end of the First World War, AFHF recognized our annual award winners, and some of our members participated in a multi-service historical symposium focused on Vietnam 50 years ago. Due to publication deadlines, photos from the awards events will not appear until the Spring edition, but we will display a selection of them soon on our website, www.afhistory.org.

The annual report in the Summer 2018 issue of *Air Power History* noted our Foundation's resource picture remains modestly positive, and that remains the case. We are, however, working hard to attract grant funding to support some initiatives that we hope will produce worthy history and bear fruit that strengthens the Foundation more broadly. The Board believes it is appropriate to develop our ability to seek and win approval for grant funding, and to incorporate this avenue into our financial stewardship planning. In particular, we believe this is a viable path to secure initial investment in historically-relevant, financially viable projects such as updating our large-format, hardbound reference books and publishing new works of historical significance.

In our last letter to you we also spoke of leveraging professional fund-raising expertise, and we have taken useful exploratory steps in this direction. We will update you on this as we move forward, recognizing any professional help likely to be useful must have sound knowledge of the Foundation's history and mission.

For many years, the Combined Federal Campaign helped fund Foundation activities, but we left the Campaign (as did many other organizations) when the costs of remaining exceeded anticipated revenues. Legislative changes now make it feasible for us to rejoin, at least in the Washington, D.C. area. The necessary research on this initiative has been completed, and once our staff works through the administrative process, we anticipate the CFC will again raise awareness of the Foundation and bring some modest increase in support.

This year, the Foundation had a physical presence at the Air Force Association Air, Space and Cyber Conference in September, which brought over 11,000 Airmen and other attendees together in one place. Being there generated some very lively conversations between visitors and the dedicated staff and Directors manning our display. We are confident we raised awareness of the Foundation among a cross-section of conference attendees—senior and junior, uniformed and civilian, and industry—and that we need to continue to be visible and present.

As we mark a hundred years since the St Mihiel offensive brought military aviation undeniably into the history of human conflict, it seems appropriate to reflect on the Foundation's purpose and future. Our predecessor generations of Air Force Historical Foundation leaders—Spaatz, Vandenberg, Foulois, LeMay, Poe, others—and the dedicated Airmen they served all believed that airpower was essential to our national security. That truth has not changed, but its realization is ever more complex as our Air Force and nation continue to face unprecedented warfighting and conceptual challenges. As a group of people who care to hear and listen to the echoes of history, and who feel kinship with those who have gone before us, it's incumbent on Foundation members to bear in mind that *knowing the past* is one thing, *shaping the future* another. Students of history can and must do both, through discerning and helping communicate wisdom about the past. Only in that way can we hope to inform the decisions and strengthen the leaders of the future. The "how" is particular to person, place and time—but it is important.

In that regard, your continued support—in ideas, time, donations, or just forwarding "This Day in Air Force History" to others who might find the Foundation's work interesting and worthy of support—really matters. In the meantime, your Board and staff endeavor to keep our Foundation on the move and worthy of your interest and investment. Please share your thoughts with me at president@afhistory.org. I wish you healthy and happily historic holidays!

Sincerely,

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

Guidelines for Contributors

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

The Non-Rescue of Jackel 33 During Linebacker II



Painting of the same kind of aircraft as Jackel 33, by Lou Drendel, titled "F-111 Over Downtown Hanoi during Linebacker II."

(Image used courtesy of the artist, <http://www.aviation-art.net/>.)

Darrel Whitcomb

Text © by the author.

With his reelection in November 1972, President Richard Nixon anticipated that he could soon orchestrate a diplomatic end to the Vietnam conflict. To this end, his National Security Advisor, Dr. Henry Kissinger, worked throughout the year with the North Vietnamese negotiator Le Duc Tho to conclude and implement a draft agreement which the two sides had tacitly agreed to just prior to the election. Accordingly, President Nixon had stopped the bombing of North Vietnam above the 20th parallel which had been going on since April in response to their invasion of South Vietnam with massive modernized conventional forces.

However, the President of South Vietnam, Nguyen van Thieu voiced serious concerns with the document and called for numerous changes. Kissinger could not get the North Vietnamese to accept any of the proposed changes, and President Thieu refused to accept any political interference with his government in Saigon. Sensing impasse, on December 12, North Vietnamese leaders ordered the evacuation of large sections of the Hanoi / Haiphong region in anticipation of resumed and expanded air attacks.¹

On December 14, Kissinger met with President Nixon for eight hours over two days. Nixon sent a strongly worded cable to Hanoi warning that "serious negotiations" would have to be resumed within 72 hours – or else bombing of the North would be resumed.

Meanwhile, the United States military was preparing for what seemed inevitable, a wholesale attack on the North Vietnam heartland. On November 30, the Strategic Air Command (SAC) staff had developed a list of sixty targets in North Vietnam suitable for attack by B-52s. On December 14, the Joint Chiefs of Staff (JCS) authorized the resumption of manned photo reconnaissance flights above the 20th parallel starting December 16. The next day, the Chairman of the JCS, Admiral Thomas Moorer, directed forces to be ready to resume air and naval gunfire operations north of the 20th parallel at 1200Z (1900L Hanoi time) on December 17 for a maximum three-day effort, and he forwarded a list of fourteen targets for B-52 strikes. The start time was subsequently slipped 24 hours to 1200Z on December 18.²

Hanoi did not respond to President Nixon's cable. On December 17, Nixon ordered the resumption of concentrated US air attacks against North Vietnam, including the use of tactical air and B-52s against targets in the Hanoi and Haiphong area, beginning later that evening in Washington area time. The JCS then directed that the operations could be extended beyond the three-day limit. In explaining to the nation what was about to happen, White House Press Secretary Ron Ziegler indicated that Linebacker II, as the attacks were now called, was a campaign, not just one attack. He said that it would continue, "until such time as a settlement is arrived at," adding that, "We stand ready to end the conflict rapidly." They wanted a quick end to this. As Ziegler further explained, "It is the President's view that neither side can



gain from prolonging the war or from prolonging the peace talks.”³

Linebacker II

The airmen and sailors of the 7th AF and Task Force 77 were ready and in fact, continuing to fly missions in the other regions of Southeast Asia. For the new campaign, Air Force, Marine and Navy flights of F-4s and A-7s would be hitting targets during the day, and A-6s, F-111s, and B-52s with support packages would be striking at night.

Air Force and Navy rescue forces were highly experienced and ready to support the combat operations with their HH-53Cs, HC-130s, and HH-3As respectively. The B-52 crews now going into the heart of North Vietnam were briefed on what to expect from the rescue forces. They were shown the selected area for evasion (SAFE) areas

Col. Darrel Whitcomb, USAF (Ret.), flew the OV-10 and O-1 as a Nail and Raven Forward Air Controller in Southeast Asia from 1972-1974. He is a prolific and award winning writer of Air Force aviation and rescue history. This is his 10th article for Air Power History. He is just finishing his fifth book on rescue: 1972 - The Year of Rescue in the Vietnam War.

around Hanoi and briefed on the preplanned contact times for evaders. All were equipped with full survival vests and had at least one survival radio and a secondary beeper. They had all been through survival school and knew what to expect. They understood the function of the rescue task forces and knew how to interact with the Jolly Greens, Sandys and FACs who would try to rescue them. They knew that the US Navy would recover them over the Gulf of Tonkin, but were not as sanguine about the Jolly Greens coming into the Hanoi area.⁴

For the next five nights, waves of bombers, fighters, and support aircraft attacked targets in the Hanoi/ Haiphong region. In that effort, eleven B-52s and five fighter/attack aircraft were shot down. Three B-52s made it out of North Vietnam before their crews had to bail out and most crewmembers were rescued. All crewmembers aboard the B-52s and fighter/attack aircraft that went down in the Hanoi/Haiphong area were either captured or killed.⁵

In the late evening hours of December 22, **Jackel 33**, an F-111A from the 474th TFW at Takhli, struck the Hanoi Port Facility with a load of twelve Mk-82 bombs. The crew reported their successful strike and egress, adding that the right engine had been shut down. However, when the aircraft lost both hydraulic systems and the flight controls would no longer respond, the crew, Capt Robert Sponeybarger and 1st Lt Bill Wilson, ejected in their capsule, about seventeen miles southwest of Hanoi. They landed on the side of a hill and had a bit of trouble climbing out of the capsule. When clear, both were unhurt, and they decided to separate, figuring that their chances of evasion were better if they did it alone. Both had full survival vests with two radios and extra batteries. The area was mixed jungle and cleared land, with small villages interspersed. Evasion would be a challenge for both, and they could hear people in the area. Neither made an initial radio call. However, the emergency beacon in their ejection capsule was broadcasting, and Moonbeam, the orbiting EC-130 ABCCC aircraft in northern Laos heard their beacon and reported it at 1512Z, or 2212 local time in Hanoi. Throughout the night several other aircraft and agencies reported the strong beeper emitting from about twenty miles southwest of Hanoi. At 1648Z, the calculated fuel exhaustion time for Jackel 33, the aircraft had not landed at any friendly airfield, indicating that the aircraft and crews were missing. US aircraft traversing the Hanoi skies would now call, listen, and watch for any indication that the crew of Jackel 33 was alive and free, as they were now doing for the other men shot down in the last few days.⁶

December 23

The next morning, several aircraft reported seeing what appeared to be burning wreckage in the area of the reported beacon which also was still transmitting. On the ground, North Vietnamese forces were reacting to the downing of the F-111. Over the years of bombing, all villages and local militia had been organized and taught to track down and capture downed airmen. Villages and local leaders heard the crash of the aircraft and saw the burning wreckage. Some reported seeing a parachute, and



1st Lt William Wilson (left) the weapon system officer and aircraft commander Capt Robert Sponeybarger in front of their F-111.

the search teams were called out. They also knew that American flyers were equipped with radios and their leaders would send helicopters to rescue them. Consequently, the locals were reinforced with military units equipped with electronic search devices and heavier machine guns to deal with the rescue forces. The crew of Jackel 33 was in grave danger.⁷

At about 1700L, members from Walnut and Bronco flights reported contact with two different individuals whispering, "Jackel 33," three times. They seemed to correlate to the locations of the beacon and burning wreckage. Briefed on the data, the 3rd Air Rescue and Recovery Group commander, Col Cy Muirhead, authorized a recovery attempt based upon a "valid objective" and under the cover of the assets in the area as part of Linebacker II.⁸

Muirhead also commanded the Joint Rescue Coordination Center (JRCC) in Saigon and his personnel were putting together a rescue plan. Fortunately, Sponeybarger and Wilson had established radio contact and quickly talked in an effort to coordinate their actions. But the weather in the Hanoi area was dismal, with low ceilings and limited visibility. A rescue operation could not be mounted that day. Instead, a listening watch was maintained that night for the crew of Jackel 33, as the two men tried to stay warm, deal with the ever-increasing thirst and hunger pains, save their precious batteries, and move away from the crash site.⁹

NVA military units were aware of the crash of the F-111. The alerted the local militia and moved some regular forces into the area. They set up 12.7 mm machine guns on high points and organized teams which swept through the area, finding items which seemed to be equipment used by American flyers.

December 24

Based upon a favorable weather forecast, that morning of December 24, rescue forces were launched to try and recover the Jackel 33 crew. Shortly after sunrise, Jolly Green 30, 63, 66, and 73, departed NKP heading north, but Jolly 63 had to abort with a mechanical problem. The Jollys were escorted by a Pave Nail OV-10 from the 23rd TASS which used its LORAN to take them to the designated holding point in northern Laos. A-7s, Sandy 01, 02, 03, 04, 05, 06, 07, 08, and 09 took off from Korat RTAFB, Thailand. They were also accompanied by Smoke 01 through 04, which were loaded with a CBU to produce a smoke screen, and Slam 01-04, a strike flight with bombs, rockets and anti-personnel CBU. An HC-130, King 21 also joined the force to serve as Airborne Mission Commander (AMC) and tanker for the Jollys. As the task force approached North Vietnam, Sandy 01, 02, and 03 proceeded ahead to locate and authenticate the survivors to ascertain that each was a "valid objective," and not an NVA trap. However, it took more than an hour before Wilson responded. And he was not with Sponeybarger, who would only answer with a beeper, seemingly indicating that enemy forces were very near.

The Sandys tried to get down over the survivors, but the weather was just too poor for visual operations. Consequently, Slam 01-04 were released for strike duties, and they diverted to work with a Raven FAC near the PDJ in Laos.

The Sandys did finally make voice contact with both men, and Sponeybarger relayed some messages for Wilson. At one point Sandy 06 was able to make a low pass over both men and get better positions on each. He determined that the area was just far too difficult and dangerous for a rescue operation and recommended that the survivors be



A different F-111A crew from the 474th TFW at Takhli RTAFB, 1972.

moved. The JRCC planners quickly developed movement plans for both men and Sandy 06 delivered the messages to them. All of the Sandys, except Sandy 06 then returned to Korat and the Jollys returned to NKP. Sandy 11, 12, 13, 14, 15, and 16 joined Sandy 06, but they were not able to do anything more for the survivors because of the poor weather and the constant threat of the NVA air defenses in the Hanoi area. Later that afternoon, Wilson talked a bit with Sponeybarger on their survival radios. A few minutes later, Wilson heard gunfire, and Sponeybarger no longer responded. In fact, he had been captured. An NVA team was searching for him and had gear to track his radio. They followed him over a ridge and found him in the grass. He was marched off to prison.

The after-action report of the NVA forces stated:¹⁰

At 1645 hours that afternoon, a cell led by Comrade Nguyen Van Binh spotted a pilot hiding behind a rock pile and very carefully camouflaged. [The soldiers] charged forward together, captured the pilot, and confiscated all the equipment he was carrying with him.

Bill Wilson was all alone, except for the North Vietnamese he could hear looking for him, and the voices he had on the radio. He found some tall grass and hunkered down in the miserable cold wetness of North Vietnam.¹¹

December 25

On the 25th, Christmas Day, the weather was just impossible for rescue operations. Wilson continued to dodge the enemy search teams, and maintain a listening watch

for passing flights. Those were only reconnaissance aircraft because President Nixon had declared a 36-hour bombing halt over Christmas.

December 26

On the 26th, the weather looked like it might allow a rescue effort, and another task force consisting of Jolly Green 63, 73, 66, and 30 headed north, to be joined by Sandy 01, 02, 03, 04, 05, 06, 07, 08, and 09. Two of the Sandys, Capt Cliff Montgomery and 1st Lt John Penney, reentered the area, and determined Wilson's location and re-authenticated him as a "valid objective." They also got actively engaged with some AAA sites that they had to destroy. Penney learned an important lesson that day. As Montgomery was searching for Wilson by homing in on his radio, Penney was also trying to use his ADF to get directional cuts on the survivor. While doing so, he was flying behind Montgomery, and was shocked at all of the tracers which passed between their two aircraft – that Montgomery never saw.¹²

Wilson told the Sandys that he was in good shape but running out of water and batteries. However, the Jolly Greens had mechanical troubles with their helicopters and were not committed for a pickup attempt. In fact, two of the HH-53s, had to divert into and spend the night at Lima 16 (Van Vieng), in northern Laos.¹³

The NVA forces now surrounding Wilson watched the A-7s swarming around the area. Familiar with American rescue tactics, they anticipated that this indicated a recovery attempt with helicopters would soon occur. They ordered their forces not to fire unless directly attacked so as



HH-53 being refueled by an HC-130 King Bird. Aerial refueling enabled the helicopters to rescue downed aircrew from any location in the Southeast Asia theater.

not to reveal their positions. Their commanders also ordered more AAA to be brought into the area by the next morning.¹⁴

That day overall Linebacker II operations were resumed from a 36-hour Christmas break, with the second heaviest efforts of the campaign. Four hours later, ten streams of B-52s, consisting of 116 aircraft attacked ten targets in the Hanoi/Haiphong area in a compressed fifteen-minute period. Seventy SA-2s were fired at the aircraft, damaging two, and downing two more.¹⁵

December 27

Bill Wilson was due to catch a break, and on the 27th it seemed to arrive as the weather appeared to be breaking up. Perhaps a rescue team could get in. He needed to come out because he was out of potable water, one of his radios had failed, and he was down to his last battery. In late morning Jolly Green 73, flown by Capt Richard Shapiro and crew and Jolly Green 66, were launched out of NKP for another attempt to rescue him. They were followed shortly by Jolly Green 32 and 52. In route, they joined with King 27 and were then met by Sandys 01 through 09, led by Capt Cliff Montgomery and Smoke 01, Maj John Morrissey and Smoke 03, and 04. However, the Sandys had been delayed a bit because as they were waiting for takeoff clearance at Korat, they had to hold for a while because an F-105G preceding them had an engine problem on takeoff. The pilot had jettisoned his external stores at the end of the runway. That debris had to safely be cleared away before the A-7s could line up and take off. Regardless, with the rescue task force joined, they would also be supported by a mass of thirty-two F-4s and F-105s conducting another Linebacker II raid, and also providing MiGCAP and SAM suppression for the rescue effort.

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

Morrissey remembered the quick discussion they had:¹⁶

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

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

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

The Sandy pilots and Jolly crews had no idea what was waiting for them. The NVA had fairly well located Wilson and were intent on using him as bait. Their after-action report states:¹⁷

Eleven members of the 115th Company deployed two 12.7 mm [AAA] on top of [the hill]. [Another unit] deployed two machineguns along the sides of [the hill]. ...Militia units deployed platoons and squads equipped with light machineguns in the area... Province militia personnel were ordered to deploy three 12.7 mm ... on [another highpoint].



355th Tactical Fighter Squadron A-7D formation over SEA. After arriving in SEA, the USAF A-7Ds assumed the Sandy mission from the retiring A-1s.

Past the river, Jolly 66 went into a holding pattern with Sandy 08 as Jolly 73 then went for the survivor, drawing heavy fire from a 12.7mm gun which hit the aircraft with several rounds. The NVA forces were waiting for them. Their after-action report indicates:¹⁸

Between 1400 and 1500 hours on 27 December, one flight of two F-4s and one flight of two F-8s [A-7s] were active in the skies over [the hill]. At 1530 hours, enemy aircraft fired twelve bursts of 12mm machinegun fire [sic] along the slopes of [the hill] and dropped four cluster bombs and six high-explosive bombs on Ram and Xam hamlets of Cu Yen village. The bombs wounded one civilian, set dozens of houses, the local general store, and a warehouse containing 200 tons of paddy [un-husked rice] on fire, and killed eight pigs. The enemy aircraft also dropped poisonous chemical gas on Trung Son, Tan Phong, Lien Son, and Cao Duong villages to block our forces on the outer perimeter from moving in to search for and capture the missing pilot. ... The enemy spotted our positions and attacked the positions of our anti-aircraft machineguns. A number of cadre and militia members were wounded and two light machineguns ... and two 12.7mm machine guns manned by Ha Tay province militia forces became jammed. However, all cadre and militia personnel held their positions, and the rest of our weapons continued to fire at the enemy aircraft. Medics quickly treated the wounded. ... At 1630 hours on 27 December, an observer stationed at the forward command post spotted an HH-53 helicopter flying in at low altitude through the valley, and our forces all opened fire at the same time. ... The enemy aircraft circled back and then hovered over Van Hill for about ten minutes. One five-man cell, made up of two personnel from 115th Company and three militia members equipped with two AK-47s and three rifles, fired simultaneous volleys at the enemy aircraft.

Under the swarm of A-7s, Jolly 73 crossed a ridge and spotted Wilson about 1/3 of the way down the slope on a small ledge with tall grass. They were fired at by another

12.7mm gun, and one of the Jolly Green gunners destroyed it with his mini-gun. Wilson popped his smoke. Shapiro saw it and hovered toward it. The flight mechanic, Sgt Chuck Rouhier, spotted Wilson and began to lower the penetrator and give Shapiro directions. Enemy troops were firing at the helicopter from all sides, and the gunners and photographer were firing back. Rounds were flying through the helicopter.

Wilson ran for the penetrator and was almost on when he was either blown over by the rotor-wash, fell down, or was zapped by a static electric charge from the helicopter. At any rate, at that critical moment he could not quickly get on the jungle penetrator. Shapiro did not have any more time to wait. As he noted in his after-action-report:¹⁹

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

Struggling with the now badly damaged aircraft, Shapiro rendezvoused with an HC-130 tanker over north-eastern Laos because he did not have enough fuel to get back to any base in Thailand. Unfortunately, the enemy fire had also damaged the aircraft's refueling probe, and it could not extend to safely reach the tanker refueling drogue, or even pressurize to transfer fuel. Facing fuel starvation, Shapiro put the helicopter down in an open area, and his wingman, Jolly Green 66, picked up Shapiro and his crew. Jolly 32 then landed and its crew salvaged weapons, classified equipment and documents from Jolly 73. However, enemy troops were not far away and began shooting at the airmen as they scoured the wreckage. The accompanying Jolly Greens above provided covering fire

for the airmen below as they re-boarded Jolly 32 and departed. Then all of the Jollys rejoined with King 27, refueled and headed back to NKP. As the enemy troops swarmed toward the wreckage of Jolly 73, the escorting A-7Ds destroyed HH-53C #69-5788 and as many of the enemy as they could. When that was done, all of the A-7s returned to Korat.²⁰

Noted the North Vietnamese, "The enemy helicopter was hit and struggled to fly away toward the Vietnamese-Lao border."²¹

The demise of Jolly Green 73 perfectly exemplified the dilemma of rescue in 1972. Said Earl Tilford in his seminal book, *Search and rescue in Southeast Asia*, "The rescue crews gave each mission all they had. ...when enemy aircraft fire was too intense, there was only so much the helicopters could take."²²

But the NVA troops had still not captured Wilson. Bit-terly frustrated and demoralized, he had no choice but to continue evading. He was able to find small amounts of water and did eat some vegetation – sparingly. He was given more evasion instructions and continued to evade. Throughout the day, he heard aircraft roar through the area. At least that boosted his morale a bit.²³

That night, another wave of B-52s and fighter / attack aircraft were dispatched to attack several main storage areas and SAM sites. Two more B-52s were shot down with one crew flying to Thailand before bailing out and another went down in the Hanoi area with all crewmembers either killed or captured. Additionally, two more F-4s, an A-6 and were also lost with all crewmembers either killed or captured.²⁴

December 28

Just before noon, the new assistant director of operations for 7th AF, Maj Gen Jack Bellamy, was briefed about the on-going saga of Jackel 33Bravo, 1st Lt Bill Wilson. Traversing flights were still talking to Wilson, but battery exhaustion was now a concern, and he reported that he was moving as directed but water was short and there were "bad guys all around." The general told the JRCC that they had the authority to direct another rescue attempt if they felt it was warranted. Accordingly, they put the Sandys and Jollys on alert for the day, but never directed the package to launch.²⁵

That evening, sixty B-52s and supporting aircraft attacked railroad yards and storage areas in and around Hanoi. The SAM sites were active, but they only fired 48 missiles, clearly indicating that the sustained attacks were having an impact on the NVA defense forces. No B-52s or supporting aircraft were lost or even damaged.²⁶

December 29

The next morning Dakota, a flight of US Navy F-4s, did a radio check with Wilson. Meanwhile, two Sandy A-7s, flown by Capt Cliff Montgomery and 1st Lt John Penney, took off from Korat. They flew to Wilson's location and after making contact with him, determined that he had moved in the wrong direction. They then dropped him a "Madden" kit, full of supplies, food, water, radios, compass,

signal mirror and batteries. Wilson saw the pod drop. So did some of the NVA soldiers. When Wilson moved to retrieve it, the soldiers grabbed him.²⁷

Bill Wilson's demise was not just bad luck. Frustrated at not grabbing him during the defeated rescue attempt, the NVA forces had redoubled their efforts and resolve. They observed the flight paths of the A-7s and adjusted their forces accordingly. When they observed that one of the aircraft had dropped something which had not exploded, they carefully surrounded the impact point and waited for Wilson. When he arrived, they were waiting. Later that evening, the local commander gathered his forces and congratulated them for their achievement. He also read to them a message from the General Staff in Hanoi confirming that they had badly damaged the rescue helicopter when it tried to recover Wilson and it had later crashed on the Vietnamese-Lao border. The meeting erupted in cheers and applause to celebrate their great victory.²⁸

The airmen in the JRCC and Jack did not know that Wilson had been captured. Additionally, they now had indications that a B-52 electronic warfare officer, Capt Pete Camerota, and possibly one of the crewmembers a US Navy RA-5, Lt Michael Hailey, which had gone down on December 28 was also evading. These developments were briefed to Gen Bellamy. He was presented with a plan to use all of the Sandys fraged for Linebacker II support flights the next day to attempt to find and if warranted, call in Jolly Greens to recover the three men. The general approved the plan for execution, and the frag orders went out to the units.²⁹

December 29

The next night, a similar force again raided the Hanoi area, with only twenty-five SAM firings in response. The NVA were clearly beaten down and agreed to resume negotiations for a cease-fire agreement. The next morning the White House announced that negotiations would resume in Paris on January 8, 1973, between the President's National Security Advisor Henry Kissinger and Le Duc Tho.

