

AIR POWER

History

FALL 2014 - Volume 61, Number 3
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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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The first featured article in this Fall 2014 [Vol. 61, No. 3] issue of *Air Power History* deals with the search for Brig. Gen. Kenneth N. Walker, who went missing while on a mission to bomb Rabaul, New Britain, during World War II. The author, Richard Dunn, recounts the history of the mission and subsequent search for General Walker. Although Dunn mentions new insights and a strong possibility of closing this case, he notes a lack of “usefulness” as well as costs in not pursuing it.

Many people are unaware of the fact that drone technology—such as, the Kettering Bug—were first demonstrated during World War I. However, the effort was not taken seriously again until the 1960s, despite the doubts expressed by some fighter aircraft commanders, “When the Air Staff assigns eighteen-inch pilots to this command [TAC], I’ll consider the issue.” Cargill Hall’s article tells of their use during the Cold War.

The third article, “Team Sport, Combat Search and Rescue over Serbia, 1999,” co-authored by Darrel Whitcomb and Forrest Marion, tells an exciting rescue story that took place some fifteen years ago.

In the fourth featured article, Phillip Meilinger details the problem SAC had in penetrating the Soviet Union in the 1950s. CINCSAC General LeMay, although he harbored serious misgivings, chose forward basing and in-flight refueling to solve the problem. Still, he was convinced these would work. Fortunately, we never had to find out.

There are more than twenty book reviews in this issue; most deal with new books. The departments section, includes “Letters to the Editor,” “Upcoming Symposia,” “Reunions,” “News” items and Bob Dorr’s “History Mystery.”

I very much appreciate the letters I have been receiving and hope you continue to write. Jackneufeld@verizon.net

A handwritten signature in black ink, reading "J. Neufeld". The signature is fluid and cursive, with a large loop at the beginning and a long, sweeping tail.

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Air Force *Historical* Foundation Award Ceremonies October 8, 2014 at the Air Force Memorial & The Sheraton, Pentagon City, Arlington, VA

The Air Force Historical Foundation will present its highest awards, the Doolittle, Spaatz, and Holley Awards, on Wednesday, October 8th, in ceremonies at the Air Force Memorial and The Sheraton Pentagon City, Arlington, VA.

The James H. “Jimmy” Doolittle Award—recognizing a U.S. Air Force unit’s significant contributions to air power history—will be presented at the Air Force Memorial at 4:00 PM to the 19th Airlift Wing, Little Rock AFB, Arkansas. The 19th’s roots extend back before World War II, when it was one of the original 15 groups that made up U.S. Army aviation. Despite suffering heavy losses following the attack on Pearl Harbor, the 19th launched the first offensive attack against Japan in World War II. The unit’s reputation grew greatly through sustained superior performance in the Korean and Vietnam wars, and all subsequent conflicts. The 19th truly lives up to its motto “In Alis Vincimus—On Wings We Conquer.”

The remaining awards will be presented at the Air Force Historical Foundation Awards Banquet, at the Sheraton Pentagon City in Arlington. The General Carl A. “Tooey” Spaatz Award—recognizing an individual for his or her lifetime of contribution to the making of United State Air Force history—will be presented to General Lloyd W. Newton, USAF (Ret.). General Newton’s distinguished military career spans the Vietnam War period to the modern Gulf conflicts, including 269 combat missions as an F-4 pilot in Vietnam. The general served as a member of the U.S. Air Force Aerial Demonstration Squadron, the Thunderbirds, where he held several positions including narrator, slot pilot and right wingman. He has commanded three wings and an air division, and held numerous staff positions. He retired from the Air Force as Commander, Air Education and Training Command. The Major General I. B. Holley Award—honoring an individual for his or her sustained, significant contribution to the documentation of Air Force history during a lifetime of service—will be presented to Colonel Walter J. Boyne, USAF (Ret.). Col Boyne is a command pilot with over 5,000 flying hours, a combat veteran, aviation historian, and author of more than 50 books and over 1,000 magazine articles. He is a former director of the National Air and Space Museum of the Smithsonian Institution, Chairman of the National Aeronautic Association, and a member of the National Aviation Hall of Fame.

From the President

August 10, 2014

Dear Members:

As always, let me thank you for the part each of you has played in the history and legacy of *Air Power* across the decades, and for your generous contributions to the Foundation. We are particularly gratified with your response to this year's all-digital vote for our new Board of Directors. For some this was a more difficult process than