Accordingly, as directed, Admiral Moorer ordered US military forces to cease operations in North Vietnam and adjacent waters north of the 20th Parallel at 0659L, December 30. President Nixon sent a congratulatory message.³⁰

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

During the operation, 714 B-52 sorties and 1,773 tactical strike and support sorties had dropped over 15,000 tons of ordnance on thirty-four targets of vital importance to North Vietnam's war making capability primarily in the Hanoi/Haiphong area. A total of fifteen B-52s, eleven fighter/attack aircraft, and one HH-53 were shot down. Rail transport and POL storage were crippled and electrical power capacity was reduced by ninety percent. Over

1,250 SAMs had been fired, almost the total national inventory. When faced with such utter destruction, the North Vietnamese leadership agreed to resume the peace process.³¹

Additionally, there had been minimal collateral damage, the North Vietnamese themselves admitting that in the entire eleven-day campaign there had been 1,318 civilian casualties. However, after the bombing was ended, the North Vietnamese tried to intimate that the US, through its “indiscriminate” bombing, had hit the Hoa Lo prison and killed some POWs. Using a covert radio, the POWs were able to send a brief message in Morse code which stated, “V LIE WE OK,” which conclusively refuted these spurious allegations.³²

The American POWs certainly understood the meaning and importance of what had been accomplished in Linebacker II. They shouted and cheered as the bombs fell, and later reported that some of the NVA guards apologized for their incarceration and asked for their protection. Said USAF Col John Flynn, the senior POW officer, “When I heard the B-52 bombs go off, I sent a message to our people. It said, ‘Pack your bags – I don’t know when we are going home, but we are going home.’”³³

December 30

That morning, radio contact could not be established with Bill Wilson. The weather was bad all over the area, so the SAR plan was cancelled. Additionally, with the cessation of Linebacker II, any further SAR operations above 20 degrees north had to be specifically approved by General Vogt. The JRCC log noted cryptically, “Neg[ative] attempt or com[munications] search for [Wilson], [Haifley], or [Camerota], due to bad wx [weather] forecast in A. M. [3,000 feet overcast, 3 miles visibility, rain] and new rules for above 20 [degrees] north.”³⁴

Bill Wilson did not know any of that. The failed attempt by the crew of Jolly Green 73 was now a distant memory. They had done the best that they could, but their resolute bravery could not withstand the withering fire of the enemy guns. The helicopters could only take so much – the laws of physics were absolute.

Wilson had other worries now, like how he was going to survive captivity. As the events of the last few days showed, as optimistic as Col Flynn was about going home, he would soon have a few more cellmates. But as a result of our actions in Linebacker II, they would all come home in March 1973, and Lt Haifley’s remains would be returned in 1985.³⁵ ■

NOTES

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The Air War against North Vietnam: the Thanh Hoa Railroad and Highway Bridge (Part 2)



During their stay at Eglin, Capt Norm Clanton's crew not only flew sorties for Operation Carolina Moon, but also for the experimental Sperry Gyroscope APN-161 Ka-band navigation radar and the new 1528 Low Altitude Parachute Extraction System (LAPES). Shown here is a C-130E during a LAPES test mission. (Photo courtesy of Lockheed Martin.)

Theo van Geffen

When the US did not succeed in dropping the Thanh Hoa Railroad and Highway Bridge, possibilities were looked at to achieve this like tactics and improved weapons. In the end it was decided to try it in a very unorthodox way: a night attack with floating mines, to be released by a C-130E Hercules: Operation Carolina Moon.

In order to get the operation off the ground, it became part of Project 1559 as Task 55. The approach of "1559" was to give a quick answer in terms of research and development (R&D) to problems with regard to limited warfare or counterinsurgency problems through test and evaluation. It had to involve promising equipment 'off the shelf' or near-term equipment. One of the advantages was a drastic reduction of the time generally required to formally establish and finance a project in the normal R&D process.

Diameter

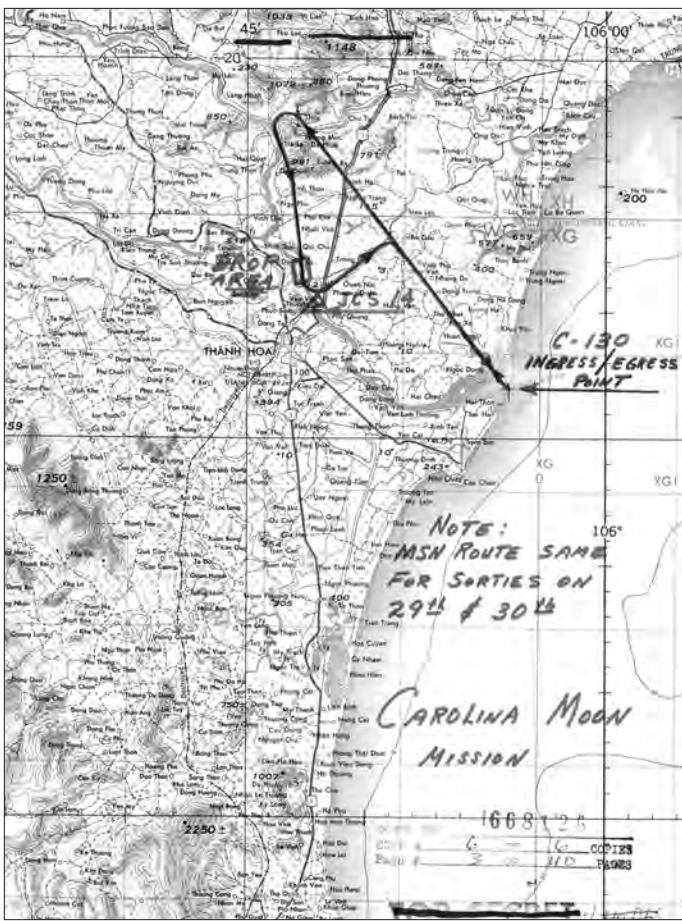
In September 1965, Air Force Systems Command was ordered by the Air Force Staff to develop and test a floating mine for the destruction of bridges. The Technology Branch of the Air Force Armament Laboratory (AFATL) at Eglin Air Force Base, Florida, then designed a mine with a 1.8 meter mass focus warhead in diameter with 209 kilos of HE, high explosives. It was assumed that after the mine had been released upstream and floated under the bridge, it was to explode as soon as the sensors detected the metal of the bridge structure.

The commander of the 2nd Air Division (2AD) at Tan Son Nhut Air Base, South Vietnam, Lieutenant General Joseph H. Moore, was informed about the new weapon and its potential against bridges, particularly the Thanh Hoa Bridge. The problem was that the weapon was too big for employment by aircraft like the F-105 Thunderchief and F-4 Phantom and therefore would have to be carried by a transport plane. However, Moore considered the risk of losing a transport aircraft that was to be used directly against the bridge, as too large and suggested studying methods to release the mines upstream of it.

The Tactical Air Warfare Center (TAWC) at Eglin analyzed the proposed operation and concluded that the chances of success were small because the mines would run to the ground if they were released far enough upstream to avoid the anti-aircraft defenses. But alternative proposals offered an even smaller chance of success.

Sheet metal

Actual work on the production of twenty live and ten inert mines began in October 1965. The final design, with a



Map with ingress and egress points for the Carolina Moon missions. The point was slightly north of the mouth of the Song Ma River. (Except where noted all photos USAF via the author.)

steel casing manufactured to AFATL specifications by the Atomic Energy Commission's contractor Union Carbide in Oak Ridge, Tennessee, and a floating system, had a diameter of 2.44 meters, a height of 80 centimeters and a weight of about 1,700 kilos. AFATL's Target Division designed and built the optical sensors and the safe-and-arm assembly with parts fabricated by a local contractor. Picatinny Arsenal, the Army's Joint Center for Guns and Ammunition in Morris County (New Jersey), modified thirty Bomarc (the Boeing CIM-10 Bomarc was an Air Force surface-to-air

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missile) radar sensors. Final assembly of the mine was accomplished by the Air Proving Ground Center (APGC) at Eglin. For this purpose eighteen sheet metal workers had to be brought in from the San Antonio Air Materiel Area in Texas. For the organization it created a major un-programmed workload of 3,320 direct man-hours as the work was beyond the capability of the requesting organization. To procure the mines, some \$600,000 was expended in addition to the wages of personnel.

Operations Directive

While the mines were being manufactured, on November 24, 1965, APGC published Operations Directive #1559W1, "Carolina Moon." It had an APGC priority of 1B6 and an USAF priority of 3-70. The project was mentioned in APGC's Project Summary as of November 1, 1965, and through April 1, 1966. For reasons of safety, a detailed weapon description and operation concept were only known to personnel on the basis of "need-to-know." The project was a combined effort by the Directorate of Armament Development, TAWC, Special Air Warfare Center (SAWC) and APGC to design, fabricate, test, develop tactics, and deliver a new munitions. The project schedule showed the testing to begin on October 26, 1965 (!) and to be completed on February 15, 1966 with the letter report being completed on March 1, 1965.

The objectives were (1) to obtain munitions release and ballistic characteristics when extracted from the C-123 and/or C-130 aircraft; (2) to evaluate the performance of the fusing systems and determine the reliability of each system; (3) to evaluate the performance of the safety and arming system; and (4) to obtain terminal effect data on the munitions. SAWC and TAWC would be responsible to develop delivery techniques during the testing phase, with TAWC providing a C-130 and a helicopter to take pictures and SAWC providing a C-123 aircraft, flight crews, forward air controllers, and being responsible for rigging of the delivery devices.

Sixty missions and five ground trials were planned. The missions would be flown both above land and water by a C-123 or C-130 that was instrumented and equipped with Mitchell cameras and recording equipment. The ground trials would be filmed with high speed cameras.

Regarding water recovery, the Operations Directive stated for example that on each of the forty missions, a two-ton item, with two to three parachutes, had to be recovered with the possibility that as many as ten such items were to be recovered on one mission. The item would be inert on most drops, but with explosive components on at least ten drops. Items and parachutes were to be recovered for reuse.

Technical services included the requirement of one or more boats to support on-board tests of munitions components, the majority being conducted at night. A 70 sq. ft. deck space for a 4,000-lb. item would be required for some of those tests. Also, special targets were required on the land ranges. However, details were classified and a request for their construction would be submitted under separate cover.

"1559W1" also stated, among others, that up to fifty sorties involving parachute drops into water were required with some involving fuse functioning and detonation of tetryl boosters. One or two drops were to be made with high explosives over a water and land range, but without fuses. Various types of targets on Ranges 74L and 72 South would be available to statically detonate high explosives against. Eglin was to fabricate and assemble a heavy munitions.

R&D testing

Although the vast Eglin ranges had no suitable areas to perform a full destruction test of the mine's armed munitions warhead, it was possible to test the system thoroughly for reliability of detonation in the armed position, and for safety when unarmed by deliberately firing the munition with a special circuit in the safe position. Both the radar and optical sensors were tested in dummy mines against the boom of a floating crane and a bridge. The safe-and-arm assembly was tested extensively and successfully.

The operation of the parachutes would be important to delay the fall of the mine after it had been released. Specialist personnel were made available by Tactical Air Command (TAC) to help rig the parachutes. During the R&D phase, forty-one sorties were flown, of which seventeen by the C-123 and twenty-four by the C-130. Seventy-one dummy mines were dropped into the water near Eglin to develop a workable procedure and rigging design, of which about fifty with parachutes into the water. During those tests mines repeatedly separated from their parachutes. Test photography revealed the causes, resulting in corrective measures being incorporated. Ultimately, two parachutes of 19.2 meters each would be used per mine. A mechanism ensured that the parachutes would disconnect the moment they hit the water.

It was shown that in the testing of the explosive head against simulated bridge beams and a concrete bridge pier, the warhead was adequate for the purpose. Test data gave a theoretical estimate of an explosion six to nine meters above the weapon that corresponded to one kiloton.



Besides the C-130E Hercules, the C-123B Provider was also considered for deployment in Carolina Moon. However, because the C-123 could carry only three items, had a slower speed and the center of gravity would be exceeded under certain release malfunctions, it was decided to use the C-130.

Interim report

In a 1/1703Z February 1966, 1st Combat Applications Group (Eglin) message, "Bridge Munition," SAWC and TAWC jointly sent the interim report about Carolina Moon to TAC with the final report to follow. The interim report stated that the project had been completed on January 28, although a small number of engineering sorties might have to be flown at a later date. The main body of temporary duty (TDY) personnel was released on January 28 except for five personnel to prepare checklists for rigging and loading procedures, and to clear supply accounts. They were to be released on February 4. The report concluded that although the feasibility of this type of bridge munitions delivery was proven, it was not recommended to use transport aircraft. When it was decided to use cargo aircraft, it was recommended to use the C-130 for various reasons to include, (1) could carry five items; (2) radar to aid in navigation and release accuracy; and (3) higher speed. The C-123 on the other hand could carry only three items, had a slower speed and under certain release malfunctions, center of gravity of the aircraft would be exceeded.

Unique

Most of the R&D C-130 test drops were performed by the E models from Stewart AFB (Tennessee), one being 64-0513. The crew of Major Richard Remers, 62nd Troop Carrier Squadron (TCS) was assigned to it. The aircraft was unique as it was the only Hercules that was equipped with the experimental Sperry Gyroscope APN-161 Ka-band navigation radar. It had a four times finer resolution than the standard C-130 APN-59 X-band with the same size antenna dish. That was amazing for the time. It was the prototype of the Adverse Weather Aerial Delivery System which made it possible to perform air-drops in adverse weather. Testing of the APN-161 had taken place by TAWC between July 30 and September 20, 1965. The aircraft was also equipped with a Canadian Marconi APN-147 Doppler system that calculated the ground speed and provided drift information.

The navigator on "513" was Capt Norman Clanton. He had been assigned to test the APN-161 after the first navigator had been reassigned. Beginning in November 1965, his crew had been flying to Eglin every week, typically leaving on Monday and returning on Friday. Besides flying R&D test sorties for Carolina Moon, test missions for TAWC were flown, including involvement in the early tandem testing of low-altitude parachute-extracting system (LAPES). Capt Clanton:

In a test on December 3 we released our first 'big tub' into the Apalachicola Bay, using the 463L rail system with conventional heavy equipment parachutes and techniques. We did not know what they were and no one would tell us. As I recall, they were roughly octagonal and somewhat bowl shaped, about eight feet in diameter and perhaps three feet or a little more deep. I am inclined to think that we released the devices primarily for the purpose of testing their drop

characteristics, as opposed to training, as the procedures were essentially standard heavy-equipment procedures.

On November 29, 1965, "513" had made the first trip to McGhee Tyson Airport (Tennessee) to pick up four 'blivets', as Capt Clanton called the devices, with Eglin as destination. In December, another nine blivets were picked up by the crew of Major Remers.

Highly sensitive

In the meantime, TAC had been instructed by the Air Staff to support Pacific Air Command (PACAF) in carrying out a "highly sensitive mission in Southeast Asia." The objective was to bring down at least one span of the Thanh Hoa Bridge. It was estimated that the bridge would be unusable then for one to six months. Also, that probably the existing ferry, southeast of the bridge, would be put back into use. TAC in turn instructed TAWC to equip two C-130s (of which one with APN-161 radar) and to train two crews at Eglin who had to be at the destination on/around May 19.

In support of the operation, TAWC, on April 4, published an Operation Plan, OPLAN 155 "Carolina Moon." The objective was to collapse at least one span of the Bridge. It also became clear which two C-130 crews had been selected for the mission. It was no surprise that one of them was the crew of APN-161 radar-equipped C-130E 40513 with Norm Clanton as navigator. Also, that the mission was against the Than Hoa Bridge with floating mines and how they worked. Each of the two C-130s had room on board for five mines. After having been released, the mine would float downstream the Song Ma towards the bridge. As soon as the mine had arrived under the bridge, it was supposed to explode as soon as the sensors detected the metal of the bridge structure. Clanton stated:

This did not mean at all that we could discuss the mission with others. Everything was Top Secret and we knew that the only hope for survival would be to keep it this way. For instance, my wife Sylvia thought I was at Eglin while in reality I was at Da Nang.

The second C-130E was 64-0511 assigned to Major Thomas Case and his crew of the 61st TCS. On December 1, 1965 both the 61st and 62nd were reassigned to Troop Carrier Wing Provisional, 4413 when the parent 314th Troop Carrier Wing (TCW) was PCS-ed to Kung Kuan on Taiwan.

A certain basis for "155" had already been laid in a Plan of Operation that 2AD at Than Son Nhut had sent to PACAF on February 28, 1966, with the Thanh Hoa Bridge as primary target, but also involving later strikes against bridges at Viet Tri and Ninh Binh. With regard to the primary target, it was initially planned that the C-130 would rendezvous with a flight of two F-4Cs ten miles offshore from the mouth of the Song Ma River. Those Phantoms were to initiate strikes against military targets of opportunity in the area of the mouth of the River. A second flight of two Phantoms was to initiate a diversionary attack on

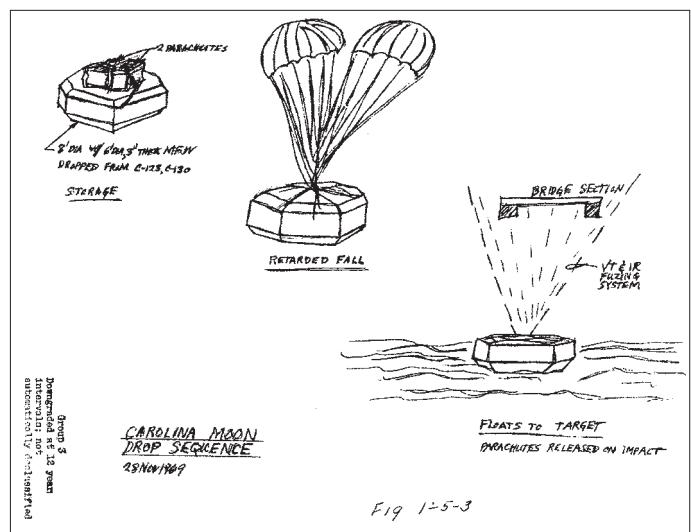


Fig 1-5-3

The dropping sequence of the mine utilized in Operation Carolina Moon against the Thanh Hoa Railroad and Highway Bridge.

Highway 1A south of Thanh Hoa. Two flights of RB-66Bs would conduct active jamming and provide SA-2 warning. With regard to the Thanh Hoa Bridge, 2AD stated, among other things, that it was heavily defended by (radar-guided) anti-aircraft defenses and that there were strong indications for the presence of SA-2 installations. 2AD stated it had no C-130s or crews assigned to carry out the mission. It was recommended strongly to use the test crew on a 30 days TDY status. The aircraft had to be equipped with the APN-161 and a terrain avoidance capacity was highly desirable, if available. The use of a C-123 was not desirable. 2AD anticipated that the mission would be flown from Da Nang Air Base (South Vietnam) in the period May 29- June 9. Weapons should be shipped direct to Da Nang to arrive on/around May 15. Platforms, parachutes and rigging items should accompany either aircraft or weapons.

OPLAN 155

The 54-page operation plan, with various annexes and appendices, was the guideline to execute the operation and contained all possible information about its implementation. Due to the sensitivity, certain details about the weapon and the real purpose were omitted and only briefed on the basis of need-to-know. Topics were, for example, mission profile, training, which organization was to do what, information about the North Vietnamese opponent, the mission and its execution, when, what time and what departure base would be (C-day was May 15 at 10 am local time from Eglin), and who would have operational control (TAC east of 140 °W and PACAF west of it). Detailed mission briefings would only be given at the deployment location, based on recent intelligence information. The number of crewmembers per C-130 was brought to seven: two pilots, two navigators, a flight engineer and two loadmasters. This meant an extra navigator per aircraft. His job would be to stand behind the pilots to assist them with visual information. In addition, he would be the map reading navigator for the primary nav.



Prior to the Caroline Moon missions on May 29 and 30, twenty-four sorties were flown against the Thanh Hoa Bridge in 1966, all by the US Navy. Among others, A-6A Intruders flew fifteen strike and armed reconnaissance and RA-5C Vigilantes four reconnaissance sorties. Navy aircraft sometimes diverted to Da Nang Air Base in case of an emergency. The photo shows a Vigilante at the base after it had received battle damage on a recce mission over North Vietnam. [via Neal Schneider]

The crew that was to fly the Carolina Moon mission would be appointed after arrival by the Task Force Commander. Return to Eglin was planned around June 17, 1966.

Training

In the period of April 11 to May 13, training was accomplished at Eglin under the operational control of TAWC. On April 14, selected personnel from Sewart reported to Eglin for intensive training. Aircrrew training set-up was 158 hours and included seventy-five flying hours, three hours mission orientation, forty hours weapons system, twenty hours each for target study and mission planning. Three different flight profiles were worked out to get to a suitable release point after reaching the ingress point and to minimize the time over the target (TOT) and thus for anti-aircraft defenses. For that purpose extensive use was made of aerial photographs. The intention was to use terrain masking as much as possible.

Flying consisted of twenty-five hours for eight day sorties per crew and fifty hours for fifteen night missions per crew with two and five weapon drops respectively. Dropping procedures into the water were tested, finding out how close to the target and from which altitude the mine could be dropped to be successful, rigging of the parachutes and overall validation. During the sorties, the tactics to be used were simulated as closely as possible. For example, the crews gradually worked their way down until they were cruising at 230 knots at fifty feet above the water at night. The plan was to stay blacked out, with the radar in standby, until landfall had been made near the mouth of the Song Ma River. In the May 2-10 period the crew of Maj Remers flew six sorties, of which four in the dark and at low altitude. According to Clanton he had flown some eighty test and training sorties for Carolina Moon.

Meanwhile, on April 12, 1966, PACOM commander (the "boss" of all U.S. forces in the Pacific), Admiral Ulysses Grant Sharp, had authorized PACAF to execute Operation Carolina Moon. This approval was based on PACAF's message of April 7, providing proposed aircraft and personnel deployment to Da Nang, and USMACV's April 12 message, advising that base loading at the base would allow the deployment. Seven days later, April 19, PACAF authorized Seventh Air Force (7AF), which had succeeded 2AD on April 1, 1966, to execute a single attack against the Bridge during the period May 29- June 9, in accordance with the 2AD message of February. 7AF was requested to advise the Command of the launch date/time soonest after determination. The mission would have to be coordinated with Navy's Task Force 77 in the South China Sea and with MACSOG to insure no conflict with Rolling Thunder (RT) and 34A operations. 7AF was to assume operational control of the TAC detachment upon its arrival at Da Nang. For everything else the detachment would be attached to the local 35th Tactical Fighter Wing (TFW). Upon completion of the mission, a detailed report had to be submitted with information like tactics employed, BDA and recommendations concerning future operations employing this concept. PACAF was to send this report to CINCPAC.

Camouflage

Before departure both C-130Es had been camouflaged by TEMCO at Donaldson Center Airport in Greenville (SC) and the Ka-band of "513" was extended with an X-band receiver/transmitter because the Ka-band by itself was not suitable for long-range navigation and weather penetration. According to Norm Clanton that was a fairly complicated arrangement, with two feed horns on the same dish, azimuth offsets, etc. He recalled that keeping the system pressurized for high-altitude operation was a challenge as well. Initially it was planned to equip the C-130s with an Electronic Counter Measures (ECM) system, but when it was decided to utilize (R)B-66s for ECM support, the plan was dropped.

On May 15, 1966 the main contingent including both aircraft departed Eglin for the first leg of the trip to Da Nang, Travis AFB on the US West coast. However, the two C-130Es did not make the trip together. Every Hercules had its crew chiefs and five mines onboard. Next destinations were Hickam (Hawaii), Wake Island, and Andersen (Guam) respectively before arrival on May 19 at 1330L at the final destination, Da Nang, with call signs Urake 31 and Aften 47. At the enroute stops, the C-130s were parked in a remote area, which was a standard practice for any aircraft with live ordnance aboard. Support personnel traveled separately. The last personnel of the contingent arrived on the 22nd.

On May 21, however, due to the danger from rebel forces in Da Nang, tactical aircraft stationed at the base were evacuated to other bases in SEA. The two C-130Es diverted to Tan Son Nhut. The rebel forces were South Vietnamese Army (ARVN) units of the First Division and local militiamen loyal to the Corps I commander, MG

Nguyen Chanh Thi, who had been fired by Air Vice Marshal and Prime Minister Nguyen Cao Ky supposedly because of the general's good relations with the Buddhists and so regarded as a security risk. Thi was placed under house arrest. On May 15, Ky sent four battalions of South Vietnamese paratroopers and marines to Da Nang, who needed a little over a week to stop the resistance at a cost of hundreds of killed and wounded ARVN troops and civilians. Both aircraft returned on the 25th.

This "TDY" enabled the 7AF/Current Plans Division to discuss all mission details with the C-130 crews. It resulted on May 26 in an updated Current Plan of Operation which was forwarded to PACAF. It was stated that execution was planned on May 29 with a TOT of 30/0035L. This decision was based on favorable Song Ma River tides, the weather forecast and moon phase. Information on weather and tidal conditions had been received from the Navy Oceanographic Service in Washington, DC and updated with in-theater intelligence to assure greatest probability of success. The plan included one C-130E, four F-4C and two (R)B-66 ECM/ELINT aircraft. The Hercules was to make a minimum altitude over water approach to ingress point (IP), proceed minimum altitude above ground level (AGL) followed by a direct left turn to the roll out point, and heading to the release zone to release the five mines at 350 feet AGL. The aircraft then was to descend to minimum safe navigational altitude for escape route of either a right turn immediately after release to 1747N/10556E, or a left turn to 15310N/1055145E for overwater exit. Low-level flight had to be maintained until the C-130 was at least 25 NM off shore. The aircraft would be over land for 9 minutes and 40 seconds. Self destruct timer would be set for 120 minutes. When the Hercules had reached the IP, the four 'Night Owl' Phantoms were to initiate diversionary armed recce on Route 1A, ten nautical miles (NM) south of Thanh Hoa, using flares and CBU-2A munitions. The two Destroyers would conduct active jamming of three Fire Can gun-laying radars in the target area and provide SA-2 warning for the F-4Cs. Recent photo recce had indicated that the water level of the Song Ma was high, which should preclude 'stranding' of the mines on the sand bar at about 4,000 feet upstream. The TOT would assure high outgoing tidal flow. If weather precluded the May 29 mission, it would be rescheduled for May 30 with a TOT of 31/0110L. 7AF requested the Navy for a SAR destroyer to cover position 'Betty' during the mission and on any alternate days. On May 28, a local sortie was flown from Da Nang.

Frag order

Although intelligence had indicated on May 27 that another five anti-aircraft artillery sites had been discovered in the vicinity of the Bridge, it was concluded after a re-evaluation of the Operation that this would not prevent its execution. On 28 May/0415Z May, 7AF issued frag order 204 for 29 May (which was the 30th local time) "Special Carolina Moon mission and Alfa RT 50C-59N-1 (Nite)." It was stated that access to or knowledge of the message was

to be limited to minimum essential required for mission success.

The 35th TFW was to supply one C-130E (call sign Radium), the 8th TFW at Ubon Royal Thai Air Base (RTAB) four F-4Cs (Neon 01 through 04) and the 41st Tactical Reconnaissance Squadron at RTAB Tahkli one B-66B and one RB-66B (Robin 01 and 22 respectively). Radium would carry five mines. The setting of the igniters would depend on the estimated flow rate of the river. Neon 01 and 03 were each to be configured with two CBU-2As and two SUU-25s and Neon 02 and 04 with two CBU-2As. The Phantoms would receive in-flight refueling from one Kadena-based KC-135.

The frag order closely followed 7AF's Current Plan of Operation of May 26. Some additions included, (1) From Da Nang, Radium had to maintain course with a minimum of 25 NM off shore until establishing inbound track to the IP; (2) Radium was to maintain maximum feasible degree of radio silence until egressing North Vietnam unless an emergency would arise or the mission was aborted. When safely 'feet wet', Radium would contact Neon and Robin flights and state 'Mission completed'; When the decision was made to abort the mission before 'feet dry', Radium would state 'Radium aborting'. In the latter case, Neon would not execute its mission and was supposed to return the ordnance, fuel permitting. The mission would also be aborted when Radium observed the inland ceilings to be below 1,500 feet; (3) Neon's flight commander would plan tactics so that the first element remained in the area for seven minutes and the second element for five. After rejoining, Neon had to monitor the primary strike frequency for Radium's egress report at approximately 30/0038L; (4) The mission would be aborted before landfall if the ECM support was not on station; (5) SAR destroyers Speedbird and Downwind were to be on station Betty from 29/2300-30/0200L; (6) Robin was to jam all intercepted early warning/acquisition radars and frequency restrictions on radar jamming were lifted for this mission. The aircraft were also required to provide Fan Song warning and jamming as re-



During both Carolina Moon missions, Neon flight with four F-4Cs from the 8th TFW at Ubon (Thailand) conducted diversionary attacks to the south of Thanh Hoa with flares and CBU-2A cluster bombs. On May 30, Neon 03, 63-7664, was hit by anti-aircraft fire and lost with its two crew members. The photo shows "664" during an earlier combat sortie.



In support of the missions on May 29 and 30, one B-66B and one RB-66B from Takhli (Thailand) conducted active radar jamming and provided SA-2 warning. The Carolina Moon mission would be cancelled if one or both Destroyers aborted. The photo shows a B-66B Brown Cradle.

quired in support of the F-4Cs. Communications jamming was not authorized. Recovery of the support aircraft at Da Nang was authorized to refuel, if required; (7) Analysis of photography regarding the anti-aircraft order of battle (AAOB) disclosed that the immediate target area was defended by twenty-one AW, nineteen 37-57mm and seven 85mm sites.

Mission briefing

It was not a real surprise when the crew of Maj Remers and their C-130 were selected to fly the Carolina Moon mission. Capt Clanton thinks that the APN-161 radar in "513" had been the decisive factor. Both C-130 crews participated in the mission briefing. Although the crews brought along three different flight profiles to the release zone which they had worked out at Eglin, a fourth was prepared at Da Nang after looking at the latest intelligence information. It was decided to use this fourth profile. The plan was to release the five mines at about 3.7 kilometers upstream of the bridge. When circumstances would allow it, the crew would fly their aircraft to the alternative release point, 1.5 kilometers closer to the bridge.

The weather forecasters predicted scattered clouds at 610 meters, a visibility of 24 kilometers and occasional ground fog for the Thanh Hoa area.

Capt Clanton said:

Before the mission there was no coordination with the F-4 Phantoms or B-66 Destroyers because we did not necessarily have to know this. Even the diversion attacks were unknown to us.

One of the six civilians who had deployed to Da Nang to support the Operation was Dale Shane, who was Sperry's lead engineer on the APN-161. His final task was to see that 'fresh' new Ka-band crystals had been installed in the radar RT unit in order to provide maximum range

on the ground paint for the navigator. It was to be his co-worker Tom Walsh's job. Said Sperry's Shane:

Tom was against it. The Hercules was in a revetment with no breeze and with 120-degree heat broiling up from the black tarmac. Walsh's concern was that if either the old or new crystals, which were smaller than a 10-amp fuse, slipped out of his sweaty fingers, the radar might not be operational for the mission. Tom concluded that it would be better to leave the old ones in and let the range shrink a little. But I insisted and we both sweated it out, but the C-130 departed with new Ka-band crystals!

The crews were then brought to their aircraft in their revetments to make preparations for the take off.

Alternative

On 29/2325L May, C-130Es 40513 and "511" (as spare) took off from Da Nang, each with a crew of seven and with five mines. In the meantime the F-4Cs and (R)B-66s had taken off from their bases in Thailand.

At a low but safe altitude and at least 40 kilometers from the coast, both C-130s flew northward over the Gulf of Tonkin to the ingress point. This leg was about 290 nautical miles long and took about an hour. There it turned out there was no need for the spare, which then returned to Da Nang where it landed at 30/0018L. Weather conditions were not an obstacle for "513" either.

After reaching 'feet dry', Maj Remers flew at an altitude of 30 meters AGL to a point just north of the Bridge and then to the southeast to the roll out point above the Song Ma. Then, at about 3.7 kilometers upstream of the bridge, directly to the release zone where the five mines were to be released. ToT was 30/0034L. Because the C-130 had not been discovered and as a result there was no anti-aircraft fire, it was decided to fly 1.5 kilometers further to the alternative release point at 2.2 kilometers from the Bridge. Thirty seconds before dropping the mines, using the standard 463L system, the aircraft climbed to 120 meters. This altitude was reached 20 seconds later while the speed had been reduced to the airdrop speed of 240 kilometers per hour to open the door and ramp. Navigator Clanton said :

The moment the computed air release point was reached I gave the command 'Green light'. Immediately thereafter the co-pilot pressed the button on the central console which activated the release mechanism in the bomb shackle.

Then it all went automatically (the two loadmasters had already made the necessary preparations). The extraction parachute for the first mine, which had been loaded into the bomb shackle above the aircraft ramp, was released and ended up in the slipstream and by the opening of it, the mine was pulled out of the Hercules. The extraction parachute was then automatically disconnected, after which the two parachutes of the mine opened to slow down its fall. While the first mine left the aircraft, the extraction



Two RF-101C Voodoos from Tan Son Nhut Air Base (South Vietnam) flew a day bomb damage assessment mission after the first Carolina Moon sortie on May 29. Their photo coverage did not show any further damage to the bridge.

parachute for the second mine was activated, and so on. During this period anti-aircraft fire was opened on the C-130 but it was not accurate.

Clanton further stated:

I didn't have the opportunity to look out the window much that night, with my head mostly in the radar scope. However, the APN-161 was of great value. Visual droppings in the dark are already a challenge, but to do this in a hostile environment and above unknown terrain as well, it gets many times bigger. The radar made the dropping much more accurate.

In his opinion, the entire process had taken less than three minutes. There was a drawback after all, however. The radar paint camera had been inoperative, so the route could not be verified.

Toast

Immediately after release of the fifth and last mine, the ramp and door were closed, a right turn was made while descending to thirty meters AGL and speed was increased to fly back around to the north and east of the hill east of the bridge for the route to the coast. This altitude was maintained until the C-130 was forty kilometers from the coast after which Maj Remers broadcasted the 'mission completed'. Further altitude to 610 meters was gained for the flight back to Da Nang where the aircraft touched down at 30/0158L. By then, Remers had informed Da Nang that the mission had been 'successful' and that the mines had been released according to frag order 204. The entire mission had lasted 2 hours and 33 minutes, of which almost 10 minutes above land in North Vietnam. The F-4Cs expended seven CBU-2As and 32 flares along Route 1A. One CBU-2A was returned to base as it could not be expended. The navigator stated:

The mission was flown as planned, the months of training and planning certainly contributed to it. The mines were released over the river but, due to the necessary maneuvering

because of the anti-aircraft fire and the increase in speed, we did not see that they also ended up in the water.

After we landed in the middle of the night, Colonel Allan Rankin, who had assumed command of the 35th TFW on May 10, came on board. He brought a bottle of Jim Beam whiskey with him and small glasses for the officers and a can of beer for the three airmen to toast to the good outcome. Rankin also said he would request a Silver Star for all of us, which -of course- did not materialize.

Successful

More than ten hours before Maj Remers and his crew started their mission, 7AF on 29/0604Z May, published frag order 208 for "Special Carolina Moon Mission/RT 50C-60N-1 Nite" for May 30 (the 31st locally) for a second mission against the Thanh Hoa Bridge. It almost matched the first one. However, it stated an important proviso: "This is an alternative day frag. If Carolina Moon is successfully executed as planned for May 29, this entire fragmentary order will not be executed."

In a 30/1030Z May message, 7AF informed PACAF that the first Carolina Moon mission had been executed 29/1735Z May and that they were informed it had been successful with the mines released in accordance with frag order 204. Also, that BDA by an RF-4C (call sign King Pin, Blue Tree mission UE 297E, night) and two RF-101Cs (Machete, UE 305E, day) had not shown any further damage to the bridge. Thorough study of up-river approaches did not indicate any reason for mine hang-up or self-destruct of mines. However, the RF-101 photos showed a new, serviceable pontoon bridge about 2,400 feet south of the Bridge. Three ferry boats were located 3,300 feet south along the west bank of the river. A railroad transshipment point 1,500 feet southeast of the Bridge contained 22 units of rolling stock with 12 small river boats situated along the river adjacent to this area.

7AF also stated that the conditions were favorable for the alternate schedule date of 30 May and that it was being planned accordingly. Apparently, 'successful' for 7AF meant something different than for the crew of Maj Remers! The mission was flown with disastrous consequences and resulting in lots of questions by the highest levels.

Nil

ToT for the second mission was scheduled for 31/0110L and the call sign for the (R)B-66s was Lark. Adjustment to the TOT of the first mission was made to take advantage of favorable outgoing tidal conditions and to vary time of re-attack. Route and tactics were identical to the first mission and were fragged and briefed with the exception that the (approach) route could be deviated as necessary based on the experience gained during the first mission. The primary drop zone as fragged was briefed with the option for the crew to proceed to the secondary drop zone about 5,000 feet down river if the aircraft had not been subjected to AAA.

A disadvantage for Maj Case was that his Hercules was not equipped with an APN-161 and that his crew had

not been trained to fly the mission with "513." In addition it would have been almost impossible to transfer the mines from his aircraft to the other one.

According to Norm Clanton, the delighted mood of his crew turned into horror when they heard that Maj Case's crew had been ordered to attack the bridge again that night with almost the same profile as the first attack. Clanton felt:

With the absence of the surprise element, the chances for success would be virtually nil. The decision to fly that mission was, in my opinion, the worst decision I have been involved in in my 21-year Air Force career.

He then also understood that 1Lt Edmondson, the 'extra' navigator in his crew, had offered his services to Maj Case who gladly accepted.

According to *The Tale of Two Bridges* the fact was that either a parachute or a flak vest could be worn, but not both. Maj Remers decided that his crew would wear their parachutes with the flak vests stacked on the floor by their seats. Maj Case, however, decided that his crew would wear their vests and store their parachutes. Maj Remers felt that his aircraft would be tough enough to survive moderate AAA hits and gain enough altitude for a possible bailout. Maj Case agreed with this, but believed that the low-level flight would preclude a controlled bail-out.

Clanton was the last person to leave Case's Hercules before the door was closed to taxi for takeoff. He remembered and still remembers this moment very well as a very dreary one. Ten minutes later than scheduled, Maj Case and his crew took off at 31/0010L from Da Nang.

The remaining six crew members of "513" stayed up to wait for the return of the C-130. Clanton said:

I remember us waiting in wing ops until I calculated that they had to be out of fuel and could no longer be airborne, and we had heard nothing. At that time, we had no idea where they had gone down.

Flash

At 31/0112L May and about three seconds after his last transmission, Neon 04 saw an explosion in the water of the Tonkin Gulf. At 1850Z, 7AF informed PACAF that an F-4C was missing and probably lost off the coast about 30 kilometers south of Thanh Hoa. No parachutes were seen or beepers heard. The Phantom was one of the four aircraft that had provided diversion for Carolina Moon. Two hours later it became clear that it was Neon 03, F-4C 63-7664 assigned to the 555th TFS, although the crewmembers flying it, Maj Dayton Ragland and 1Lt Ned Herrold were assigned to the 497th TFS. It was assumed the Phantom had been hit by AAA. At first light, the Navy found among others a partly collapsed raft, two parachutes and an oil spill in the water, but without a trace of the crew. At 30/1903Z, 7AF advised the PACAF Command Post that Radium was missing and that there had been no contact with the aircraft. The Navy was in the area searching. At

2209Z, 7AF's OPREP-3 #20293 informed the National Military Command Center (NMCC) and CINCPAC of Radium's assumed loss. At 31/0434Z, the NMCC and CINCPAC were informed that the crewmembers of Radium were Maj Thomas Case (pilot), 1Lt Harold Zook (co-pilot), the navigators 1Lt Armon Shingledecker, Capt Emmet McDonald, and 1Lt W. Edmondson, SSgt Bobby Alberston (flight engineer) and load masters A1C Elroy Harworth and A1C Phillip Stickney for a total of eight crewmembers. At 31/0108L, members of Neon flight had seen AAA and a large flash on the ground in the Thanh Hoa area. This was two minutes before Radium's scheduled TOT. The SAR effort continued. Due to the complete radio silence, it was not known if Maj Case had caught up on the ten lost minutes. Therefore it was also unknown if the Hercules had actually reached the target area.

Maj Remers received permission to fly a search sortie for survivors or the C-130 wreckage. Said Clanton:

We took off somewhere around midday and flew the mission track over water to within sight of the North Vietnamese beach before reversing course and searching on the way back to Danang. Of course, we saw nothing. It was a terrible day.

At 31/0500L May, an organized search was initiated which terminated at 31/2100L. A total of twenty Air Force and Navy aircraft and four surface ships participated. Aircraft, including USAF HU-16B and C-123 aircraft, completed fourteen inshore sweeps and forty-four seaward sweeps. No findings or sightings were observed and the SAR continued on June 1. On 1/1200Z June, Detachment 1 of the 3rd Air Rescue and Recovery Group (Da Nang) stated that its participation in the SAR was ended as there were no indications that further SAR would lead to any results. They had admittedly found two large camouflaged fuel tanks, but it was not clear if they had been part of any of the missing aircraft. Four days later, 7AF decided to stop



The crew of the first Carolina Moon mission after landing at Da Nang on May 29, 1966. In their hands a glass of Jim Bean (officers) or a can of beer (the others) they had been offered by the commander of the local 35th Tactical Fighter Wing, Colonel Allan Rankin, to celebrate a successful mission. Capt Norm Clanton is kneeling and second from the left.

all SAR. Crews transiting the area were requested to remain vigilant, electronically and visually.

Single

The apparent loss of the two aircraft with a total of ten crew members created a lot of consternation. The Air Force Command Post (AFCP) called PACAF on 30/1915Z and asked a number of questions, including requesting a complete narrative of both missions and what the rationale had been to execute the second Carolina Moon mission. On 31/0107Z, PACAF in turn forwarded the questions to 7AF. Less than an hour later, PACAF asked 7AF two additional questions in line with AFCP's: (1) Whether 7AF had considered the first mission on May 29 to be abortive. (On April 20, PACAF had authorized a single mission against the Thanh Hoa Bridge. In the sequel thereafter, 7AF had indicated on May 4 that it initially involved just one mission and that it was only to be flown again when the first one had failed); (2) Whether the approach route and route after the release of the mines for the second mission had been changed significantly. (During the first mission, the selected release point was located 1,500 meters further downstream than initially planned as AAA had been missing up to then). PACAF's message was concluded with, 'Please clarify and add any other pertinent details'.

In response to a request from CINCPAC, PACAF, at 31/0745Z May, forwarded, after careful investigation, a statement to the AFCP and CINCPAC, explaining why 7AF had decided to schedule the second Carolina Moon mission. PACAF also stated that 7AF's intent of the second strike was received at PACAF as the mission was getting airborne and that, consequently, PACAF had not participated in the decision making.

In a lengthy 31/1420Z May message to PACAF, consisting of three sections and two parts, 7AF went into great detail regarding both Carolina Moon missions. In addition, 7AF reacted to the two PACAF questions regarding the decision to execute the second mission. Part 1 involved the first mission and part two the second. In section three, 7AF reacted to PACAF's two additional questions. As to the first question, 7AF stated, among others, that it had not been possible to determine if the mines had actually hit the water in the first mission. Thus, test of the system could not be ascertained. This could have enabled the North Vietnamese to discover the characteristics of the mine when they had not self-destructed, followed quickly by measures like installation of cables across the Song Ma upstream of the bridge and the increase of air defenses. Furthermore, the current would be favorable for another two days and unfavorable the next seven days with the weather then being as an uncertain factor. In addition, the first mission had drawn only light flak. The conclusion was that a quick second mission would reduce the probability of an analysis by the North Vietnamese of the attack technique and thus the risk for the C-130 crew was regarded as acceptable.

As to the second question (route), 7AF stated that for the second mission the primary release zone from the frag order was briefed with the option for the crew to fly to the



According to the book *Memories of Defending the Skies Over the Fatherland*, published in 2013, by the People's Army Publishing House, the propellers of the downed Hercules, along with the cut out insignia of C-130E 64-0511, were transported to the Air Defense Command Headquarters in Hanoi. The photo shows a C-130 propeller in Hanoi's Vietnamese Air Force Museum, presumably from "511." The F-4 was a Navy F-4B from the USS Kitty Hawk which was lost on May 15, 1967, during a mission against AAA sites near Thanh Hoa. (Photo courtesy of the author.)

alternative release point, 1.8 kilometers upstream, when there would be no AAA. In connection with the terrain in the immediate vicinity of the bridge, a turn to the left would be made and the flying altitude decreased immediately after dropping the mines. The route to the egress point would then take three minutes.

When forwarding 7AF's responses on 7 May to CINCPAC and the Air Force, PACAF stated explicitly that the Command had not been involved in 7AF's decision to order the second mission. This decision resulted from an operational standpoint and for several reasons: the bridge was still intact and the light air defenses would be an acceptable risk.

On 1/1208Z June, 7AF informed PACAF that Operation Carolina Moon had ended. There were still thirty-six personnel, ten officers, twenty airmen and six civilians and one C-130E at Da Nang. At that time, the final report was being written by the TAWC project leader, LtCol R. Johnson, and intel officer, 1Lt F. Dillon. 7AF recommended to return the personnel and the aircraft to Eglin and asked PACAF for a decision.

In a 2/0050Z June message, PACAF authorized the return and indicated that the Command would like the aircrew, Johnson and Dillon to stay at Hickam two days longer to review the missions and the concept of the final report. 7AF responded that the planned departure for Hickam would be 3/2300Z June with arrival at Hickam on the 5th where billets were requested for thirty personnel. Arrival at Eglin was planned for June 9. The flight was made via Tan Son Nhut on June 2, where the crew briefed the 7AF Staff, arriving at Hickam two days later. The Hercules landed at Sewart on the 8th.

Final report

On 3/1410Z June, the Air Staff asked PACAF information about the training status of both C-130E aircrews and

how many mines every crew had dropped during the training sessions. The requested information should validate whether the training received was in accordance with TAWC OPLAN 155. The questions were then passed on to 7AF with a CC to LtCol Johnson. Responses were expected within four hours. Ten minutes before the ‘ultimatum’ was to expire, 7AF sent the answers to the Air Force. Eight day sorties were scheduled for each crew; Remers flew eleven and Case twelve. Fifteen night sorties were scheduled and each crew flew 14. All planned weapon releases (2/day and 5/night) were executed. Every crew released 13 weapons. ECM procedures were not practiced because the mission was to be supported by (R)B-66s. The routes on the Eglin complex were varied as much as possible. On navigation flights, for example, a small bridge in the Elbo area (Florida) was approached in two different ways, from the north and the south.

On 11/0150Z June, PACAF forwarded LtCol Johnson’s final report on Carolina Moon to TAC at Langley and TAWC, info Air Staff. Johnson stated that the first mission was carried out as planned. It was unknown what had happened during the second mission, for instance as to the drop zone because the aircraft had been lost. (In a July 26, 1966 Recapitulation of the Carolina Moon activities, signed by Lt Gen Hewit Wheless, Assistant Vice Chief of Staff, it was stated that it was unofficially believed that “511” had reached the Thanh Hoa area. The Recapitulation was sent to the Secretary of the Air Force the same day). Photo reconnaissance after the second Carolina mission had shown that the Thanh Hoa Bridge was still intact and probably in use. Also, that a cable had been installed across the river at about 1,500 feet upstream from the Bridge, which had no relation with the local ferry crossing. It was suspected that a submerged net was attached to the cable. This indicated that the mine dropping concept had been compromised. It was recommended to adapt the mine for use by fighter-bombers and to stop using transport aircraft for

strikes against the Thanh Hoa Railroad and Highway Bridge and the two other bridges that were considered for the presently developed weapon, the Viet Tri and Ninh Binh Railroad & Highway Bridges.

Recommendations

PACAF reacted to the final report in a 09/1926Z Aug 66 message to the Air Staff, info TAC and TAWC. The Command stated that the report had been reviewed and considered correct in view of the intelligence available at that time. After careful evaluation of the report, PACAF recommended that (1) The Carolina Moon weapon in its present configuration should not be considered for further employment in PACOM, the Pacific Command; and (2) If further development was contemplated, the mine should be redesigned to allow delivery by fighter or tactical bomber aircraft; and (3) That a future design would insure the capability to achieve the desired effects.

In a 16/2106Z Aug 66 message to AFSC, the Air Staff stated that information gained from available sources indicated that four out of the five mines delivered on the first mission had reached the target and detonated, resulting in only minor damage. Failure to achieve destruction of the Bridge might have been due to fuse or warhead deficiencies. The fifth mine was recovered by the North Vietnamese due to the failure of the self-destruct feature. It was concluded that as an operational concept for delivery it appeared to have been successful.

AFSC was informed of PACAF’s August 9 recommendations. In view of these, AFSC was authorized to dispose of Carolina Moon assets within the Command in a way to achieve greatest benefit to USAF exploratory development programs. Also, additional in-house functional tests of mines at Eglin was authorized. They were to be of value in confirming basic mine principles and capability of mine fusing to effect functioning within limits of mine lethal envelope.

Fate of the crewmembers

The crewmembers of Neon 04, Maj Dayton Ragland and 1Lt Ned Herrold were never found and are being indicated as “Presumptive finding of death,” meaning death being inferred from proof of the person’s long, unexplained absence, usually after seven years.

Not too long after the loss of Case’s aircraft and crew, a Japanese TV crew visited and filmed the crash site. The Hercules had supposedly been downed by Air Defense Artillery Regiment 231. It crashed near the village of Tho Binh (Trieu Son District, Thanh Hoa Province), approximately 38 kilometers west of the Bridge. The Japanese were told by the North Vietnamese that none of the crewmembers had survived. Norm Clanton said:

The movie suggests fire damage to the vertical stabilizer and also to the interior of the fuselage. The vertical stabilizer is relatively intact and upright. But it is interesting that so much structure remains intact following an unsuppressed



One of the ten mines utilized in the two Carolina Moon missions did make it to the Military Engineers Museum in Hanoi. Information stated that soldiers of the Engineering Corps had discovered and retrieved the mine from the Song Ma River in 1966, at a distance of 800 meters from the Than Hoa Bridge. (Photo courtesy of Suzanne van Vliet.)



The final fate of Norm Clanton's C-130E Hercules, 64-0513. On May 30, 1995, "513" was flown to the Aircraft Maintenance and Regeneration Center (AMARC) at Davis-Monthan Air Force Base for storage with the code AACF0175. The photo was taken in November 2003, when several parts of "513" had already been salvaged. On March 10, 2004, the aircraft was demilitarized, read cut into bits. (*Photo courtesy of Martyn Swann.*)

fire. This suggests that the aircraft impacted the ground in a relatively level altitude.

The clip also showed villagers carrying away and then camouflaging debris. Also shown was a mine which was upside down and seemingly to be intact. According to an eye witness, the aircraft flew from south to north and was on fire.

On April 10, 1986 the North Vietnamese repatriated five sets of remains to the Americans. They had been buried after the crash by local militia. The North Vietnamese stated then they had been unable to recover remains of other crewmembers. Three could be identified fairly quickly through their dental records (Case, Zook and Harworth), but as to the other two sets there were not enough elements for identification. This proved to be possible after all as one set was identified after twelve years (Shingledecker) and the fifth after 18 years. As to the latter, the Defense POW/MIA Accounting Agency went back to the Tho Binh site in late 1997. Osseous material from that site was returned on January 16, 1998 and joined evidence originally turned over in April 1986. With DNA and a family reference sample, it was possible to identify Stickney. This leaves the fate of three crewmembers as unknown (McDonald, Edmondson and Alberton). They are also being indicated as "Presumptive finding of death." Since 1995, the Defense POW/MIA Accounting Agency sent a team to Tho Binh nine times. For instance, teams were sent to the associated location in 2003 and 2014 in hopes recovering the remaining personnel, but both those excavations did not yield any material or osseous evidence. Therefore, the case is still open and it is being considered to send another team to Tho Binh.

Museum

The defense for years of the Dragon's Jaw by the North Vietnamese resulted in a museum on the grounds of a po-

lice station, to be opened by request only. Which they did for the author! Besides many photos and artifacts, the museum also had several books on display. One of them was *Dragon's Jaw: The Historic Clash*, published in 2010 by the Thanh Hoa Publishing House. With regard to the May 31, 1966, attacks the book stated, among others, that the enemy had tried a new tactic. By taking advantage of the bad weather, a C-130 was used to drop six mines into the Song Ma 500 meters north of the Bridge. Also, that as soon as the mines hit the water, personnel from the 7th Armed Public Security Sub-unit and Yen Vuc militia personnel used ropes to haul the mines up onto the riverbank where they were disarmed safely. The C-130 had turned away toward the southwest, where it and its crew of six were shot down by the 231st Anti-Aircraft Artillery Regiment.

In a different publication, *Memories of Defending the Skies Over the Fatherland*, published in 2013 by the People's Army Publishing House, it was stated that only one mine was still onboard when the Hercules crashed. Also, that the 1st Battery of the 231st Anti-Aircraft Artillery Regiment had needed twenty-one 57mm rounds to down 511. On June 1, 1966 the aircraft's insignia was cut out by the 231st Regiment. Along with the C-130's propellers, it was transported to the Air Defense Command Headquarters in Hanoi.

The Military Engineers Museum is part of the Vietnam Military History Museum in Hanoi. It shows all kinds of used (US) ordnance and weaponry. One of the most eye-catching weapons on display is the casing of one of the Carolina Moon mines. It is not known if this is one of the mines of the first mission that was 'captured' or the one that was found at Radium's crash site.

To be concluded.

Thanks to Lt Col Norman Clanton, USAF retired. On May 24, 1969 his AC-130A (54-1629 of the 16th Special Operations Squadron at Ubon) was hit by 37mm anti-aircraft fire during a combat mission over Laos. With a lot of pain and difficulty the pilots were able to fly the aircraft to Ubon, where the aircraft commander ordered most of the crew, including Norm, to leave the aircraft. On landing, the Hercules slid off the runway and caught fire. In total, two crew members were killed. Norm flew 106 AC-130 combat sorties, the last one on March 1, 1970. Instead of a Silver Star, Norm Clanton, on June 29, 1966 was awarded the Air Medal for meritorious achievement while participating in aerial flight on 30 May. The citation read in part, "On that date, Capt Clanton participated in a night parachute delivery of classified munitions against a heavily defended target in North Vietnam. During this flight, conducted in the early morning hours, Capt Clanton demonstrated exceptional courage and professional ability in the face of known concentrations of anti-aircraft weapons at great personnel risk by successfully completing the mission with outstanding results." Maj Remers was awarded the Distinguished Flying Cross (DFC), while the other crewmembers also received the Air Medal. The second crew was also put in for a Silver Star by Col. Rankin, but this was downgraded by 7AF on July 6, 1966 to the DFC. ■

Air National Guard participation in the U.S. Air Force Strategic Airlift Mission to the War in Southeast Asia: 1965–1971



A 151st MAG, Utah ANG C-97G parked at Tan Son Nhut Air Base, South Vietnam, September, 1967. (All photos, except where otherwise noted, are courtesy of the author.)

David P. Anderson

Most research and published accounts of Air National Guard participation in the Vietnam War focus on the F-100 fighter operations in South Vietnam in 1968, and the EC-121 Commando Buzz airborne psychological operations out of Thailand in 1970. Individual Air National Guard airlift units would be highlighted albeit a small mention of their participation in the strategic airlift efforts to Southeast Asia. There has never been a single all-inclusive source ever written about them. This is the first dedicated work to focus strictly on the Air National Guard airlift unit's participation in the US Air Force's Strategic Airlift support to the war in Southeast Asia.

The Vietnam War was the last war the United States Air Force operated heavy piston driven transport aircraft, and by the end of it, airlift operations was performed almost entirely by jet aircraft. Large jet military aircraft like the Lockheed C-141 Starlifter were introduced during the Vietnam War but not until July 1967 would a sufficient number of C-141 aircraft become available for the Air Force to satisfy all of its global airlift requirements including the Vietnam/Southeast Asia routes. Likewise, the Lockheed C-5 Galaxy did not make its maiden flight until 30 June 1968.¹

Between December 1965 and June 1967, the Air Force faced a massive airlift backlog in Vietnam due to the escalating tension in South Vietnam and an increase in airlift demand around the world. A heavy airlift commitment was laid upon the U.S. Air Force Military Air Transport Service. The vast distances involved for logistical support around the world put a great strain on Military Air Transport Service's active duty resources. The Air Force relied heavily on chartered commercial jet aircraft of the Civil Reserve Air Fleet to deliver millions of military personnel into and out of the combat zone, as well as to the other installations in and around the Pacific, and called on the additional airlift capacity provided by the Air National Guard and the Air Force Reserve. A lot of chartered aircraft were CRAF-designated, but the CRAF itself was never formerly activated for the same reasons the Air Reserve Component was never fully mobilized. The Johnson Administration didn't think it was politically viable.²

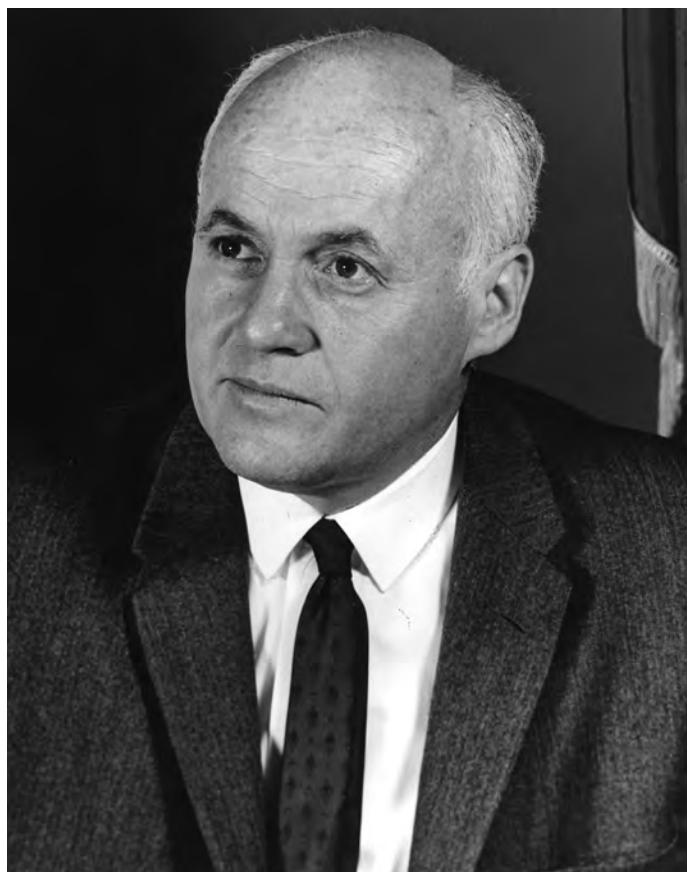
The Air National Guard's participation in the Vietnam War was direct but certainly limited. Its most consistent involvement was through the airlift units supporting the Air Force Strategic airlift operation to Southeast Asia. They delivered cargo and personnel using piston-driven aircraft like the Lockheed C-121 Constellation, the Boeing C-97 Stratocruiser, and the Douglas C-124 Globemaster. Prior to July 1967, Air National Guard airlift units flew either the C-121 or the C-97. All 25 Air National Guard airlift units participated in helping the Air Force meet its Vietnam airlift requirements with crews flying the missions and maintenance crews servicing the aircraft in a non-mobilized or volunteer status. Conversely, the Air National Guard fighter units which deployed to Vietnam in 1968 were mobilized for roughly 18 months of combat. Air National Guard airlift units flew missions until 1973 when US combat troops withdrew from Vietnam.

ANG units available to support USAF airlift requirements to Vietnam⁸

106 ATWG (H)	106 ATGP (H)	102 ATS	NY ANG	C-97
	105 ATGP (H)	137 ATS	NY ANG	C-97
	109 ATGP (H)	130 ATS	NY ANG	C-97
116 ATWG (H)	116 ATGP (H)	128 ATS	GA ANG	C-97
	145 ATGP (H)	156 ATS	NC ANG	C-121
	165 ATGP (H)	158 ATS	GA ANG	C-97
	166 ATGP (H)	142 ATS	DE ANG	C-97
133 ATWG (H)	133 ATGP (H)	109 ATS	MN ANG	C-97
	157 ATGP (H)	133 ATS	NH ANG	C-97
171 ATWG (H)	170 ATGP (H)	150 ATS	NJ ANG	C-121
	171 ATGP (H)	147 ATS	PA ANG	C-121
	168 ATGP (H)	168 ATS	PA ANG	C-121
	167 ATGP (H)	167 ATS	WV ANG	C-121
118 ATWG (H)	111 ATGP (H)	103 ATS	PA ANG	C-97
	118 ATGP (H)	105 ATS	TN ANG	C-97
	164 ATGP (H)	155 ATS	TN ANG	C-97
137 ATWG (H)	172 ATGP (H)	183 ATS	TN ANG	C-121
	137 ATGP (H)	185 ATS	OK ANG	C-97
	138 ATGP (H)	125 ATS	OK ANG	C-97
	139 ATGP (H)	180 ATS	MO ANG	C-97
146 ATWG (H)	153 ATGP (H)	187 ATS	WY ANG	C-121
	146 ATGP (H)	115 ATS	CA ANG	C-97
	195 ATGP (H)	195 ATS	CA ANG	C-97
	151 ATGP (H)	191 ATS	UT ANG	C-97
	161 ATGP (H)	197 ATS	AZ ANG	C-97

The Air National Guard began flying airlift missions to Vietnam in June 1962, when a C-97 crew from the Minnesota Air National Guard's 109th Air Transport Squadron (ATS)—already on Federal active duty in response to the Berlin Crisis of 1961—flew communications equipment from Dover Air Force Base, Delaware, to Nha Trang, Republic of Vietnam. For the 109 ATS, it was an 18,000 mile and 85 hour round trip mission.³

At the time when the 109th arrived in Nha Trang, the US Air Force provided two types of airlift, Strategic and Tactical. Secretary of the Air Force Eugene M. Zuckert considered Strategic airlift as the intercontinental deployment by air of combat troops to and from theaters of operation and the maintenance of an unbroken strategic logistics airlift pipeline. This describes pretty well what strategic airlift meant in regards to supporting US combat operations in



Secretary of the Air Force Eugene M. Zuckert. Zuckert served as Air Force secretary from January 23, 1961 to September 30, 1965.

Southeast Asia. Tactical airlift, on the other hand involved airlift of supplies, equipment, and personnel within the combat area of operations. This mission was executed primarily by the turbine-propeller powered C-130A Hercules and the C-123 Provider. Air National Guard airlift units participated only in the strategic airlift mission to Vietnam. Although by 1970 Air National Guard airlift units began converting to the C-130 aircraft and the Tactical airlift mission, no Air National Guard airlift units participated in the tactical airlift mission in Vietnam.⁴

On May 6-7, 1965, the Air Reserve Forces Policy Council, comprised of staff personnel from the National Guard Bureau (Air National Guard), the Air Force Reserves, and Headquarters Military Air Transport Service (MATS), met at the Military Air Transport Service Headquarters at Scott Air Force Base, Illinois, to discuss using Air Reserve Component airlift units to help MATS fulfill its global airlift requirements. General Howell M. Estes Jr., Commander of the Military Air Transport Service directed the Air Reserve Force Policy Council would have a voice in MATS plans, programs and policy involving the MATS Reserve Forces.⁵

On July 1, 1965, the National Guard Bureau, the Air Force Reserves, and MATS prepared a plan called "FAST FLY," that provided for an immediate sustained increase of airlift capability that employed all available military airlift resources. This plan called for an increased aircraft utilization to improve worldwide airlift obligations and to

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156th ATS, NC ANG C-121C aircraft at home station at Charlotte IAP.

meet the expanding airlift requirements in Southeast Asia. On October 1, 1965, the FAST FLY operation plan went into effect. Air National Guard airlift units were already flying overseas missions around the world but in very small numbers. FAST FLY resulted in Air National Guard units flying more overwater missions, hauling more cargo and transporting more passengers than ever before in recorded Air National Guard history.⁶

In 1965, the Air National Guard included seven air transport wings and 25 heavy airlift squadrons that were available to support Air Force global airlift requirements including to Southeast Asia. All the squadrons participated in world-wide Air Force airlift missions however only 18 squadrons actually flew missions to Vietnam. This equated to 72 percent of the Air National Guard airlift force.⁷

ANG airlift units that flew missions to Southeast Asia

109 ATS, MN ANG, Minneapolis, C-97
115 ATS, CA ANG, Van Nuys, C-97

- 125 ATS, OK ANG, Tulsa, C-97, C-124
- 128 ATS, GA ANG, Dobbins AFB, C-97, C-124
- 133 ATS, NH ANG, Pease AFB, C-97
- 139 ATS, NY ANG, Schenectady, C-97
- 140 ATS, PA ANG, Olmstead AFB, C-121⁹
- 142 ATS, DE ANG, New Castle, C-97
- 147 ATS, PA ANG, Greater Pittsburg, C-121¹⁰
- 150 ATS, NJ ANG, McGuire, C-121
- 156 ATS, NC ANG, Charlotte, C-121, C-124
- 158 ATS, GA ANG, Savannah, C-97, C-124
- 167 ATS, WV ANG, Martinsburg, C-121
- 183 ATS, MS ANG, Jackson, C-121, C-124
- 187 ATS, WY ANG, Cheyenne, C-121
- 191 ATS, UT ANG, Salt Lake City, C-97, C-124
- 195 ATS, CA ANG, Van Nuys, C-97
- 197 ATS, AZ ANG, Phoenix, C-97

Operation Christmas Star

The first time large numbers of Air National Guard airlift units participated in a wartime operation was *Op-*



First load of candy and cookies for US troops in Vietnam received special handling by the 147th Air Transport Squadron, Pennsylvania ANG. Carrying "Operation Christmas star" packages aboard a C-121 aircraft are Capt. Merle Schneekloth (left), navigator and Maj. John Dranko, pilot. The 147th ATS flew three of 75 ANG "Christmas Star" missions to Vietnam.

eration Christmas Star, the delivery of Christmas presents for US troops deployed to Vietnam. It ran from November 18, 1965 to December 15, 1965. Air National Guard airlift aircraft delivered gifts to Tan Son Nhut Airport outside of Saigon, South Vietnam. These missions marked the first time Air National Guard personnel participated in a federal mission and in a combat zone without the use of mobilization authority. The operation tested the Air National Guard's ability to handle a significant increase of overseas flights in addition to its already heavy overseas airlift schedule.¹¹

Once aircraft landed and parked on the crowded Tan San Nhut ramp, the aircraft and crew remained on the ground just long enough to off-load the cargo and on-load back-logged cargo destined for the United States. For the first time in Air National Guard history, members operated in a non-mobilized Volunteer status while drawing combat pay for hazardous duty. 76 Air National Guard airlift crews operating 19 C-121s and 59 C-97s made the 96-hour round trip to South Vietnam from the United States to deliver over 400 tons of Christmas gifts, mail, and other treats to American servicemen during Operation Christmas Star.¹²

One such unit that participated in Operation Christmas Star was the 147th Air Transport Squadron, Pennsylvania ANG, flying the C-121C Constellation. Unit crews flew 90 to 100 hours to Vietnam and back and up to 10 days away from their civilian employment. The 147th flew mis-

sions to Vietnam for about a year before its mission changed to aeromedical evacuation. Never again would the unit visit Vietnam.¹³

Georgia ANG C-97 crews assigned to the 128th Air Transport Squadron, 116th Air Transport Group and the 158th Air Transport Squadron, 165th Air Transport Group also flew Operation Christmas Star missions. These units averaged 95 hours in the 11 days to Vietnam and back. On November 22, 1965, six C-97 aircraft, three from each unit flew to Vietnam, carrying a total of 48,786 pounds of Christmas gifts and mail to South Vietnam, and hauled 97,086 pounds of Air Force cargo to and from the war zone, for a total of 145,872 pounds, an average of 24,312 pounds per aircraft.¹⁴

Operation Christmas Star was the most prominent mission performed by Air National Guard airlift units in its history. They flew 76 missions and airlifted over 409 tons of Christmas packages, gifts and mail to US military forces in Vietnam. The operation involved 59 C-97 and 19 C-121 aircraft. The operation was a success for the Air National Guard. It proved Air National Guard personnel were able to perform the high demanding missions without a loss of aircraft, personnel, or cargo. The outstanding performance of Air National Guard airlift units during Operation Christmas Star was demonstrated by their ability to retain its normal overseas airlift missions of 135 to 145 flights per month. Operation Christmas Star also demonstrated that the Air National Guard could support an Air Force mission without the use of mobilization authority to accomplish the mission. Operation Christmas Star became a model for many follow-on Air Force missions to Vietnam and elsewhere around the world.¹⁵

Airlift surge to Vietnam

From January 1966 to June 1967, the Air Force faced a massive airlift demand to Vietnam. To meet this demand and to abide US policy of not mobilizing Reserve forces for the Vietnam War (prior to 1968), the Air Force authorized 7,500 temporary active duty man-days, called Military Personnel Appropriation (MPA) days for the Air National Guard to have its airlift aircrew personnel fly 75 round-trip missions per month in delivering critical supplies and parts, and personnel to Southeast Asia. These flights were in addition to the Air Guard's normally scheduled overseas flight commitments. Excluding the Vietnam airlift missions, the Air National Guard flew about 80 per cent of its total time to supporting these missions.¹⁶

However, the continuing requirement for ANG airlift support for Southeast Asia curtailed commitments for the movement of Army National Guard units for their annual exercises; then again, the Regular Army's requirements for airlift support in Southeast Asia usually resulted in the cancellation of the majority of the Guard exercises. Despite the side-effect to the Army, Air Force Chief of Staff General John P. McConnell summed up the posture of the Air National Guard in saying, "Our experience in Vietnam so far has shown that our air reserve forces best serve by remaining in an inactive status but performing genuine 'active



185th ATS C-97G 52-0874 "City of Norman" adorned with five Southeast Asia mission markings.

duty' as part of their training program."¹⁷

The steady state performance of Air National Guard airlift missions to Southeast Asia demonstrated the meaning to the term "active reserves." Encountering enemy ground fire on almost each landing and takeoff in Vietnam, many Air National Guard airlift aircrew members experienced their first taste of combat.¹⁸

To prepare for the upcoming surge of airlift missions to Vietnam, the US Air Force on January 8, 1966 changed the name of Military Air Transport Service (MATS) to Military Airlift Command (MAC) as a reflection of the command's function changing from support to an active combat role. The Military Airlift Command became the single Air Force Agency to control all airlift forces engaged in deployment and redeployment operations. This organizational change also forced the redesignation of the transport squadrons from Air Transport Squadron (ATS) to Military Airlift Squadron (MAS). Likewise Air Transport Wings (ATW) and Air Transport Groups (ATG) were redesignated Military Airlift Wings (MAW) or Military Airlift Groups (MAG). Furthermore, Military Airlift Command reorganized its strategic airlift units from EASTAF and WESTAF to 21st Air Force (EASTAF) and 22d Air Force (WESTAF). All of the ANG units assigned to EASTAF and WESTAF were automatically transferred to their respected numbered air force.¹⁹

The command and control structure of the Air National Guard above Wing/Group level was not existent for the type of operation the Air National Guard was supporting. Major General I.G. Brown, Director of the Air National Guard, directed the establishment of an Executive Agency as the Air National Guard Airlift Command Post at the McGhee-Tyson Air National Guard Base, Tennessee, to provide the proper coordination and control of world-wide Air National Guard airlift missions. The successful execution of the ANG Airlift Command Post led to the creation of the Air National Guard Support Center in 1976.

Examples of ANG airlift units participating in the Vietnam Airlift effort included the 146th Military Airlift Wing, California Air National Guard comprised of the 146th Military Airlift Group and the 195th Military Airlift Group at Van Nuys Airport. From 1965 through 1969, these units participated in the strategic airlift mission to Southeast Asia with the Boeing C-97 Stratofreighter. From 1966 through 1971, the 191st MAS/151st MAG, Utah ANG, Salt Lake City Airport, flew missions to Vietnam, initially with the C-97Gs and, after conversion in early 1969, C-124Cs. They flew a total of 96 missions and hauled 1,340 tons of cargo in direct support to the War in Southeast Asia.²⁰

Between the start of Operation Christmas Star in November 1965 and the mid-point of the airlift surge operation to Vietnam in June 1966, Air National Guard airlift



A New York ANG 139th MAS C-97G 53-0201 is unloaded at Tan Son Nhut AB, March 1966.

units flew 687 missions and airlifted over 20,000 tons of cargo and 3,400 passengers into Vietnam. This far exceeded what normally was expected from a part-time force. As a matter of fact, a Tennessee Air National Guard airlift unit flew 1,701 hours in May 1966, establishing an all-time high aircraft utilization rate for a C-97 of 6.9 hours a day. An Air National Guard airlift crew flying missions to and from Vietnam put in as much flying time in one mission as a commercial pilot flew in one month. By the end of 1966, the Air National flew over 800 missions in direct support of military operations in Vietnam. Air National Guard airlift units flew more hours to Vietnam than they did when mobilized during the Berlin Crisis of 1961. Many flights to Vietnam carried cargo and personnel but mostly wounded troops coming out of Vietnam.²¹

During the Air National Guard's Vietnam airlift surge between January 1966 and July 1967, 72 percent of its airlift units flew missions to Vietnam. 54 percent of all Air National overseas airlift missions were in direct support of Vietnam airlift requirements, however, the total Air National Guard airlift contribution to Vietnam airlift surge operation represented about eight percent of all military traffic into Vietnam. The 18 Air National Guard and 16 Air Force Reserve airlift units that flew these missions moved 80,552,705 ton miles. Air National Guard airlift units flew 75 out of the 200 monthly scheduled missions to Vietnam.

This averaged three to four missions per month per unit but there were times when some units flew double that amount in a single month. For instance, in May 1967, the 109th Military Airlift Squadron, Minnesota Air National Guard flew eight missions to Vietnam. This greatly helped Military Airlift Command to free active duty airlift squadrons to accomplish higher priority and longer distance missions elsewhere in the world.²²

No successful air operation can be accomplished without outstanding maintenance support to keep the airplanes serviceable. Air National Guard maintenance units put forth a herculean effort to generate maximum aircraft availability and flying hours. Maintenance support for Air National Guard airlift aircraft at active duty Air Force bases was poor. Since Air National Guard aircraft were considered "fall-out" or out of date aircraft by the Air Force, the active duty did not have the specialized ground support equipment, special tools, or spare parts for aircraft like the C-97 and C-121. Furthermore, the active duty Air Force no longer had personnel with the knowledge and experience to service such aircraft. Thus, Air National Guard aircraft had to bring along maintenance qualified personnel as crew members and spare parts on the missions.²³

From July 10 to September 10, 1966, the DOD initiated Operation COMBAT LEAVE to provide transportation assistance for servicemen on combat leave after



The Boeing C-97G Stratocruiser. The workhorse of the Air National Guard's airlift support to Southeast Asia. This 146 MAG C-97 is prepared by unit maintenance crews for the next mission to Vietnam in 1967.

returning from SEA or prior to leaving for SEA who became stranded due to a strike by employees of five commercial airlines that grounded 735 commercial aircraft. President Lyndon B. Johnson had ordered the Military Airlift Command via the DOD to undertake the mission. It was executed primarily by Air National Guard and Air Force Reserve aircraft and aircrews. Operation COMBAT LEAVE moved 122,863 passengers. With 174 aircraft, the Air National Guard airlifted 25,238 passengers, including 12,926 troops on leave from Southeast Asia and logged about 4,000 flying hours.²⁴

In the first nine months of calendar year 1966, 62 percent of operationally ready crews made flights to Southeast Asia. A typical round trip mission to Vietnam was 10 days and 70 hours of flying. On the way to Vietnam, aircraft stopped at Travis AFB, California to on-load cargo and fuel and rest stops at Hickam AFB, Hawaii, Wake Island or Kwajalein, Guam, Clark AB, Philippines, or Mactan AB, Philippines, then land at either Tan Son Nhut Air Base or Da Nang Air Base in South Vietnam and on-load of return cargo for the homeward bound run. A trip required 10 full days on active duty orders, 61 percent of the missions flown to SEA were flown by part-time Drill Status Guardsmen. This illustrates the dedication of the non-fulltime Guardsmen and the support given by many civilian employers.²⁵

On April 1, 1967, the first two ANG C-124 missions to Vietnam took place by crews from the 128th Military Airlift Squadron (MAS), Georgia Air National Guard and the 156th MAS, North Carolina Air National Guard. In the C-124, both Georgia ANG units (128th MAS & 158 MAS) flew an average of six missions to Vietnam a month during the height of American involvement in Vietnam. The missions took place less than four months after the first C-124 delivery to an ANG unit (128th MAS at Dobbins AFB). On 23 June 1967, a C-124 from Mississippi's 183d Military Airlift Squadron landed at Da Nang Air Base, South Vietnam, to mark the Air National Guard's 1,000th airlift mission to Vietnam. Between July 1966 and February 1967, Air National Guard C-124 crews airlifted nearly 2,500 tons of cargo to Southeast Asia.²⁶

In July 1967, the backlog of cargo to the region had been greatly reduced and the Air Force believed it had enough support from commercial aircraft to handle the airlift requirements to Vietnam without further augmentation from the Air National Guard and the Air Force Reserve. From January 1966 to July 1967, the Air National Guard had flown 1,340 round-trip missions to Vietnam. At the end of 1967, Military Airlift Command had 271 C-141s on-hand from a total production order of 284 aircraft. In advance of the arrival of MAC's last C-141A in February



A C-124 assigned to the 183d Air Transport Squadron, Mississippi ANG, sits adorned with markings to commemorate the ANG's 1000th mission to Vietnam.

1968, 160 C-124s were transferred to the Air National Guard and Air Force Reserves, generally replacing the now antique C-97Gs as well as other aircraft.²⁷

During the years of airlift surge operations to Vietnam, the Air Force had implemented an awards program to recognize the accomplishments of Air National Guard airlift units contributing to the airlift mission. It was called the "Velvet Tiger" award and was given to Air National Guard airlift units who completed five of the fastest off-load/on-loads at Da Nang Air Base without an accident. Several Air National Guard units earned the award. The 109th MAS of the Minnesota Air National Guard was one such unit to earn the prestigious award.²⁸

Air National Guard aircrew members who flew missions to Vietnam also earned the Vietnam Service Medal, the Armed Forces Expeditionary Medal, and were automatically eligible for the National Defense Service Medal. In addition, President Johnson signed PL 89- 739 that increased tax exemption amount for Air National Guard personnel operating in the Vietnam combat tax zone. Exemption for Air National Guard officers went from \$200 month to \$500 when flying airlift missions into Viet Nam. The exemption applied against only their pay for the tour, and not against their total monthly wage. Enlisted personnel's pay was totally exempt for each combat tour of duty.²⁹

The valuable assistance lent to the regular Air Force command received personal plaudits from MATS Commander General Howell M. Estes, Jr. ANG airlift units amassed 117,520 flying hours transported 90,732 passengers and 18,427.5 tons of cargo. Included in this effort were

60,840 flying hours, 11,388 cargo-tons and 1,469 overwater flights made in direct support of the Military Air Transport Service (MATS).³⁰

Air Force Secretary Zuckert seconded the Air force's appreciation for the Air National Guard, stating that even with the delivery of the C-5A, "there will never be enough airlift. We [USAF] need the ANG and its capability to provide augmentation to the MAC effort." Chief of Staff of the Air Force General John P. McConnell said at the 1967 Air Force Association convention, "We have learned to make increasingly effective use of our airlift potential, with extensive participation by the...Air National Guard...During the last six months of calendar year 1966, airlift between the continental United States and Southeast Asia moved almost half a million passengers and nearly 200,000 tons of cargo..."³¹

Despite the end of the airlift surge to Vietnam in July 1967, Air National airlift crews continued to serve on temporary active duty tours. At this point, Air National Guard missions to Vietnam were funded directly by the National Guard Bureau. In conjunction to missions flown to Vietnam, Air National Guard airlift crews continued its commitment to flying missions to Europe, South America and the Caribbean, and other parts of Asia.³²

In response to an urgent Defense Department request to move additional U.S. troops overseas in response to the *Pueblo* crisis and the communists' surprise Tet offensive in South Vietnam in January 1968, several Air National Guard fighter and reconnaissance squadrons, and one aeromedical airlift units were mobilized and deployed to bases in the United States and to bases in Southeast Asia and Japan. The single airlift unit mobilized was the 147th Aeromedical Airlift Squadron out of Greater Pittsburg Airport. Equipped with the C-121C, the unit flew airlift missions wherever the Air Force needed them to go from May 13 to December 12, 1968.

In conjunction with the Air National Guard mobilization, the bulk of its airlift units volunteered to fly 120 additional missions to Vietnam with its C-97, C-121, and C-124 aircraft. The Air Force Reserve volunteered an additional 96 missions to Vietnam with its C-124 and C-119 aircraft. In addition, the Air National Guard saw an increase in its monthly transoceanic airlift missions of 115 round trips (69 in the Pacific and 46 in the Atlantic).³³

By the 1970s, Air National Guard airlift missions to Vietnam became as routine as the missions to Europe. However, the destinations to Vietnam expanded beyond Tan Son Nhut and Da Nang. Air National Guard C-124 crews delivered men and material to Cam Rahn Bay, Phu Cat, and Phu Bai. Still, by late 1972, the Lockheed C-141 Starlifter handled the prominent numbers of missions to Vietnam air bases. As the number of C-141 missions to Vietnam increased, the number of Air National Guard C-124 missions decreased.³⁴

The most important contribution the Air National Guard made to the Air Force's Strategic Airlift operation to Southeast Asia was that the personnel and units participated in the missions in non-mobilized status. They were on temporary active duty orders called Military Personnel



Pennsylvania ANG C-121C 54-0183. The two squadrons of the Pennsylvania ANG, the 140th ATS/MAS, Olmstead AFB, Harrisburg, and the 147th ATS/MAS, Greater Pittsburg Airport, flew the Constellation from 1962 – 1972. (Original photo not available, best obtainable copy used here.)

Appropriation (MPA) days while they continued to hold down a civilian job but flew the missions on a voluntary part-time basis. This may be the first time in Air National Guard history when its personnel and units participated in an overseas combat operation that did not involve mobilization.³⁵

Despite active duty Air Force airlift units converting to jet transport aircraft throughout the late '60s and '70s, the Air National Guard and the Air Force Reserves operated piston driven airlift aircraft long after the end of the Vietnam War (April 1975). Not until 1985, would the Air National Guard finally enter the age of jet transport aircraft with the C-5 and C-141.³⁶

The US Air Force learned that it could use its Air Re-

serve Component forces to support heightened operational tempo without the use of mobilization. In 1967 as Air National Guard crews reduced its involvement with the Southeast Asia airlift mission, air refueling crews and aircraft began a 10-year commitment of send KC-97 aircraft, crews, and maintenance personnel to Rhein-Mein Air Base, Germany, to provide air refueling capability for Air Force fighter units in Europe. This mission, dubbed *Operation Creek Party* was conducted and managed by the Air National Guard, and without mobilization. Air National Guard crews and support personnel deployed in Volunteer status on two-week rotations. The Vietnam Airlift mission proved the Air National could sustain operations on a volunteer basis. ■

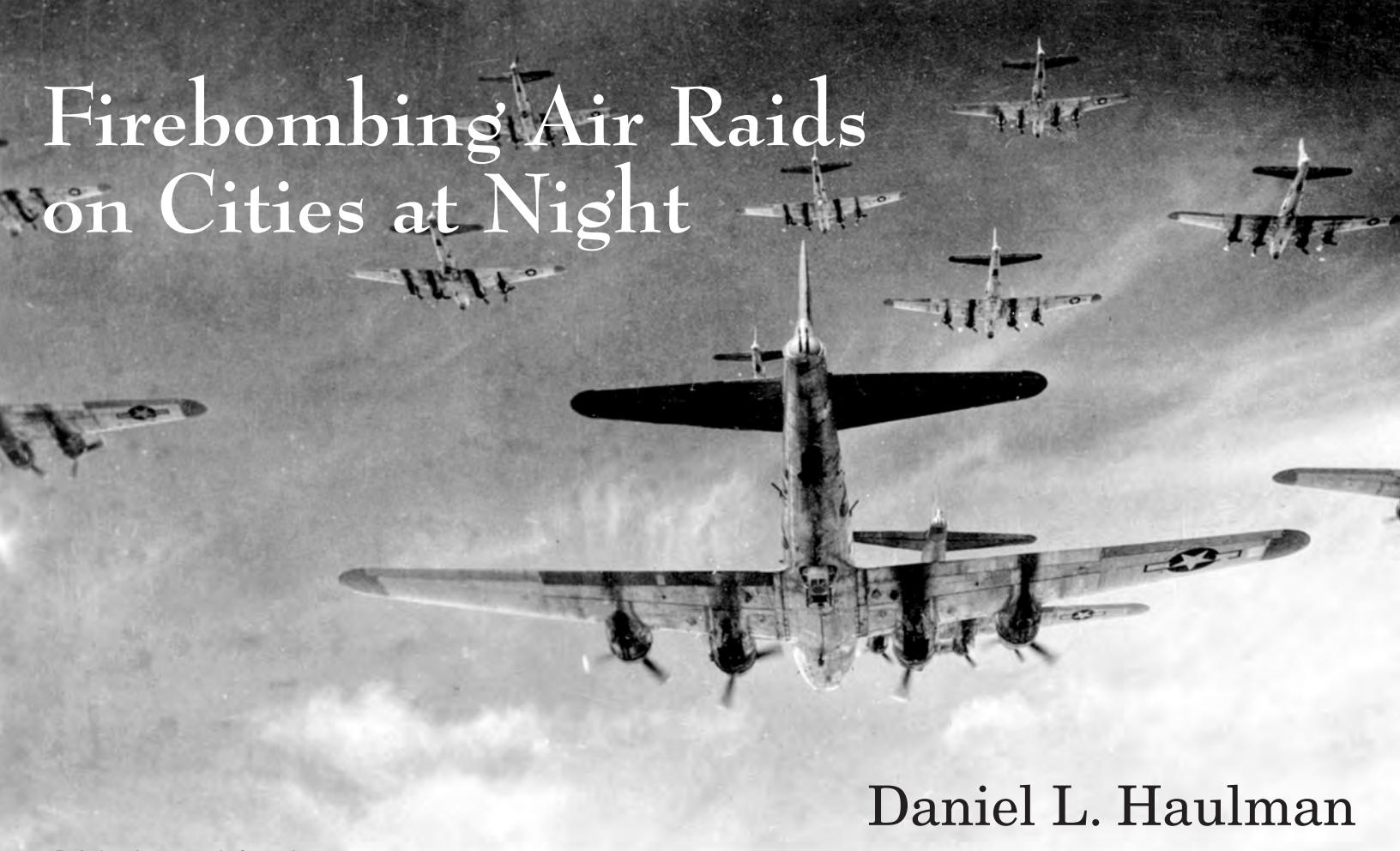
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Firebombing Air Raids on Cities at Night



Daniel L. Haulman

B-17 bomber group in formation.

Not long after the invention of the airplane in 1903, it became a weapon of war. By the time World War I began in 1914, the airplane was already a formidable instrument for reconnaissance and artillery spotting, but within the next four years, it had also become a fighter, a transport, and a bomber. In fact, during World War I, all the major categories of air power had already been explored. By the time of the next world war, the air plane was not just an instrument to support surface forces on land and sea, but had become a strategic weapon.¹

Military theorists between the wars, such as Giulio Douhet of Italy, Hugh Trenchard of Britain, and William Mitchell of the United States, advocated more use of the airplane as a war-winning weapon. Theorists at the Air Corps Tactical School at Maxwell Air Force Base in Alabama were already developing strategic bombing war plans in the 1930s, even as the Air Corps created the B-17 Flying Fortress to carry out those plans. Meanwhile, the British were developing their own four-engine heavy bombers, as Germany under Hitler nourished an air force he hoped would be second to none.²

That German air force, the *Luftwaffe*, got a chance to demonstrate its utility during the Spanish Civil War in 1936 and 1937. Deploying the “Condor Legion” to Spain, the *Luftwaffe* attempted to destroy Spanish cities held by the enemy and contributed to the victory of Generalissimo Francisco Franco. The German bombing of Guernica was told in gruesome art by Picasso, and the world became familiar with the bombing of cities as a component of modern war.³

At the beginning of World War II, the *Luftwaffe* continued to bomb cities, most notably Warsaw, Poland in 1939, and Rotterdam, the Netherlands, in 1940. Bombing cities had already become familiar even before it was done with firebombs at night.⁴

The firebombing of whole cities at night evolved quickly during the Battle of Britain in 1940. At first the *Luftwaffe* concentrated on attacking British airfields in order to facilitate a cross-channel invasion of England, but when a German raid accidentally bombed central London, everything changed. In retaliation, the British bombed Berlin, and Hitler ordered the wholesale bombing of London in further retaliation. Before long the Germans were bombing not only London but also other cities such as Coventry, and the British were bombing other cities besides Berlin. Both sides decided that it was better to bomb the enemy cities at night so that the bombers would not be as vulnerable to enemy fighters and antiaircraft artillery.⁵

Eventually, the British bombing of German cities at night became much more massive than the German bombing of British cities at night, partly because of the four-engine Lancaster and Halifax bombers of the British. Air Marshal Arthur Harris, the head of the Royal Air Force’s Bomber Command, perfected the art of destroying German cities. He built up his bomber forces so that they were able to launch 1,000-plane raids on major German cities such as Cologne, Berlin, and



British Halifax Mk. 3 bomber.

Hamburg.⁶ He also relied increasingly on incendiary bombs that would use thermite, which was almost impos-

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sible to extinguish. In 1943, the British firebombed Hamburg, which created an intense firestorm that not only incinerated but also asphyxiated as many as 40,000 people, mostly civilians, and left as many as a million homeless.⁷ Such raids became more common as the war dragged on. More and more German cities became hollowed-out shells. When Harris was criticized for the deaths of thousands of civilians, he argued that the more urban areas of Germany destroyed, the more crippled the German war machine would be. Later in the war, German attacks on Britain included V-1 jet and V-2 rockets, which made the British people more supportive of Harris and his tactics. The German unmanned drones and ballistic missiles also killed civilians in cities at night, indiscriminantly.⁸

By then, the United States had entered the war as Britain's ally, and American B-17s and B-24s began raiding Germany from British bases. The Eighth Air Force, however, did not attack German cities with firebombs at night, as the British did. American and British leaders at Casablanca in 1943, agreed to a Combined Bomber Offensive which called for the British to continue firebombing German cities at night, while American bombers attempted to destroy specific German military targets during the daytime, in tactics that had been devised at the Air Corps Tactical School. That way the Allies could hit Germany around the clock.⁹

Technology of the time prevented the American attacks from being as successful as planned. Without fighter escorts on long-range missions, even the heavily armed B-17s had trouble reaching their targets. Sixty Flying



A Consolidated B-24 Liberator bomber from the Fifteenth AF, 451st BG unloads on the Hermann Goering works on Linz, Austria.

Fortresses were shot down on each of two missions to destroy German ball-bearing factories at Schweinfurt.¹⁰ Even with the Norden bombsight, the B-17s and B-24s could not always hit their targets precisely, and clouds often obscured the enemy factories and oil refineries. The Eighth Air Force, under General Ira Eaker at first, later under General Jimmy Doolittle, resorted to ever larger bomber formations that would drop their loads simultaneously over a wide area around the intended target, sometimes marshalling yards in the center of a city. The result was often the destruction of whole urban areas not much different than what the British were doing with firebombs at night. Increasingly the American bombers were also destroying the centers of German cities and killing increasing numbers of German civilians.¹¹

In February 1945, the British launched massive nocturnal fire raids on the previously untargeted German city of Dresden, known for its art, largely destroying it. American air raids on the same city around the same time completed the destruction, which became controversial because of the number of civilian casualties. Historians continue to debate just how many civilians died in the refugee-crammed city, but whether it was 35,000 or 100,000, the death toll was high, with little to show in military terms.¹²

Critics of the Combined Bomber Campaign argued that it was a failure, not worth the cost in bombers and the lives of their crews, or in terms of the hundreds of thousands of civilians who died. They claimed that German war production actually increased despite British and American bombing, and that German morale did not break. De-

fenders of the British and American bombing argued instead that it was decisive, because German war production would have been much more without the bombing. Furthermore it diverted thousands of personnel, artillery pieces, and aircraft to the defense of Germany from the air, keeping them away from the fronts on the ground. Albert Speer, Hitler's armaments minister, admitted that the bombing was Germany's biggest lost battle. Moreover, it largely destroyed the *Luftwaffe*. Escort fighters destroyed thousands of German fighters and their pilots, and bombers destroyed their airfields, aircraft factories, and fuel supplies. Deprived of control of the air, the Germans lost control of the ground.¹³

American and British bombing of Germany was not so different in the end. Both Royal Air Force and the American Eighth and Fifteenth Air Forces were destroying the heart of German cities, one with firebombs at night, the other with blast and also firebombs by day. While the United States continued to concentrate on daytime "precision" bombing, they used firebombs as the British did. American bombers dropped more than a million incendiary bombs on Germany during World War II.¹⁴

The American bombing of Japan also evolved. At first the United States Army Air Force leaders fully intended to continue concentrating on specific military targets such as aircraft factories and refineries, even against a more hated enemy that had attacked Pearl Harbor, but their intentions could not easily be fulfilled. To accomplish the task, the Americans developed the most advanced airplane of the war, the B-29 bomber. It was larger than the British and



B-17 bomber group in formation.

American heavy bombers of the European and Mediterranean Theaters, and each could hold more bombs. With a pressurized cabin and advanced engines and more fuel capacity, the B-29s could also fly higher and farther and faster than the B-17s and B-24s. The B-29s were designed, however, for daylight bombing of military targets, and at first that is how they were used.¹⁵

Things changed as the war evolved. Plans to attack the Japanese main islands from India and China failed because of Japanese ground offensives in China, which denied the Americans the bases they needed. Hauling enough bombs and fuel and other materials over the Himalaya Mountains from India to China was also a challenge. When U.S. Navy and Marine Corps forces took the Mariana Islands of Guam, Saipan, and Tinian from the Japanese in 1944, bases on those islands became available for B-29s, bases that were within range of Japan. The Army Air Forces decided to bomb Japan from the east instead of the west.¹⁶

The first commander of XXI Bomber Command in the Marianas was Brigadier General Haywood S. Hansell, Jr. He had been one of the strategists at the Air Corps Tactical School at Maxwell in the 1930s, and he was determined to prove against Japan that precision bombing of specific targets by day would work. He launched a series of air raids from the Marianas to Japan and back, to destroy enemy aircraft factories, but he had little success. Part of his problem was that the B-29 engines often failed, and the range was so great. Before the Allied conquest of Iwo Jima, Japanese radar and fighters hindered Hansell's raids. More significantly, previously undiscovered high-altitude

jet stream winds blew the bombers and bombs off course. Thick clouds often obscured the intended targets, and because the B-29s flew at such high altitudes, to avoid enemy fighters and flak, the bombs had more distance to cover before they reached the ground, increasing their inaccuracy.¹⁷

At that point, General Curtis E. LeMay, who had commanded the B-29s in India and China, was reassigned to succeed Hansell as commander of XXI Bomber Command. Hansell declined to serve as LeMay's chief of staff, but LeMay tried briefly to continue Hansell's policy of attacking specific Japanese military targets by day. He had no more success than Hansell, and General Henry "Hap" Arnold, commander of the Army Air Forces and at first of the Twentieth Air Force, along with his Chief of Staff General Laurence Norstad, demanded results, even if they could only be shown in terms of tonnage dropped and urban area destroyed. LeMay revised his tactics, switching to those of "Bomber" Harris of the Royal Air Force. LeMay decided to destroy Japanese cities with firebombs at night, just as Harris had destroyed German cities with firebombs at night.¹⁸

There were many reasons to switch tactics. By flying at night, LeMay could save B-29 fuel because the bombers no longer had to fly at high altitudes to avoid enemy fighters and antiaircraft artillery. He could also remove machine guns and ammunition from the bombers, because enemy fighters would have a harder time seeing them at night. That would allow the B-29s to carry more bombs. Japanese architecture was more wood and paper than masonry, unlike most of the German urban architecture, and



B-29 bomber group drops its payload.

was more vulnerable to incendiary bombs. Moreover, the Americans had developed napalm, or jellied gasoline, which promised to be even more incendiary than the British bombs. Jet stream winds and clouds were no longer factors in the equation.¹⁹

During the spring and summer of 1945, LeMay launched an unprecedented series of incendiary air raids on Japanese cities in the spring of 1945. It was more destructive than the British series of nocturnal fire raids on German cities because those cities were constructed with more masonry and less wood and paper. For five months, hundreds of B-29s carrying thousands of firebombs raided more than sixty of Japan's largest cities, and the destruction of urban areas was unbelievable. Secretary of War Henry Stimson kept the old city of Kyoto off the target list, but few other cities escaped, except a couple deliberately saved for testing new atomic weapons that became operationally available in early August. To LeMay, the new weapons were unnecessary, because his bombers were already destroying the Japanese cities. In 1945, the Army Air Forces dropped 856,598 individual and 360,826 cluster firebombs on Japan, for a total of 1,273,115 incendiary bombs unleashed on urban areas. More than 16,000 bomber sorties dropped 194,930 tons of bombs on Japan between November 1944 and August 1945, and most of these were incendiary weapons. They destroyed 56.30 square miles of Tokyo, or half of the city. American B-29s destroyed 15.54 square miles of Osaka, a quarter of the city. At Nagoya, thirty-one percent of the urban area was destroyed, more than twelve square miles. The raids were extremely effec-

tive in reducing Japanese military production, not only because factories were in those urban areas, but also transportation nodes. Moreover, hundreds of thousands of people, including workers, fled the cities to the countryside, partly in response to American leaflet warnings, and partly out of fear that their city would be next.²⁰

According to official Army Air Forces statistics, in five months of incendiary attacks on Japan, the B-29s killed 310,000 Japanese, injured 412,000 others, and left 9.2 million people homeless. The U.S. Strategic Bombing Survey estimates of homeless Japanese was even higher: fifteen million.²¹

Many historians agree that the most intense and destructive air raid in history was the one flown by the XXI Bomber Command from the Marianas against Tokyo the night of March 9-10, 1945. More than 330 bombers dropped 1,667 tons of incendiary bombs over the city, destroying fifteen square miles in one night, killing more than 80,000 people, and injuring as many as 160,000 others. An estimated 261,171 buildings were destroyed, many of them homes. American planners knew that the targeted part of Tokyo had a population density of as many as 103,000 persons per square mile.²²

Even without the atomic bombing of Hiroshima and Nagasaki on August 6 and 9, 1945, and even without the Soviet Union's declaration of war and invasion of Manchuria around that same time, Japan might have surrendered without an invasion, because the incendiary bombing was doing all that the atomic raids could do: destroying Japanese cities at little cost to American lives and

property. By the summer of 1945, relatively few of the B-29s were being shot down, and they could fly over Japan without effective enemy aircraft or artillery resistance.²³

Many historians would agree that despite the loss of hundreds of thousands of civilian lives, the incendiary raids helped cripple and destroy the enemy war machines and bring the war to a sooner victorious conclusion. This was especially true in Japan, where an invasion was not necessary. Had the United States invaded Japan on the scale of Normandy, there might have been a much higher cost in lives, not only American lives, but Japanese lives as well.²⁴ More lives would have been lost in the invasions of the Japanese home islands than in the bombing, however horrendous that bombing was in terms of civilian lives lost.

Neither General LeMay nor Air Marshal Harris thought much about the immorality of killing so many civilians. LeMay claimed there were "There's nothing new about this massacre of civilian populations. In ancient times, when an army laid siege to a city, everybody was in the fight. And when that city had fallen, and was sacked, just as often as not every single soul was murdered." He also wrote, "But to worry about the morality of what we

were doing- Nuts." He also admitted after the war, "If we'd lost the war, we'd all have been prosecuted as war criminals."²⁵ They were more concerned with the effectiveness of the bombing on the Allied war effort. The bombing was not intended to destroy civilians, but to destroy the ability of the enemy to make war, and it surely did that. The rest was, to them, "collateral damage."

By the 1990s, precision-guided munitions made possible, at last, the destruction of specific enemy targets in and around cities without the destruction of the cities as a whole. The United States largely used that technology against Baghdad in Iraq in 1991 and against Belgrade in Serbia in 1999. Such precision targeting did not exist, except in very rudimentary form, in the 1940s. We can hope that precision-guided weapons will make the need to bomb whole cities completely obsolete, and there will never be another war with so many civilian deaths. I would not venture to say, however, that the wholesale destruction of cities will never happen again. History shows us again and again that people generally do to others what has been done to them, and once one side targets another side's cities, total war will return. ■

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COBRAS, HAWKS, AND WASPS: A HISTORY OF NAPIER FIELD, ALABAMA 1941-1945

Jayson A. Altieri

This early P-40 was photographed at Napier Field in early 1943.

The recent cover of the July 2018, *Army Aviation* magazine featured various photographs of the CAE Incorporated's Dothan Training Center, located at Dothan Regional Airport, Alabama. The center, which officially opened in March 2017, is a 79,000 square-foot training facility designed to provide comprehensive fixed-wing flight training to the U.S. Army, U.S. Air Force, and other customers. CAE and its team of industry partners use the center to deliver academic (classroom) and simulator training, as well utilize the adjacent Dothan Regional Airport to provide live flying training.¹ Additionally, Air Force and Army rotary-wing student pilots from the nearby U.S. Army Aviation Center of Excellence based at Fort Rucker, Alabama, routinely use the air traffic services provided at Dothan to improve their primary and advanced aircraft training skills. Military flight training is not new to the Dothan Airport, formally known as Napier Field, as the first military pilots began training there nearly seventy years ago. This article is designed to help historians and military strategists, through the lens of the diplomatic, informational, military, and economic instruments of power, to understand the impact Napier Field had as an aviation training ground during and after the Second World War.

Preparing for the nation's possible involvement in another war in Europe in the late 1930's, the U.S. Army was reorganized into three branches: Air, Ground, and Supply, resulting in the creation of the US Army Air Force (USAAF) on June 20, 1941.² The USAAF's Air War Plans division in that same year set the USAAF strength goal of 6300 aircraft and 33,000 graduating pilots a year.³ This surge was in part a result of President Roosevelt's plan for producing 50,000 aircraft a year to meet future national security needs as the war was spreading across Asia and Europe. Student pilots, then called Aviation Students, took approximately six months of accelerated college courses at one of 151 universities around the country, followed by forty weeks of pilot training thereby earning the U.S. Army silver pilot wings and then additional flight training in more advanced aircraft.⁴ Training originally was the responsibility of the Army Air Forces' predecessor, the US Army Air Corps (USAAC) Flying Training Command (later changed to the USAAF Flying Training Command).⁵ The command struggled with the multiple challenges of the United States wartime expansion and the need for aircrews, aircraft, and facilities exceeding the pre-war training infrastructure.⁶ To resolve this problem, in 1939, the USAAC launched an expansion program that included both the building of new training fields around the country and began contracting basic pilot training with schools certified by the Civil Aeronautics Authority (precursor of the Federal Aviation Administration).⁷ Following the June 22, 1940, French surrender to the Germans, the USAAC increased the pilot production to 7000 per year, eventually contracting with fifty-four schools to raise the pilot production to 250,000 per year.⁸ By July 7, 1943, the USAAF Flying Training Command would undergo another change in both name and mission with the designation as the AAF Training Command, responsible for both flying and technical training; both the command



A P-40 named "Black Angel," photographed at Napier Field in early 1943.

name and responsibilities would remain unchanged until the formation of the new United States Air Force (USAF) in 1947.⁹ The new training field in Dothan would become an integral part of this pilot training increase.

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Located approximately eight miles northwest of downtown Dothan, the detailed planning of Napier Field began in 1939 when public officials in Dothan and surrounding Houston County, many pre-war civilian defense minded leaders, sought to have the military establish a training school at the new Dothan Airport.¹⁰ The field was one of a number built by the USAAC in the state prior to the U.S. entry in World War II, one of which included the training field at Tuskegee, Alabama. The Army was not interested in locating a training airfield so close to Dothan and an alternate 1,500-acre site northwest of town was selected.¹¹ Dothan and Houston County each pledged roughly \$56,000 to purchase the land, and work on Napier Field Air Base thereafter commenced.¹² The majority of the 1,600 acres of land that Napier Field (and later the Dothan Regional Airport) would eventually become was originally known as Carmichael farms, but was owned by the family of Spurgeon Howell, Sr., who managed the property for his wife's brother.¹³ The Howell family lived on the property, along with three other families. The Howell family moved just after the Army purchased the land, and the home they built after their relocation still exists near the airport.¹⁴

The field was named to honor Major Edward L. Napier, who was one of the U.S. Army's first flight surgeons and who transferred to the Air Corps at the end of the First World War.¹⁵ A native of Union Springs, Alabama, the Major was killed in an aircraft mishap at McCook Field, Dayton, Ohio, on September 15, 1923.¹⁶ Choosing names for an air base was, in typical military fashion, based on U.S. Army regulations. War Department Adjutant General



A group of Link Trainers at Napier Field in World War II.

circular, dated November 29, 1940, titled “Naming of Flying Fields,” directed that all newly formed Air Corps (later Air Forces) be named after deceased flying officers from either the Regular Army or the Reserve Corps.¹⁷ The criteria for the honoring of said officer was based on the following,¹⁸

Service with distinction in the [First] World War; pioneering in aviation; service with distinction in peace time in conducting scientific investigations involving hazardous flying; long, loyal, and exemplary service in peace time; and finally, wherever practicable and consistent with the foregoing, selection was to be made from names of deceased officers who were former residents of the state ‘State’ in which the Air Corps field was located.

The official announcement was published in a circular letter, dated January 14, 1942, issued by the Adjutant General’s Office to the, “Commanding General of the [Air] Corps Area on the subject: “Designation of Air Corps Fields.”¹⁹

Napier Field was geographically assigned to the Army’s Southeast Training Center of the Army Air Forces Training Command. The command was established on January 23, 1942, by the Office of the Chief of USAAC, as part of the expansion of the training department of the Corps.²⁰ In order to manage the rapidly expanding wartime demands of America’s military forces, and with the large numbers of men entering the military, the training requirements of the USAAC were drastically expanded.²¹ As a result, the centralized training of aircrew was divided

into three Training Centers, the Southeastern, Gulf Coast, and West Coast.²² Training schools were assigned to the centers based on the geography of the United States. In July 1943, these centers were re-designated as Eastern, Central and Western Training Commands.²³ While the primary focus of flight training was on Army students, Allied students, from countries as diverse as Mexico and the United Kingdom, were also trained. The USAAC in particular offered to devote one-third of its pilot training to meet the British Empire’s need for more pilots under a concept known as the “Arnold Scheme.”²⁴ The newly established Napier Field was to play a key role in the training of these and other Allied pilots, as well as U.S. pilots during the war.

The field was provisionally activated on June 16, 1941, (though named officially later in January 1942), when General W. R. Weaver, Commanding General of the Southeast Air Corps Training Center, assumed higher headquarters command over the school in General Orders published on the same date.²⁵ Construction began on the field in late June 1941 with the laying of a rail spur off the *Atlantic Coast Line* main rail line and the majority of the field’s buildings were completed by October 1941.²⁶ Included in the \$3.7 million construction of the field’s 114 buildings, a windfall economically for the lower Alabama region, was the base’s distinctive *Art Deco* main gate which greeted the airmen arriving for training.²⁷ The field would have a total of four runways, allowing for training to be conducted regardless of the wind direction.²⁸

The first aircraft began operating on the field on October 1, 1941, when an Army transport landed on the North-



Curtiss P-40 Warhawks line up at Napier Field, Alabama.

east-Southeast runway carrying the payroll from Craig Field, Alabama to the troop security detachment stationed at Napier Field since August 15, 1941.²⁹ The 73rd Base Headquarters and Air Base Squadron commanded the field's operations and subordinate flying units including: Headquarters and Headquarters Squadrons; 15th and 16th Single Engine Fighter Training (SEFT) Groups; 429th SEFT Squadron (Maroon Nose); 430th SEFT Squadron (Black Nose); 431st SEFT Squadron (Blue Nose); 432nd Squadron (Yellow Nose); and the 433rd SEFT Squadron (Gruffhawk Nose, formerly Green Nose).³⁰ Other supporting organizations included Guard, Medical, Ordnance, Quartermaster, Signal, and Veterinary Services Squadrons.³¹ Other units assigned to the field included a group of Women Air Service Pilots (WASP), some of the first women in American history to fly high-performance aircraft since Amelia Earhart's 1930's well publicized exploits, in January 1944. Additionally, Mexican Air Force pilots trained on the field's Curtis P-39 *Airacobras* and P-40 *Warhawks* in May 1945.³² The 73rd would eventually be replaced by the 2116th Army Air Forces Base Unit, and the numbered training squadrons would begin using letter designations in early 1944.³³

The first pilots to train at Napier Field were British Royal Air Force (RAF) cadets who arrived for training on December 16, 1941, who were part of the greater diplomatic and military efforts to help strengthen the war-time alliance between the United States and Great Britain. Many had already seen combat service with His Majesty's Imperial Forces fighting in Europe and North Africa.³⁴ The

first American cadets soon arrived in mid-January 1942, and graduated on July 3, 1942 (Class 42-F).³⁵ Prior to arriving at Napier Field, AAF students would normally have received approximately 10 weeks of Preflight Training; followed by another 10 weeks (55 flight hours) of Primary Flight Training in the AAC PT-17, PT-19, or PT-23 training aircraft; followed by an additional 10 weeks (100 hours) in the BT-13 trainer.³⁶ Upon completion of primary and basic flight training, students would then report to one of the AAF Advance Flying Schools, one of which was Napier Field. By May 1, 1942, the number of RAF and AAF cadets had increased to the point the first combined class of 179 students was initiated.³⁷ One report noted Napier Field averaged approximately 550 students per month in the flight training program, with an astonishingly high (by today's standards) training fatality rate of 1 in 100 students due to various aircraft mishaps.³⁸ Classes for the students were both rigorous and reflected the urgency to train pilots quickly due to wartime demands in Europe and the Pacific. The daily schedule began at 0530 (5:30 am) with Reveille and training began at 0630 (6:30 am) with close order drill, followed by academic and ground instructions, Link (Instrument flying) training, navigation, physical training, and post maintenance.³⁹ Taps was sounded at 2200 (10:00 pm).⁴⁰ Most of the training took place at Napier Field, though gunnery exercises were conducted at Eglin Field, near Valparaiso, Florida.⁴¹

Upon completion of primary and basic flight training, students would then report to one of the AAF Advance Flying Schools, one of which was Napier Field. On average, be-



Curtiss P-40 Warhawk and pilot stop for a moment at Napier Field, Alabama.

sides ground and technical training, student pilots spent another 10 weeks (70 hours) learning to fly in one of the 183 AT-6 *Texan* trainers, followed by an additional 5 hours in one of the 28 P-40 fighters or a few P-39.⁴² Although bombers and transport aircraft were occasional based on Napier, no actual multi-engine training was conducted at Napier. Advanced flight training for this period would have normally included cross country navigation, emergency procedures, formation flying, gunnery, instrument, and night training. Upon completion of the training at Napier Field, students would then move on to more advance flight training in aircraft like the P-38 *Lightning*, P-47 *Thunderbolt*, and P-51 *Mustangs* prior to deploying overseas. As the war progressed, most of Napier Field's P-40s would eventually be replaced by P-51s for flight training purposes.⁴³ As to be expected, the volume of flying training quickly overwhelmed Napier Field's air traffic management. Air Traffic Services, advanced as they were for the early 1940s, were still in their infancy. Additional auxiliary fields were needed and built to allow instructors and students to practice their skills to reduce the number of aircrews practicing at Napier Field. Surprisingly, a number of these auxiliary flying fields still exist today either for exclusive military usage or for public or private usage.⁴⁴ Maintenance was also an issue, in particular given that most of the aircraft flown by the student pilots were either high-flight time hour trainers or earlier generation fighter aircraft like the P-40, which were difficult to maintain. One story in particular highlights the age and wear of Napier Field's aircraft by early 1945 – Mexican pilots con-

ducting take-off and landing training in the Alabama summer heat would have to taxi past a large pipe installed at the end of one runway that sprayed water on the old P-40 Allison V-12s to prevent overheating the worn out engines.⁴⁵

One of the more interesting features of Napier Field's training was the diverse backgrounds of the pilots

Perhaps one of the more interesting features of Napier Field's training was the diverse backgrounds of the pilots, both men and women, who served. A number of graduates would go on to earn high accolades for combat service overseas. Notable is Lieutenant Henry L. Condon, Napier Class 42-K, who became an ace with 5 confirmed kills and received both the Distinguished Flying Cross (DFC) and Air Medal (AM) with six Oak Leaf Clusters, before being tragically lost for unknown reasons during combat operations over the Philippines in 1945.⁴⁶ Another pilot declared missing in action was Lieutenant Richard J. Drayton, Napier Field Class 42-I who also earned a DFC and AM with seven Oak Leaf Clusters, while flying with the 82nd Fighter Group near Italy in 1943.⁴⁷ Others would serve on the home front at Napier Field preparing pilots for war and breaking early 20th century cultural barriers. One was the late Eleanor "Mickey" McClernon Brown from Victoria, Texas and a member of the WASPs, who was stationed at Napier Field from 1944-45 where she was an engineering



A close up of the Gruffhawk makings on a Napier Field P-40, date unknown.

test and administrative pilot who regularly flew mail to the cadets training at the gunnery school at Eglin Field.⁴⁸ Finally, not all training was conducted in English, Irish writer George Bernard Shaw's famous observations aside.⁴⁹ To accommodate the large number of Mexican Air Force pilots who trained at Napier Field, bi-lingual USAAF pilots were in high demand. Many of the Mexican pilots trained at Napier Field would go on to serve with distinction in the 201st Squadron, Mexican Expeditionary Air Force (*Fuerza Aérea Expedicionaria Mexicana*, (FAEM)) in the Southwestern Pacific Region flying P-47s on combat missions over the Philippines and Formosa against the Japanese in 1945.⁵⁰

One common factor that helped maintain the continuity of both training operations and community relations was that of the station commander Colonel James L. Daniel, Jr., U.S. Army who would command the field for nearly 3 years. A native of Caruthersville, Mississippi, Daniel arrived in 1941 to help oversee the construction of the new fields, es-

tablish an operational command and lead the day-to-day operations of the flight training.⁵¹ Daniel began his military service with the USAAC in the 1920's following his graduation from the University of Missouri in the early 1920s. He served in a number of operational and training assignments in Alabama, Florida, Illinois, Hawaii, and Texas before officially assuming command of Napier Field on October 8, 1941.⁵² Daniel commanded the field until his change of command in June 29, 1944, at which time the local newspaper reported the school's pilots had logged over 90,000 flight hours.⁵³ A testament to the high esteem the Dothan community showed for Colonel Daniel's leadership and community outreach is reflected in the number of positive local articles in which he was featured, including his change of command which was front page news in the June 29 edition of the *Dothan Eagle*. The second and last field commander was Colonel Charles B. Stewart of Springfield, Massachusetts and who graduated as a Coastal Artillery Officer from the United States Military Academy in 1935.⁵⁴



An unknown WASP in the cockpit of a "Gruffhawk."

Like his predecessor, Colonel Stewart also trained in Texas and was posted in Hawaii, where he was serving on December 7, 1941.⁵⁵ He was posted in the Central Pacific with the 7th Air Force for the next two years, commanding the 318th Fighter Group and serving as the director of operations of the 7th Fighter Command.⁵⁶ In 1944 he became the vice commander of the Marianas Air Defense Command in the Pacific Theater of Operations.⁵⁷

By the middle of 1945, the high demand for combat pilots began to diminish and the U.S. Government was looking to the future. Subsequently, the Army deactivated the field on October 31, 1945,⁵⁸ and the airstrip and all properties were transferred to the city of Dothan and Houston County. The latter immediately sold its share in the air field to the former.⁵⁹ The city began selling the land to individuals and the former air base evolved into its own township. The airfield remained dormant for most of two decades, but in the early 1960s, private investors began renovating the site, adding reinforced hard surfacing for new jet runways, buildings, and other facilities.⁶⁰ On February 15, 1965, Napier Air Field became the new home of Dothan Regional Airport. Napier Field incorporated as a town in September 1968, becoming a gateway to the world for larger economic growth in the region.⁶¹ At the turn of the new century, the military returned to Napier Field. In 2004, the Air Force established the 280th Combat Communications Squadron, a non-flying unit that functions in a training facility alongside the civilian airport. Additionally, U.S. Navy and U.S. Air Force fixed-wing training from the surrounding Eglin Air Force Base and Navy Air Station Whiting Field in Florida,

as well as U.S. Army flight training continues at Dothan Regional Airport today. New Army C-12 Huron, CH-47F Chinook, LUH-72 Lakota, and UH-60M Black Hawk pilots and instructors from nearby Fort Rucker use daily the air traffic services and instrument approaches at the former Napier Field. Today, a memorial to those who served at Napier Field stands next to the old airfield headquarters, which now serves as the Napier Field Town Hall.

So what value can future airpower historians and military strategists glean from studying the brief history of Napier Field and its contributions to the greater American national security strategy? First, diplomatically, the training of both British and Mexican pilots was an extension of the Roosevelt administration's Latin American *Good Neighbor* and global *United Nations* policies designed to help defeat German National Socialism and Japanese Imperial expansionism.⁶² Additionally, the dire need for the United Kingdom to train pilots in safe areas during the height of the Second World War and Mexico's need for their pilots to train on more complex aircraft before deploying overseas with allied forces was amply addressed by the aircrew training infrastructure provided at Napier Field. The effects were seen globally with the deployment of RAF and FEAM pilots to operational theaters in Asia, Europe, and the Middle East. First, these small, but important efforts, were part of the greater movement to create a post-war global liberal security environment where nations would address geo-political threats in a united front and which would ultimately lead to the signing of the *United Nations* treaty on October 25, 1945.⁶³ Second, the information value



P-40s line up at Napier Field, Alabama.

to the nascent civil rights movements of seeing women serving in the WASPs flying high performance aircraft was but one of many steps in the broader civil rights movement for women in the US, much like the African-American pi-

lots training at nearby Tuskegee Army Field (today known as Sharpe Field). Like the earlier Suffragette movement and their “Rosie-the-Riveters” contemporaries who had taken over the traditional roles of men who were deployed for the war effort, the sight of women flying complex aircraft had a tremendous impact on encouraging others of their gender to pursue careers in aviation in the post-war world.⁶⁴ Third, the military value of training American, British, and Mexican pilots together at Napier Field was a precursor to the *Coalition Partner* type aviation training by the US military with the *EURO-NATO Helicopter Pilot Training Program* and *Western Hemisphere Institute for Security Cooperation* (Spanish speaking security training) still conducted at places like Fort Rucker, Alabama.⁶⁵ Finally, the economic value of Napier Field’s construction in an economic area heavily dependent on agriculture like southern Alabama, helped diversify the region economically and would serve as the catalyst for the Dothan area entering the *Jet Age* when the former Napier Field officially became today’s Dothan Regional Airport.⁶⁶ The legacy of Napier Field and the men and women who served there should be remembered, not only for the historical value, but also how aviation can help bring about global change in the diplomatic, informational, military, and economic communities. ■

NOTES

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2. James E. Hewes, Jr., *From Root to McNamara: Army Organization and Administration* (Washington, D.C.: Center of Military History, United States Army, 1975), p. 82.
3. *Ibid.*
4. *Ibid.*
5. Thomas A. Manning, *History of Air Education and Training Command, 1942–2002* (Randolph AFB, TX: Office of History and Research, Headquarters, Air Education and Training Command, 2005), p. 13.
6. *Ibid.*
7. In the late 1930s, the USAC conducted all pilot training at Randolph Field (known today as Randolph Air Force Base), San Antonio, Texas. The base was the site of all primary and basic training, while more advanced aircraft training would take place at nearby Brooks and Kelly Fields, Texas. The total numbers of pilot graduating in Fiscal Year 1938 was only 301 pilots. *Ibid.*, 6.
8. *Ibid.*
9. *Ibid.*, p. 17.
10. While military aviation was relatively new to the Dothan area, commercial aviation was not. Early in 1938, the city established its first civil airport under the direction of Asa Rountree, Jr., State Director of Airfields and Dr. I.C. Bates, Chairman of the Dothan City Commission, approximately 2.7 miles west of the city. The city used a grant from President Franklin D. Roosevelt’s Works Progress Administration to enlarge the airport for commercial airline use. Eastern Airlines, under the leadership of World War One Fighter Pilot, Captain Eddie Rickenbacker, who was both President and General Manager of Eastern, soon inaugurated service with the “Dixie Rebel” flying regular daily service from Dothan to Tampa, Florida and Memphis, Tennessee. 1st Lt. Vanderhorst B. Murray, Jr., Sgt. Elliott Bowden, Sgt. John R. Forbes, *Installment One: A History of Napier Field, Dothan Alabama* (Napier Field, Dothan, AL: U.S. Army Air Forces, n.d.), p. 4.
11. Napier Field.
12. *Ibid.*
13. Napier Field History.
14. *Ibid.*
15. *Ibid.*
16. Major Napier was receiving flight training in a Fokker D.VII, Air Service No. 5382, a German fighter plane transferred to the U.S. Army under the obligations of the 1919 Versailles Treaty. An official report of the day states, “that he [Major Napier] was piloting the plane himself and there was a structural failure of a wing.” Napier Field, Named for Maj. Edward L. Napier, born Union Springs, AL,” August 11, 2018, <https://www.genealogy.com/forum/surnames/topics/napier/1690/>; “1923 US Army Air Service Accidents,” September 12, 2018, <http://www.aviationarchaeology.com/src/1940sB4/1923.htm>.
17. *Installment One: A History of Napier Field, Dothan Alabama*, p. 31.
18. Originally, the field was to be named Gellerstedt Field, in honor of Eric Gellerstedt, a local Alabama businessman, who promoted flying in the local Dothan area and was the first President of the Dothan City Commission, who died in while in office. However, the proposed name did not meet the criteria outlined in the aforementioned Adjutant General’s circular, and the name of Major Napier was selected. *Ibid.*, pp. 31-32.
19. Another name submitted for consideration was that of 1st Lt. Fred I. Patrick, U.S. Army Air Corps, who was killed in a February 1934 airplane accident. Due to a misunderstanding of the

- last name "Patrick" by a War Department official, who presumed the field was to be named in honor of then living Major General Mason M. Patrick [First Chief of the Army Air Corps], the title was rejected and the discrepancy was never cleared up. *Ibid*, pp. 32-34.
20. *History of Air Education and Training Command, 1942-2002*, p. 13.
21. *Ibid*, p. 6.
22. *Ibid*, p. 13.
23. *Ibid*, p. 17.
24. Named after Chief of the USAAF, General Henry H. "Hap" Arnold, who devised the scheme, this 1941-1943 program, along with other training programs, that would produce more than 11,291 British combat pilots. Ironically, the most difficult problem faced with training the British pilots was communications due to the difference in colloquialism between the American instructors and their British students. *Ibid*, p. 11.
25. *Installment One: A History of Napier Field, Dothan Alabama*, p. 25.
26. *Ibid*, p. 17.
27. Sam Dille, *Napier Field Main Gate*, 1944, Napier Town Hall Historical Collection, Napier Field, AL.
28. The Napier Field runways were aligned North-South, Northeast-Southwest, Northwest-Southeast, and East-West. In 2018, only two of Napier Field's active runways remain at the Dothan Regional Airport: 14-32 (Northwest-Southeast) and 18-36 (North-South). Colonel D. Gullant, *US Army Corps of Engineer's Field Progress Report* (Mobile, AL: War Department, August 31, 1942).
29. *Installment One: A History of Napier Field, Dothan, Alabama*, p. 17.
30. The nose of each training squadron aircraft was painted a distinctive color for easy identification in flight. The 433rd SEFT Squadron's being the most distinctive with a "Hawk" painted on the nose of the squadron's P-40N *Warhawks*. Nicknamed "Gruffie" after the Napier Field mascot and adorned on the Napier Field regimental insignia, the "Hawk" design was similar to the well-known "Shark's Teeth" painted on the American Volunteer Group (nicknamed the *Flying Tigers*) P-40 *Tomahawk* IIB models in China. "United States Army Air Force 1941 to 1945: Napier Field Units," Napier Town Hall Historical Collection, Napier Field, AL.
31. *Ibid*.
32. *Ibid*; and "Dothan Regional Airport History and Information," August 16, 2018, <https://www.flydothan.com/history/>.
33. "P-40s at Napier Field, Alabama," August 10, 2018, <http://p40hawksnest.co.nf/Service/USAAF/Napier.html>.
34. The following month a British flying cadet became the first casualty at Napier Field, when he was killed on January 7, 1942, after his plane crashed into Lake Tholocco at what is today known as Fort Rucker, Alabama. 1st Lt. Vanderhorst B. Murray, Jr., Sgt. Elliott Bowden, Sgt. John R. Forbes, *Installment Two: A History of Napier Field, Dothan, Alabama* (Napier Field, Dothan, AL: U.S. Army Air Forces, n.d.), p. 47.
35. "Dothan Regional Airport History and Information."
36. "Napier Field History."
37. *Installment Two: A History of Napier Field, Dothan, Alabama*, p. 50.
38. "Napier Field History."
39. *Class 44-E*, (Napier Field, Dothan, AL: U.S. Army Air Forces, May 1944), n.p.
40. *Ibid*.
41. *Installment Two: A History of Napier Field, Dothan, Alabama*, p. 47.
42. *Ibid*.
43. Jeffery Ethell, *Mustang: Documentary History* (London: Janes, 1981), p. 45.
44. *Installment Two: A History of Napier Field, Dothan, Alabama*, 58; Many of the B-17 aircraft scenes used in the 1949 film *Twelve O'Clock High*, staring Gregory Peck, were filmed at, the temporarily inactive, Cairns Army Airfield (which was previously Ozark Auxiliary Airfield), today part of Fort Rucker, Alabama. The choice was based on the fact the asphalt runways more closely matched those of the United Kingdom, rather than nearby Eglin Air Force base which were made of crush coral. And fortuitously, being somewhat overgrown at the time of filming, Cairns proved ideal as post-war 'Archbury' for the film's bookends. Besides Ozark Auxiliary Field (Carins Army Airfield), additional airfields included: Wicksburg Auxiliary Field, renamed Minor Auxiliary Field (Knox Army Heliport), Dothan Municipal Airport (closed in 1966 and now a public park), Headland Auxiliary Field (today a farm field north of Opp, Alabama); Goldberg Auxiliary Field (Goldberg Army Stagefield), and Hyman Auxiliary Field (today a farm field near Columbia, Alabama). "Twelve O'Clock High, 1949," August 18, 2018, <https://www.movie-locations.com/movies/t/Twelve-O-Clock-High.php>.
45. Lieutenant Colonel Jose G. Vega Rivera, Mexican Air Force, *The Mexican Expeditionary Air Force in World War Two: The Organization, Training, and Operations of the 201st Squadron* (Maxwell Air Force Base, AL: Air University Press, 1997) 25.
46. "Captain Henry H. Condon II," 475th Fighter Group Historical Foundation, August 18, 2018, <https://475th.org/aces/henry-l-condon>.
47. "Richard J Drayton : World War II Casualty from Rhode Island," August 30, 2018, Honorstates.org, <http://www.honorstates.org/index.php?id=109533>.
48. "Eleanor 'Mickey' Brown from Victoria, Texas, Class 44-9," August 17, 2018, <https://waspfinalflight.blogspot.com/2012/03/wasp-eleanor-mickey-mclernon-brown-44-w.html>.
49. The Irish writer George Bernard Shaw once said: 'England and America are two countries divided by a common language' "What is the origin of the phrase 'two nations divided by a common language'?" English.StackExchange.com, August 17, 2018, <https://english.stackexchange.com/questions/74737/what-is-the-origin-of-the-phrase-two-nations-divided-by-a-common-language>.
50. *Ibid*, p. 31.
51. "Col J. L. Daniel Terminates Tour of Duty at Napier," *The Dothan Eagle*, June 29, 1944.
52. *Ibid*.
53. *Ibid*.
54. "Napier Field Will Hold 'Open House' Wednesday, August 1," The Dothan Eagle, June 25, 1945; and "Brigadier General C.B. Stewart," U.S. Air Force, August 19, 2018, <https://www.af.mil/About-Us/Biographies/Display/Article/105493/brigadier-general-cb-stewart/>.
55. "Brigadier General C.B. Stewart," U.S. Air Force, August 19, 2018.
56. *Ibid*.
57. Colonel Stewart would remain in the service and retired as a USAF Brigadier General in 1966, *Ibid*.
58. "Dothan Regional Airport History and Information."
59. *Ibid*.
60. *Ibid*.
61. *Ibid*.
62. "History of the United Nations," United Nations, August 21, 2018, <http://www.un.org/en/sections/history/history-united-nations/>.
63. *Ibid*.
64. "Eleanor 'Mickey' Brown from Victoria, Texas, Class 44-9."
65. "Advanced Graduate Flight Training," US Army Aviation Center of Excellence and Fort Rucker, August 21, 2018, <http://www.rucker.army.mil/newcomers/students/agft/>.
66. "Napier Field History."

Book Reviews

Beyond the Beach: The Allied War Against France. By Stephen Alan Bourque. Annapolis MD: Naval Institute Press, 2018. Photographs. Notes. Maps. Diagrams. Appendices. Pp. 352. \$34.95 ISBN: 978-1-61251-873-2

Study of the World War II bombing campaigns in Western Europe is a well-established field founded, even as the war ended, by the Air Force itself with the US Strategic Bombing Survey. Since then historians have explored it from a variety of perspectives. As the bombardment strategy—stretching back to Douhet, through AWPD/1 and /42—involved projected results of bombing on the industry, economy, and population of the enemy, these analyses have naturally focused on Germany. In contrast, Bourque found that most previous histories only episodically address the bombing of occupied France. Thus, it is not part of the body of commonly held and cited knowledge—the “narrative”—of the air war in the West. This book is intended to address that omission.

Bourque, Professor Emeritus at the US Army Command and General Staff College, holds a PhD from Georgia State University. He has methodically researched official USAAF and RAF records and previously untapped local archives to assemble a systematic analysis showing that occupied France was the center of an airpower war. Bombing in the country resulted in the deaths of far more civilians and destruction of property and cultural treasure than has previously been related. He details the pre-war industrial, transportation and communication infrastructure, economy, culture, and population of France to help the reader understand why it was such a magnet for bombers. Bourque quotes vivid eyewitness accounts of survivors. He is specific about historic buildings, art, neighborhoods and even whole villages that perished under the bombing. He notes that sorrow and regret at the losses of lives, homes and livelihoods temper French memories of the war.

The focus is on airpower throughout. Citing numerous secondary works and official records, the book notes that despite a declared policy of precision strikes on military targets only, World War II bombing strategy, tactics, and technology were insufficiently developed to avoid collateral damage to civilian areas. A case is painstakingly built that civilian areas were deliberately targeted in support of the D-Day landings to block enemy reinforcements from reaching the front. Bourque cites most of the major air war histories on the fierce debate within the Allied high command regarding such bombing, noting that although it finally was accepted as the price of victory, the strategic bomber force commanders did it under written protest.

The book is comprehensively footnoted, with a thorough bibliography. Carefully chosen photos of damaged or destroyed towns, rail centers, and bridges accompany the text. Detailed appendices of the sheer number of targets—factories, rail centers, and bridges—buttress Bourque’s addition to the narrative: with all factors weighed in, the

cumulative effects of Allied bombing, whether collateral damage or deliberate targeting, constituted an unprecedented war on an occupied, allied country. Bourque intends this volume to become a standard reference. It should be on the shelf of all scholars and readers who make a serious study of the impact of airpower in World War II.

Steven Agoratus, Hamilton NJ



Chasing the Demon: A Secret History of the Quest for the Sound Barrier and the Band of American Aces who Conquered It. By Dan Hampton. New York: William Morrow, 2018. Photographs. Glossary. Appendix. Notes. Bibliography. Index. Pp. xvi, 331. \$28.95 ISBN: 978-0-06-268872-9

The challenge of flying faster than the speed of sound (Mach 1) has inspired numerous books, articles, papers, and even Hollywood films. Hampton, an experienced fighter pilot who has written several books on air combat and one on Lindbergh’s historic flight, is the latest author to take on conquest of the mythical sound barrier (the “demon” of the title). So what distinguishes his account from those that preceded it?

Hampton strives to humanize what was primarily a scientific and engineering achievement by writing a popular history focused on five of the test pilots most involved in the quest. Chuck Yeager is the best known. The others are George Welch (who first became famous by shooting down four Japanese aircraft on December 7, 1941), Bob Hoover, Chalmers “Slick” Goodlin, and Ken Chilstrom. Despite the subtitle—perhaps added by the publisher—only two of these five were aces, and probably nothing revealed in the book has been classified since the 1950s. Chilstrom, who like Yeager has lived into his late nineties, was a primary source for the book. He shared many memories with Hampton; and his interviews give the book some insights, interesting facts, and colorful anecdotes not available before.

After presenting a brief history of flight, Hampton summarizes major US and European developments in aviation technology during the interwar years and introduces his five main characters by recounting events in their lives as they grew to adulthood. These chapters set the stage for their experiences during World War II. Even before war’s end, a cadre of exceptional fighter pilots had begun transitioning to become test pilots for new jet- and rocket-propelled aircraft, whether with the USAAF, NACA, or contractors such as Bell and North American. The relations among the pilots, engineers, managers, executives, and others involved in expanding the envelope beyond Mach 1 are the heart of the book.

Britain’s cancellation of the innovative jet-powered

Miles M.52 in early 1946 passed the baton for attempting supersonic flight to the Bell X-1. As this small but sturdy rocket-powered airplane would prove during the following year at remote Muroc Army Airfield in California's Mojave Desert, the mythical demon was not supersonic flight *per se*. It was maintaining control while flying transsonically (starting at about Mach 0.8), when a combination of highly compressed shock waves and subsonic airflow across various parts of an airframe could cause violent vibrations and freeze up flight controls. This seemingly demonic phenomenon caused the destruction of various propeller-driven fighters in high-speed dives as well as some German Me-262 jet fighters and the sleek de Havilland D.H.108 attempting a new speed record in September 1946 (not mentioned in the book). Because contemporary wind tunnels also could not deal with transonic shock waves, an experimental aircraft was the only way to gather critical aeronautical data—NACA's main objective with one of the X-1s. The AAF was more interested in quickly achieving and perfecting supersonic flight, so Chuck Yeager used a second faster X-1 to punch through the sound barrier—and then far beyond.

Hampton's account is highly readable. The book has a good collection of photos but would have been more educational if it had included illustrations of the aeronautical principles described. The story seems adequately researched, and due credit is given to more authoritative books by aviation historians such as Richard Hallion, Michael Gorn, and the late James Young. But, perhaps to satisfy readers who like conspiracies and alternative facts, his book enters the realm of historical fiction by lending credence to persistent, but unsubstantiated, rumors. Hampton follows in the footsteps of *Aces Wild*, a 1998 book by former test pilot Al Blackburn, in claiming that George Welch surreptitiously exceeded Mach 1 shortly before Yeager while diving supersonically in a brand new XP-86. Based on aeronautics, the existing historical record, and common sense, this theory has been thoroughly debunked by experts such as Hallion and Robert Kempel, a retired NASA flight test engineer who has delved deeply into the controversy—most recently with an 11-page technical critique of Hampton's book in August 2018.

As one form of evidence for the possibility of earlier supersonic flights, Hampton relies heavily on reports of sonic booms. He even credits Welch for a cracked window at "Pancho" Barnes' legendary Happy Bottoms Riding Club near Muroc. Sonic booms, however, are not necessarily proof of supersonic speeds. As described in *Quieting the Boom*, my NASA history of sonic boom research, it's long been known that aircraft doing certain maneuvers at high subsonic speeds can create "focus booms" louder than those generated by supersonic aircraft flying straight and level. It's therefore quite possible that Bell's Slick Goodlin did this in the spring of 1947 when making an 8-g pull-up from a Mach 0.82 dive in his X-1. And despite the impression perpetuated by Tom Wolfe's error-prone best-seller,

The Right Stuff, and the movie that followed, shock waves generated by Yeager's little 31-foot long X-1 on October 14, 1947—while flying at 43,000 feet no faster than Mach 1.06 for a mere 20 seconds—almost certainly did not reach the surface with enough strength to make a sonic boom. Soon, however, loud sonic booms would become widespread in the area, especially after Muroc became Edwards AFB in 1950.

Lawrence R. Benson, Retired USAF historian



Rocket Men: The Daring Odyssey of Apollo 8 and the Astronauts Who Made Man's First Journey to the Moon. By Robert Kurson. New York: Random House, 2018. Photographs. Diagrams. Notes. Sources. Index. Pp. 356. \$28.00 ISBN: 978-081298870-3 (Hardback), 978-081298872-7 (ebook)

To many Americans, the Apollo program can be summed up in a very few sound bites: "Houston, Tranquility Base here. The Eagle has landed"; "That's one small step for man, one giant leap for mankind"; and "Houston, we have a problem!" Nearly forgotten today is the audaciously daring mission of Apollo 8, which was only the second manned flight of an Apollo spacecraft, the first manned launch of a Saturn V launch vehicle, the first manned flight above low-Earth orbit, and the first manned flight to orbit the Moon. And the Apollo 8 mission—from conception to execution—was just four months in the making!

Robert Kurson, Harvard Law School attorney and author, has done a masterful job of communicating the urgent need for such a game-changing mission; the risks accepted to make it possible; and the tremendous effort necessary to pull off such an extraordinary leap forward from what was, until then, a careful, incremental stepwise building of lunar-landing capabilities. Into the story of the mission itself, Kurson has woven the stories of how and why we were even in a space race with the Soviet Union, and how Apollo 8 "saved 1968," a year of tremendous divisiveness and tragedy for our country. I remember 1968 myself, and it wasn't pretty.

Kurson's book starts with the launch of Apollo 8, but quickly reverts to a major decision by George Low, NASA's first Manager of the Apollo Spacecraft Program Office. Setbacks in the development of the Lunar Module would have delayed the planned earth-orbital Apollo 8 testing mission. Why not test a manned Saturn V launch and operate the Apollo Command and Service Modules in lunar orbit instead? Kurson describes the very swift, but difficult, decision process to obtain approval for the flight. He reverts again—this time to the history of the space race—to help us understand the mentality within NASA and the Johnson administration that allowed that decision to be made.

The description of the flight itself was hard for me to put down. Kurson captured what happened inside the capsule (devoting nearly a chapter to the launch—which, on a Saturn V, was incredibly violent) and on the ground, to include not just NASA, but also the astronauts' families. At times, I felt as if I was living the experience myself.

The most memorable moment of the Apollo 8 mission was the crew's Christmas Eve reading of the first 10 verses of the Book of Genesis at the end of a television transmission from lunar orbit. Kurson describes how that came about and its amazingly unifying affect around the world. The world, of course, felt that temporary unification again during the Apollo 11 mission seven months later, but the now-forgotten glow from Apollo 8 is well worth reflecting on.

This book is well balanced and comprehensive. Compared to other books on the subject (*Apollo 8: The Thrilling Story of the First Mission to the Moon*, by Jeffrey Kluger, 2017 and *Genesis: The Story of Apollo 8: The First Manned Mission to Another World*, by Robert Zimmerman, 1998), Kurson focuses more on the full team that made Apollo 8 a success than Kluger and covers a broader timeframe than Zimmerman. Kurson simply tells a more comprehensive Apollo 8 story. It is well worth reading, especially as we close in on the fiftieth anniversary of the flight.

Maj Gen John B. Handy, USAF (Ret), NASM Docent



Operation Linebacker II 1972: The B-52s are sent to Hanoi. By Marshall L. Michel III. Osprey Publishing, 2018. Photographs. Illustrations. Bibliography. Index. Pp. 96. \$20.00 (Paper). ISBN: PB 9781472827609

When recreating a military battle, the best historians present the thoughts and actions of men from both sides. Marshall Michel persevered for years to fulfill that level of writing about the massive 1972 bombing of North Vietnam by B-52s to end the Vietnam War. He flew F-4 escort for the bombers, a small slice of his 321 combat missions between 1970 and 1973. He first wrote about Linebacker II as a Harvard student in 1989 and pursued the topic on a fellowship at the National Air and Space Museum, which included a trip to Hanoi. His research led to *The Eleven Days of Christmas: America's Last Vietnam Battle*, published in 2001.

That book displeased him, as it relied too heavily on translations from government sources for the North Vietnamese view of the action. He wanted voices from participants, particularly North Vietnamese surface-to-air missile crewmen. At a 2017 airpower conference, Michel met two Vietnamese pilots who valued *Clashes: Air Combat Over North Vietnam 1965-72*, his first book. They helped him travel to Vietnam to meet North Vietnamese SA-2 missile crewmen and fighter pilots who had battled B-52s.

In Hanoi, Michel accessed "The Red Book" that taught "How to Shoot Down a B-52." The manual contained years of observations about bomber tactics accumulated by North Vietnamese air defense officers from the beginning of the war. Based on this insider information, Michel wrote this book which explains how tactical flexibility, or a lack thereof, determined successes and failures on both sides.

When the eleven days of bombing began, Americans planners were unaware of how much information the North Vietnamese had accumulated about B-52 tactics. Within the first four days of battle, while B-52s used compromised maneuvers, SA-2s destroyed twelve. Furthermore, leadership conflicts hampered American decision making. Mission planners at Strategic Air Command (SAC) headquarters in Omaha—who owned the bombers—were out of touch with crewmen half a world away. They made poor decisions that yielded even more of the tactical advantage to SA-2 missilemen.

Michel clearly explains the ploys and counter ploys used by both sides. By the eighth night, when the need for SA-2s far exceeded their replacement rate and B-52s were bombing at will using revised tactics, the North Vietnamese sought to resume peace talks.

The failure of SAC Headquarters to recognize the extent of the SAM threat is unforgivable. First, SAC planners chose to use high altitude bombing tactics that were deemed unsatisfactory as early as 1959. I flew in B-47s and B-52s from 1957 to 1963 and recall how crews practiced deliveries such as Short Look and Long Look to avoid SAMs before deciding that ground-hugging low-level flying was the safest tactic. Second, I suspect that the two hundred bombers plus escorts employed on the first night caused SAC planners to believe that the enormity of the force coupled with sophisticated electronic countermeasures and chaff made the B-52s indestructible. But too little worked as expected.

Prior to walking the reader through each night of Linebacker II, Michel describes the available weapons and their associated systems on both sides, strengths and weaknesses of leaders and plans, the political climate, and the objective of the campaign.

Thanks to the talent of illustrator Jim Laurier, *Operation Linebacker II 1972* has the outstanding graphics expected of Osprey publications. His double-page paintings of night operations made me reminisce and long for flying dangerous missions. Well-chosen photographs, many from Michel's collection, further enhance the text.

I spent half of Linebacker II as Special Operations liaison at U-Tapao and the other half monitoring daily briefings in Saigon. At U-Tapao, crewmen reflected a contained hesitancy. In Saigon, generals smiled with one openly gloating over bomb damage assessment photographs of the North. I believed that experience had given me a solid understanding of the campaign, but Michel's account significantly broadened my knowledge, particularly regarding the North Vietnamese mentality and initiative.

Stories such as *Operation Linebacker II 1972* renew my admiration for historians' abilities to recreate events from long ago. The summer issue of *Air Power History* contained a piece of history that perfectly closes the circle for Michel's work. In it, Darrel Whitcomb wrote about "Rescue Operations During Linebacker II," an account of helicopter missions that recovered thirty bomber and fighter crewmen. Both are must reads.

Lt Col Henry Zeybel, USAF (Ret)



Bossart: America's Forgotten Rocket Scientist. By Don P. Mitchell. San Bernardino CA: Mental Landscape, 2016. Illustrations. Footnotes. Acknowledgments. Index. Pp. viii, 200. \$10.57 Paperback ISBN: 978-0-9983-3050-2

Few scholars would contest that Wernher von Braun, a skillful rocket engineer in his own right, managed to promote and establish himself as the preeminent rocket scientist in American history. From historian Michael Neufeld's prizewinning biography to archivist-editor Irene Powell-Willhite's collection of several dozen speeches, von Braun continues to reign as the foremost U.S. rocket expert and top contender for the title "father of U.S. spaceflight," eclipsing even Robert Goddard. Despite von Braun's well-deserved reputation, it would be a distortion of history to neglect or deny the significant contributions of other brilliant rocket engineers.

Computer scientist Don Mitchell makes precisely that point in this book. The long-overdue biography of Karel "Charlie" Bossart, a Belgian aeronautical engineer who immigrated to the United States in April 1930, clearly broadens the pantheon of leading U.S. rocket designers. It places him squarely at the apex of intercontinental ballistic missile (ICBM) development by the U.S. Air Force from the immediate post-World War II period through the 1950s, and with Centaur upper-stage development into the 1960s. It cements Bossart's reputation as a cutting-edge innovator—an extraordinary visionary who designed a weapon for war but favored its use as a launch vehicle for peaceful exploration of outer space.

Upon his arrival in America, Bossart joined Sikorsky Aircraft and worked initially as a stress analyst on the team building the largest seaplane to date: the S-40 amphibious passenger liner. Mitchell provides a thoroughly comprehensible, highly technical description of how Bossart went about designing a strong, lightweight wing structure for that aircraft. With work on the S-40 complete, Bossart joined several different aircraft companies before taking a position as a stress analyst, in March 1937, with Fleetwings, a small company that produced some of the first stainless-steel airplanes and had mastered fabrication of a stainless skin no more than twice the thickness of a piece of paper. Within three months,

however, he accepted a better position—as chief research engineer in the aircraft division—at E.G. Budd, the company that had perfected techniques for welding stainless steel. At Budd, under contract with the Army Air Corps, he designed an experimental stainless-steel version of the P-36 wing.

During World War II, Bossart moved to Consolidated Vultee Aircraft (Convair), where he contributed to the XP-92 delta-wing, point-defense interceptor design before shifting to management of the Army Air Forces MX-774 experimental long-range rocket program in 1946. Applying the stainless-steel welding and fabrication techniques he had learned at Fleetwings and Budd, he designed what ultimately became the Atlas ICBM. In December 1958, that missile, carrying SCORE, the world's first communications satellite, would go into Earth orbit. In the 1960s, the Atlas would send John Glenn and other Mercury astronauts into orbit.

Mitchell has delivered a thoroughly researched, thoughtfully written account of an amazingly insightful rocket pioneer. Melding personal recollections from Bossart's family members with technical explanations from corporate reports, scholarly histories, and assorted other source material, Mitchell presents the richness of one man's life and times in nearly seamless combination with his path-breaking aerospace engineering accomplishments. He manages to control techno-babble in ways that contribute to understanding Bossart's historical importance, both in his own right and compared to von Braun. Mitchell's *Bossart: America's Forgotten Rocket Scientist* is a well-crafted book that deserves more than a single cover-to-cover read.

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



EMB-312 Tucano: Brazil's Turboprop Success Story. By João Paulo Zeitoun Moralez. Houston TX: Harpia Publishing, 2017. Maps. Tables. Illustrations. Photographs. Appendices. Glossary. Index. Pp. 253. \$64.95 ISBN: 978-0-9973092-3-2 and **EMB-314 Super Tucano: Brazil's Turboprop Success Story Continues.** By João Paulo Zeitoun Moralez. Houston TX: Harpia Publishing, 2018. Illustrations. Photographs. Appendices. Glossary. Pp. 94. \$29.95 paperback ISBN: 978-0-9973092-4-9

Moralez is a Brazilian reporter and documentary producer who is currently the Chief Editor at Hunter Press in São Paulo, Brazil. In these two volumes, he has put together an excellent story of not only a great airplane, but also the company behind its success.

The first, and by far the larger, of the two books covers the rationale that led to creating what would become the EMB-12 Tucano, the aircraft's development, and it oper-

ational life. Equally important is the story behind the creation and growth of Embraer, Brazil's leading aerospace company and the third largest builder of commercial aircraft in the world behind Boeing and Airbus. Embraer and Bombardier have pretty much sewn up the small and regional airliner market around the world. That story, in itself, would make for another very interesting book.

Tucano is the product of a Brazilian Air Force need for a trainer. It had been flying older Embraer designs and Cessna T-37s. But, in the early 1970s, the Cessnas were difficult to support; and, in the aftermath of the oil crises, they were expensive to operate by a government that was having economic difficulties. What was needed was a trainer that could provide the experience of flying higher-performance combat aircraft but do so with far greater economy. The Air Force turned to the country's indigenous manufacturer to develop an aircraft unlike anything they had experience with. As with most aircraft designs, this one experienced new and modified requirements as the work progressed. What finally emerged was a turboprop-powered trainer and light attack aircraft that made its first unofficial flight on August 16, 1980. Test flying resulted in the usual changes to the aircraft, but the machine was ready for its international debut at the Paris Air Show in 1981.

Moralez details the introduction of the aircraft to the air force's demonstration unit, the Smoke Squadron. It then went into service with the Air Force Academy as a trainer and saw operational service primarily in the northwestern part of the country countering drug interdiction and raids from across the border with Columbia.

Tucano became Embraer's first major international success with eventual sales to 15 other countries including France, the UK, Egypt, Iran, and Iraq. The UK deal involved partnering with Short Brothers in Belfast. To meet RAF requirements, a considerable number of major and minor changes were made to the plane. The aircraft was also a competitor (teamed with Northrop) for the USAF's JPATS program in the 1990s that resulted in the T-6 Texan II (Beech teamed with the Swiss Pilatus PC-9). Between Embraer, Shorts, and license production in Egypt, 640 aircraft were eventually built.

Competition, primarily from the PC-9, drove redesign. As with any aircraft that is going to remain competitive and able to handle new requirements, Tucano needed to be upgraded. The result is covered in the second of Moralez's books. The EMB-314 Super Tucano kind of looks like the EMB-312, but it really is an entirely new aircraft: higher-power engine, modern avionics and weapon systems, new structure for greater g loads, beefier landing gear, even-better visibility, and more armor; and it comes in either a single- or dual-seat configuration. The plane can serve in a number of diverse roles: advanced or fighter lead-in trainer, attack, escort, air defense, close air support, or ISR. It serves in nearly a dozen countries, including Afghanistan after

winning the USAF Light Air Support competition over the T-6 II. Embraer took an older design and ended up producing another winner.

Both books share a number of features. Harpia produces only top-quality publications. They use gloss paper, and the photographs are clear and hi-res. The appendices are first-rate. Every EMB-12 airframe is listed in one including current status. Detailed specifications and system descriptions are included in each book. All of the operational units throughout the world are shown along with their badges. In the text, each of the using countries' operations are well described, thus giving readers a sense of the versatility of the Tucano's design. I've read a number of books written in a foreign language and then translated. Many are hard to follow with difficult grammar and spelling. With the exception of a few spelling errors, Moralez and Harpia have put out two easy-to-read books. Finally, the illustrations are all first-class and will be particularly appreciated by modelers.

The bottom line is that for anyone interested in this remarkable aircraft produced by a latecomer to the aeronautical engineering world stage, these two books are the only reference sources you need on your bookshelf.

Col Scott A. Willey, USAF (Ret), Book Review Editor, and Docent, NASM's Udvar-Hazy Center



The Habsburgs' Wings 1914: From the Balkans and the Adriatic to Galicia — Austro-Hungarian Aviation in The First Campaigns of the Great War, vol. 1. By Andrzej Olejko. Lublin, Poland: Kagero, 2018. Tables. Illustrations. Photographs. Notes. Pp. 154. 24 Euros. ISBN: 978-83-65437-79-2

Very rarely are serious historical aviation studies translated from eastern European languages (in this case, Polish) to English. Here in the west, students of early World War I aviation on the Eastern Front will benefit from the exceptional research conducted by Andrzej Artur Olejko. A prolific author and producer of historic radio and television series, Olejko rightly points out that compared to the Western Front, much less is available on the Eastern Front (especially in English).

Olejko's attention to detail is almost overwhelming, making this work a challenging read. It probably is best used as a reference guide for a number of important topics. In fact, the title is somewhat misleading, as a significant portion is devoted to the events leading up to the beginning of the Great War. One shortcoming with the book is the unfortunate absence of any maps. These would be of great use for those of us far less familiar with the geography of eastern Europe. A map clearly defining the Austro-Hungarian Empire's borders and its subordinate states would have been most helpful.

Besides the geopolitical developments including the First and Second Balkan Wars, Olejko's extensive research reveals the state of aviation in the Empire before the Great War. For example, one table details the disposition of balloon units associated with various fortresses, while another outlines the aviation order of battle before the outbreak of hostilities. Also included are tables listing the Empire's pilots (both heavier- and lighter-than-air) on the eve of the conflict. In addition, another table includes details concerning the commander, mobilization date, type of aircraft, and flying personnel for each of 15 flying units.

Both German and Russian aviation also receive attention as does that of the French in terms of imported aircraft. Maritime aviation in the Adriatic also is covered.

The book's apparently brief length is somewhat misleading as perhaps its greatest strength can be found in the very extensive end notes. Not only does this additional commentary add depth to the discussion, but also the end notes reflect the multitude of sources used, both primary and secondary. Examples include the mining of various archives and excerpts from personal journals. Finally, the extensive illustrations and photographs nicely complement the text.

Students of the air war on the Eastern Front in World War I will find this work very much worth the price. World War I generalists should consider it a useful reference.

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



Charles Sweeny, the Man Who Inspired Hemingway. By Charley Roberts and Charles P. Hess. Jefferson NC: McFarland & Company, 2017. Photographs. Illustrations. Notes. Bibliography. Index. Pp. 279. \$35.00 ISBN: 978-1-4766-6994-6

Charles Michael Sweeny met, and established a friendship with, Ernest Hemingway in war-torn Turkey in the fall of 1922. Both were there to report on the Greco-Turkish War: Hemingway as a yet-to-be novelist employed by the *Toronto Star*; while Sweeny, not truly a reporter, reported for the French government. "Sweeny was the war hero that Hemingway longed to be, while Hemingway was [to become] the acclaimed writer that Sweeny would have liked to be," claimed one who knew both. The friendship flourished until Hemingway's 1961 death.

In those 39 years of friendship, was Charles Sweeny the man who inspired Hemingway? Perhaps. Both served in the Great War: Hemingway as a 19-year-old ambulance driver on the Italian front, and Sweeny as an officer in the French Foreign Legion and the American Expeditionary Forces in 1917. Hemingway was wounded in the leg, and Sweeny took a bullet through the lung that required

extensive surgery and weeks to recuperate. Until Hemingway's death, the two remained in contact through letters and visits. Yes, Hemingway the novelist may have modeled certain fictional characters after known persons. But this hardly means Sweeny, an impressive soldier of fortune, *inspired* Hemingway, an iconic novelist and short story writer.

Sweeny was born in 1882, and entered West Point in June 1900, only to be ousted in 1901, for excessive demerits. The influence of his congressman got Sweeny readmitted the next year, but halfway through the 1903-04 school year, he resigned and was free to embark on his life as a soldier of fortune.

Heading south across the border, young Sweeny—an excellent model for the fictional James Bond—had no difficulty in finding a conflict where he could practice his chosen profession. Barely surviving revolutions in Mexico, Venezuela, and Nicaragua, he enlisted in the French Foreign Legion. In 1914, at the start of the Great War, he became an officer and the first American to earn France's highest medal for valor. Unlike many who saw the Great War as "a war to end all wars," it appeared to have only fueled Sweeny's passion for war. He became a Polish brigadier general in their 1919-1920 conflict with the Soviet Union. This was followed by his involvement in the Greco-Turkish war—where he met Hemingway—and later became a military advisor to Ataturk, president of Turkey.

Sweeny was a colonel in the U.S. Army Air Forces in World War II, an honorary Group Commander in the Royal Air Force (RAF), and organized the recruiting of volunteer fighter pilots for Britain, France, and Finland. He was credited with having led the effort to create three RAF squadrons of American volunteers—the famed Eagle Squadrons.

In his twilight years, Colonel Sweeny railed against President Roosevelt and several of our World War II military leaders. His attempt to write a book as to how the war should have been fought and future wars could be avoided failed, though he did produce a pamphlet echoing his views.

The book is well-organized but has a number of avoidable factual errors. Colonel Sweeny was given credit as having founded the RAF Eagle Squadrons, but it was really a nephew—also Charles Sweeny—who was the real founder. However, Colonel Sweeny, the uncle, did much of the recruiting of pilots and was made the honorary commander of the Eagles. Also, the Eagle Squadrons did not fight in the Battle of Britain but entered the conflict later.

Two books listed in the extensive bibliography deal with the RAF Eagle Squadrons: *Eagles of the RAF* by Philip Caine (1992) and *The Eagles Roar* by Byron Kennerly (1941), a memoir of his service with an Eagle Squadron. Kennerly's book has long since been exposed as a fabrication. He flew no combat with the *Eagles* and was

literally run out of Britain for uncivilized behavior. In spite of this, the book was a success and was the basis for *International Squadron*, a movie starring Ronald Reagan.

This is an excellent biography of a very interesting personality. But coupling Sweeny and Hemingway appears to be more of a marketing device. Just having Hemingway on the cover is certain to increase sales. If Hemingway had been ignored, it would in no way have lessened the quality of the biography of Sweeny.

Robert Huddleston, Chapel Hill NC, combat pilot in World War II



The Psychological War for Vietnam, 1960-1968. By Mervyn Edwin Roberts III. Lawrence KS: the University Press of Kansas, 2018. Endnotes, Bibliography, Maps, Photographs, Index. Pg. xiii, 411. \$39.95. ISBN:978-0-7006-2583-3

Mervyn Roberts demonstrates a sophisticated and informed understanding of psychological operations (PSYOP) both in general, and especially during the Vietnam War. His well-written book is interesting on several levels because it addresses PSYOP during the Cold War and in the advisor years and the overwhelmingly American phase of the war in Vietnam. As important, Roberts addresses the use of PSYOP by the North and its surrogate in the South.

The book opens with the how, why, and what of PSYOP and its history in the American military and civilian agencies such as the CIA and US Information Agency. Paralleling this is a contrasting discussion of the Vietnamese communist party's highly effective use of propaganda to undermine competing organizations during Ho's rise to power; rally non-communists to the National Liberation Front; and, at the strategic level, influence international opinion.

The central theme of PSYOP is to modify the target audience's behavior while dissuading them from supporting the opposing side. A secondary goal is to win the hearts and minds of the people. Thus, the center of gravity in an insurgency lies with the loyalties and views of the peasantry. One can wonder whether it was possible, after the United States had dramatically raised the level of violence and spread the unsettling impact of the war to literally every hamlet, if the message and value of PSYOP in practical terms was marginalized. Was there an intrinsic dichotomy between, on one hand, free-fire zones and search and destroy operations, and the message that the U.S. was there to protect and assist the peasants? Roberts takes a sophisticated approach to answering those questions while, in the greater context, addressing, both in practical terms and philosophically, the purpose, methods, and goals of PSYOP. He also makes important points about the na-

ture of operations. An uninformed reader may think that PSYOP uses a shotgun blast approach to spreading the message. Instead, Roberts describes how PSYOP determines objectives, carefully analyses intelligence of the target audiences, and then tailors the message for maximum effectiveness in modifying behavior.

Robert makes a very important argument about the ultimate importance of the public relations aspect of PSYOP. When the Johnson Administration lost credibility with the American public, it was almost impossible to regain it, thus contributing to increasing domestic opposition to the war. Roberts couples this with his assessment that North Vietnam aggressively targeted the anti-war movement with negative images of the American war. Another success was Viet Cong penetration of the American press corps with several moles, funneling disinformation throughout the war to the American media. North Vietnam pursued three objectives during the course of the war: alienate the South Vietnamese people from the government; influence international opinion against South Vietnam and against American involvement in the war; and, finally, promote antiwar sentiment within the United States. These PSYOP objectives ultimately had an important impact at the strategic level of the war when the United States made serious errors in judgement, beginning with its support of a coup against President Diem, based on misinformation. This, of course, had long term consequences, leading to the Americanization of the war.

This informative book is not of the "I was there" genre. Instead it possesses a depth of knowledge beyond the operational and tactical levels of application and is philosophical and intellectual in its understanding of how propaganda affects decision making. Roberts draws a valuable summary of lessons learned in his analysis of American and Vietnamese PSYOP efforts in Vietnam. Most important, the US Army acquired hard-learned lessons in that war, resulting in a more professional and formalized structure for future PSYOP.

John Cirafici, Col, USAF (Ret), Milford DE



Accessory To War: The Unspoken Alliance Between Astrophysics and the Military. By Neil DeGrasse Tyson and Avis Lang. New York: W.W. Norton & Co, 2018. Notes. Selected Sources. Index. Pp. xiv, 576. \$30. ISBN: 978-0-393-06444-5

Neil Tyson, the well-known director of New York's Hayden Planetarium, also has his own TV show, "Neil De Grasse Tyson Explains Everything." In this book, he and Avis Lang (a research associate at the Hayden Planetarium) take on US space and defense policies over the past 70 years. In the interest of full disclosure, I should note that my 26-year Air Force career was actually a manifes-

tation of the relationship reflected in the book's title—educated by the Air Force as an astrophysicist, I often did astronomically related things as a "space weatherman" and space-system user.

Although the title leads one to think this will be straightforward account of the relationship between the scientific discipline of astrophysics and military efforts, it is not. The authors range much further afield. As a result, the book is really three threads closely intertwined.

One thread relates the long relationship between astrophysics (and astronomy) and the military, dating back to astronomical devices used in medieval times by armies and navies, and Galileo's telescopes. This part of the book is very informative, especially to a reader new to the subject. Also covered are more recent interactions such as the development of charge coupled devices used both for astronomy and military sensors. Surprisingly, the authors omit the influence of G. E. Hale, a founder of modern astrophysics, in marshaling science for the US effort in World War I—a story at the heart of the book's theme. I also was surprised at the lack of coverage of the Air Force's role in the nation's space-weather efforts; space weather (understanding the sun-to-earth region in space) is really a form of applied astrophysics and is, therefore, of direct import to the book's stated theme.

The second thread of the work is really a history of the space age and the US role in it. It is a stretch to call this astrophysics. For example, the development of rockets is certainly physics and engineering, but not astrophysics as usually defined. Astrodynamics is also a field usually separate from astrophysics, as indicated in any major university's catalog. In this regard, perhaps the subtitle should be the "unspoken alliance between all space stuff and the military."

The third thread of the work is the most problematic and tendentious. Basically, Tyson and Lang engage in a polemic against war in general, and US defense (including military space policies) in particular. Their position is very clear. They discuss along the way pretty much every US conflict after World War II, venturing generally negative judgment on all. For example, leaders—on both sides of the Iron Curtain, to be fair to the account—are psychotic for developing nuclear stockpiles. Curtis Lemay is described as merciless (and I would assume psychotic as well) according to the authors. As claimed in the text, strong US defense is pursued apparently only for some combination of the profit-motive, ill will, or ignorance. Often repeated is how much the US spends and has spent on defense, with no context of total federal expenditures. For example, President Eisenhower's farewell speech warning of the "military-industrial complex" is referred to approvingly, but without indicating that when Ike said those words, the defense budget was over 50% of federal expenditures. Similarly, Tyson and Lang bemoan the current \$700 billion US budget for defense (a lot of money, for sure), without commenting that this is out of a budget of over \$4 trillion. Most of the difference is for

social spending. Without question, a society's priorities are reflected in its budgets. As one might guess, the desire for the US military today to pursue policies that would provide "space dominance" does not sit well at all with the authors, and they use words like combative, aggressive, and offensive-oriented to describe these US space policies. In any event, all these issues have been debated thoroughly in other venues; they are much more complex than Tyson and Lang describe.

The book has over 400 pages of text and 120 pages of footnotes; one can learn much from reading it. It is best when discussing science and history of science, with only small inaccuracies here and there. Overall, the book would have been stronger and more interesting without the third thread—digressions into opinions and subjects only tangentially related to the central story of astrophysics and the military. The history of the interaction between science and military affairs is long standing and fascinating in and of itself.

Lt Col Joe Bassi, USAF (Ret), PhD, Lompoc CA



Operation Chaos: The Vietnam Deserters who fought the CIA, the Brainwashers, and Themselves. By Matthew Sweet. New York NY: Henry Holt and Company, 2018. Photographs. Endnotes. Index. Pg. xvi, 365. \$30.00. ISBN: 978-162779463-3

This country is in the process of looking back, on the fiftieth anniversary of the Vietnam War's most tumultuous year, to that incredible time in America's history. Consequently, there are books being published on any number of subjects related to that era; *Operation Chaos* is one of them.

The book's title suggests that it is an account of Operation Chaos, the CIA's illegal program primarily directed at domestic opposition groups within the United States. Actually, it's not exactly that. Instead, as the subtitle indicates, it is, to a larger degree, about some of the 1,000 or so US military deserters and draft resisters residing for the most part in Sweden who were targeted by the same program. Their story, however, is in its own right, an interesting one that sheds light on the personalities and motives of those deserters and draft evaders who ended up in a neutral, non-NATO country opposed to the Vietnam War. It is a story of how their lives were driven by forces that were often outside their control and by groups that exploited, rather than helped, the expatriates.

This story is often beyond the imagination of even fiction writers. It is the incredibly unpredictable and wild journey of many Vietnam War deserters who often fell victim to paranoia, drugs, conspiracy theories, cultism, and social isolation, and, in particular, about those who sought expression through extreme and often irrational beliefs. It is also, to a lesser degree, about deserters who wished to

establish new personae through education and family life.

Was there a legitimate basis for paranoia? When President Nixon had consolidated domestic surveillance under Operation Chaos, the CIA employed informants and electronic and physical surveillance of antiwar activities, including those overseas, and especially targeted deserters and draft resisters. Perhaps the focus on them began when US Navy deserters were smuggled by the KGB out of Japan to the Soviet Union, where they were celebrated for several weeks before continuing on to Sweden. Or it could have been when the leadership of the American Deserters Committee in Sweden became active proponents for the recruitment of soldiers in Germany to fight the U.S. Army from within.

There are many almost unbelievable vignettes in this book about intrigue, manipulation, out-of-control behavior, and, yes, chaos. Interestingly, some of those same players remain to this day prominent in extremist political activities. Many others have disappeared behind new identities and lives.

The book is very interesting if the reader can withhold judgement to the end. My appreciation for this aspect of an important era in American history grew as a consequence of reading this book. However, I was disappointed by the book's focus on attention-grabbing personalities and much less on the greater number who, with President Carter's 1977 pardon of draft evaders and the military's parallel policy of leniency for deserters, melted back into American society.

John Cirafici, Col, USAF (Ret), Milford DE



Harold Brown: Offsetting the Soviet Military Challenge, 1977-1981. By Howard C. Keefer. Washington DC: Historical Office, Office of the Secretary of Defense, 2017. Maps. Tables. Diagrams. Photographs. Notes. Glossary. Bibliography. Index. Pp. xix, 815. \$89.95 (free pdf download from the internet) ISBN: 978-016093755-2

The book is part of an official history series covering the office of Secretary of Defense (SecDef) from its inception. The volumes are written chronologically and are arranged not around specific SecDefs but, rather, periods of time corresponding to significant changes in the world situation or administration initiatives (e.g., Eisenhower's New Look). Howard Keefer is a long-standing government historian whose knowledge and understanding of governmental processes, especially the budget, help make sense of what can be daunting material.

Harold Brown served as Secretary of Defense for all four years of the Carter administration dealing with issues ranging from the post-Vietnam drawdown, all volunteer force, nuclear disarmament talks, a resurgent and increasingly belligerent Soviet Union, and the Iranian

hostage crisis. A nuclear scientist and experienced government official (he ran the Livermore Labs and served in the McNamara Defense Department), he accepted the job because he believed in Carter and felt he could have an impact in a critical role in the new administration.

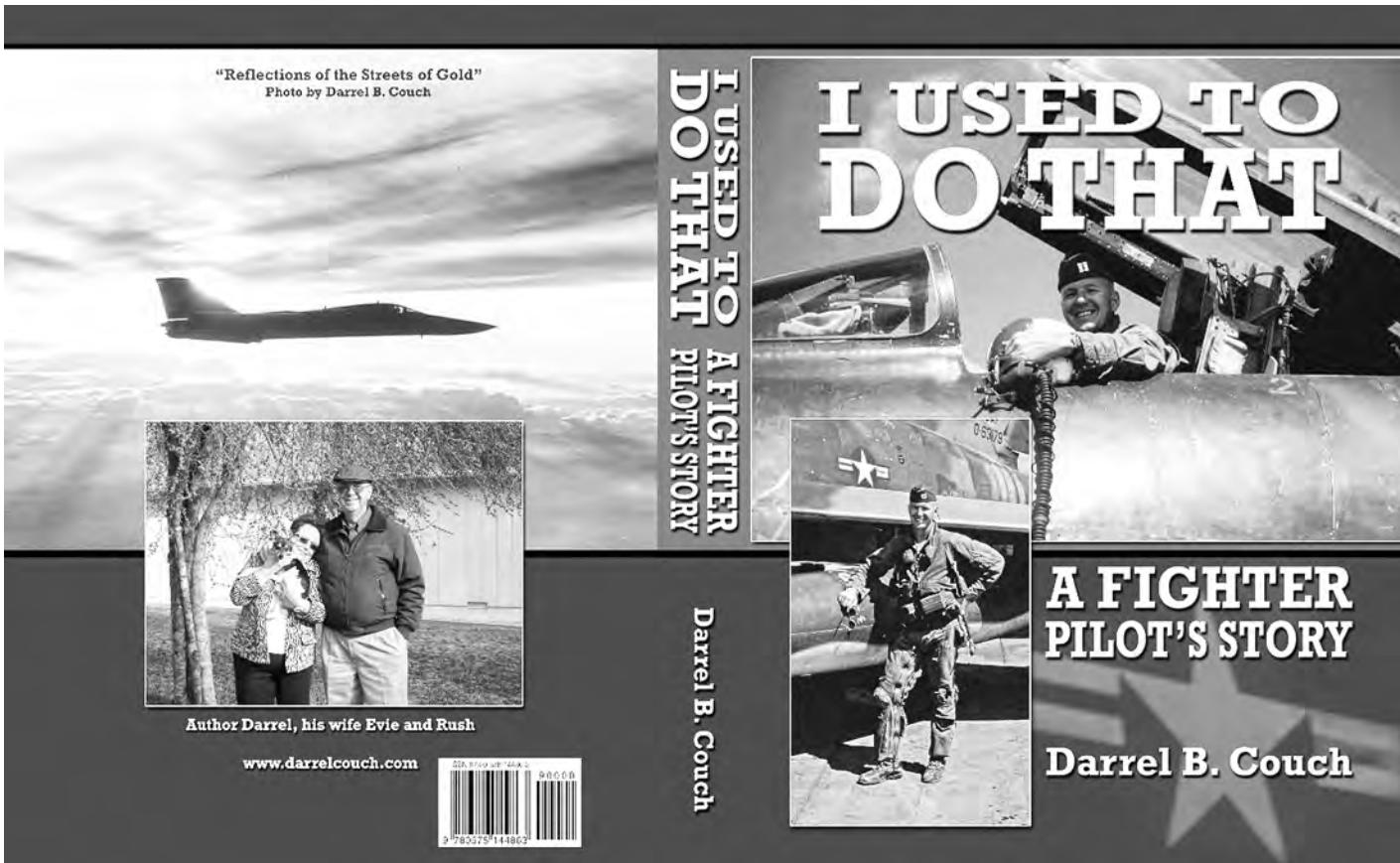
Brown worked hard and accomplished a great deal but is generally relegated to the ranks of indifferent or ineffective SecDefs because of his service for a President perceived as soft on defense and who failed in his greatest foreign policy and military challenge—bringing the hostages home. Keefer argues this is an unfair characterization and shows that Brown, far from being ineffective, actually led a revitalization of the U.S. military and laid the groundwork for the Reagan buildup. His key theme is the fact that the groundwork for the Reagan military buildup actually began under Carter and Brown. He effectively demonstrates that many of the Reagan-era programs used to defeat the Soviet buildup of the late 1970s and early 1980s (e.g., intermediate range nuclear missiles, cruise missiles, stealth) were started and nurtured under the supposedly soft Carter administration. This is not to say it was easy or uniformly successful (cancellation of the B-1 is one high profile example), but the fact remains that when Reagan took office, many of the tools he needed were already in development or in place. Brown deserves significant credit for making that happen.

The book is arranged by subject rather than chronology, but the writing is clear, and the time shifts as the book moves from subject to subject are easy to follow. Its strongest elements are the budget and weapons acquisition discussions and portrayal of Brown as a leader. The clear budget and acquisition discussions are detailed but, in the end, provide excellent explanations of the overall processes and Brown's role. Discussions of Brown's leadership show him as quiet and unassuming. He was detail-oriented while being consistent, persistent, and, at times, stubborn when he felt strongly about a topic. Keefer is a bit more superficial in other areas, particularly the section on the revolution in military affairs heralded by stealth and the systems-of-systems approach using technology such as JSTARS to network intelligence and the battlefield.

Overall the book delivers a balanced and thoughtful assessment of Secretary Brown. It is well researched and has easy narrative style. Keefer makes a convincing case for Brown as an effective SecDef who waged a quiet but consistent campaign within the Carter administration to strengthen the military while supporting the President. This book corrects a misperception on this subject many may still harbor.

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





My self published book is not currently available at my website.
For a signed copy, call me or e-mail me at d-couch@sbcglobal.net.

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Coming Up



Compiled by
George W. Cully

January 3-6, 2019

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

February 27-March 1, 2019

The **Air Force Association** will host its 2019 Air Warfare Symposium in Orlando, Florida. For more information, see their website at <https://www.afa.org/events/calendar>.

March 19-21, 2019

The **American Astronautical Society** will host its annual Robert H. Goddard Memorial Symposium in Greenbelt, Maryland. For gathering details, see the Society's website at <http://astronautical.org/events/goddard/>.

March 28-29, 2019

The **University of Alabama in Huntsville (UAH)** and **NASA's Marshall Space Flight Center** will co-host a symposium to honor the 50th anniversary of the Apollo Lunar Exploration Program and the Alabama Statehood Bicentennial. This event will take place on the UAH campus in Huntsville, Alabama. For more information, see the Marshall Space Flight Center's website at www.nasa.gov/centers/marshall/history/nasa-in-the-south-symposium.html.

April 3-6, 2019

The **Council on America's Military Past** will present its 53rd annual Military History Conference in Tucson, Arizona. For more information as it becomes available, see the Council's website at <http://campjamp.org/upcoming-2019-conference>.

April 4-9, 2019

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

April 8-11, 2019

The **Space Foundation** will present its 35th annual Space Symposium at the Broadmoor Hotel in Colorado Springs, Colorado. For registration, see their website at <https://www.spacesymposium.org/>.

April 14-16, 2019

The **Army Aviation Association of America** will present its annual Mission Solutions Summit at the Gaylord Opryland Hotel and Convention Center in Nashville, Tennessee. For registration and other information, see the Association's website at <https://www.quad-a.org/>.

April 25-26, 2019

The **Society for History in the Federal Government** will hold its annual meeting at the National Archives Building in Washington, DC. For further information, see the Society's website at <http://shfg.wildapricot.org/Annual-Meeting>.

April 29-May 2, 2019

The **Association for Unmanned Vehicle Systems International** will hold Xponential 2019, its annual symposium and exhibition, at the McCormick Place Exhibition Center in Chicago, Illinois. For more information, see their website at <https://www.xponential.org/xponential2019/Public/Enter.aspx>.

May 13-16, 2019

The **Vertical Flight Society** will hold its 75th annual Forum and Technology Display in Philadelphia, Pennsylvania. This year's theme will be "The Future of Vertical Flight." For more details, see the Society's website at <https://vtol.org/annual-forum/forum-75>.

May 9-12, 2019

The **Society for Military History** will hold its 86th annual meeting on the campus of the University of Ohio in Columbus, Ohio. This year's theme will be "Soldiers and Civilians in the Cauldron of War." For more details, see the Society's website at <http://www.smh-hq.org/smh2019/index.html>.

June 17-21, 2019

The **American Institute for Aeronautics and Astronautics** will host Aviation 2019, its annual premier aviation and

aeronautics forum and exhibition, at the Hotel Anatole in Dallas, Texas. For registration and other information, see their website at <https://aviation.aiaa.org/>.

July 22-27, 2019

The **International Committee for the History of Technology** will hold its annual meeting in Katowice, Poland. This year's theme will be "Technology and Power." For registration and additional details, see the Committee's website at <http://www.icohtec.org/w-annual-meeting/katowice-2019/call-for-papers/>.

July 23-27, 2019

The **History of Science Society** will hold its annual meeting in Utrecht, the Netherlands. For details as they become available, see the Society's website at <https://hssonline.org/>.

September 14-19, 2019

The **Air Force Association** will hold its annual National Convention and its annual Air Space and Cyber Conference at the Gaylord National Hotel in National Harbor, Maryland. For details, see the Association's website at <https://www.afa.org/events/calendar>.

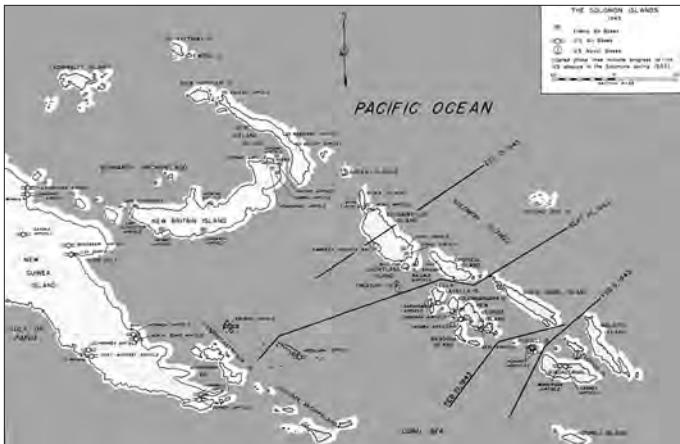
October 28-30, 2019

The **Association of Old Crows** will hold its annual convention at the Renaissance Downtown Washington DC hotel and convention center in Washington, DC. For more details, see their website at www.crows.org/page/annalsymposium.

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

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

History Mystery Answer



On April 14, 1943, U.S. Navy Code breakers intercepted Japanese Naval message traffic that detailed Admiral Isoroku Yamamoto's itinerary for his inspection tour. With the approval of the president and the secretary of the navy, on April 17, 1943, Admiral Nimitz gave the go ahead to ambush Admiral Yamamoto as he flew to Balalea Island, near Bougainville. The mission was called *Operation Vengeance*. Flying over 400 miles at wave-top level via a circuitous route to avoid detection, pilots from the 12th, 70th, and 339th Fighter Squadrons flew sixteen (two aborted) P-38G Lightnings (the only aircraft with sufficient range) equipped with external fuel tanks, to ambush the admiral. Aware of Admiral Yamamoto's punctuality, Major John Mitchell, the leader of Operation Vengeance's estimated that at 0935 the admiral's flight would be just ten minutes/thirty-five miles from his destination near Bougainville. This would be the intercept point. Maj Mitchell dedicated four P-38s to serve as a "killer" flight dedicated to shooting down the admiral's plane. The rest of the P-38s would engage the fighter escorts. True to his strict punctual nature, Admiral Yamamoto's flight of two Betty Bombers with six Mitsubishi A6M Zeroes as escort was exactly on time, 0935, April 18, 1943. The P-38's engaged the Japanese, Admiral Yamamoto's Betty bomber was engaged and shot down. Admiral Yamamoto died as a result of two 50 caliber bullet wounds.

To learn more about,

The P-38 Lightning:

<https://www.nationalmuseum.af.mil/Visit/Museum-Exhibits/Fact-Sheets/Display/Article/196280/lockheed-p-38l-lightning/>

US Code Breaking During World War II:

Piercing the Fog, John F. Kries, ed.

<https://media.defense.gov/2010/Dec/03/2001329910/-1-1/0/AFD-101203-023.pdf>

Operation Vengeance (pg 213-14) and the Airwar in the Pacific:

Volume Four: The Pacific: Guadalcanal To Saipan August 1942 To July 1944, The Army Air Forces in World War II, Wesley Craven and James Cate, Editors.,

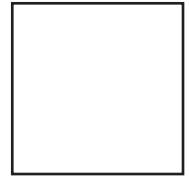
<https://media.defense.gov/2010/Nov/05/2001329889/-1-1/0/AFD-101105-010.pdf>



In April 1942, American signal intelligence intercepted and decrypted a Japanese naval message that listed the detailed travel schedule of this Japanese Admiral. This Japanese Admiral led the attack on Pearl Harbor. Rapidly acting on the intelligence, the U.S. Pacific Forces planned an ambush for the admiral as he flew from Rabaul to the Kahili area in the Solomon Islands. In this multi-part question, name the admiral, name the operation, and finally name the aircraft used for the mission.



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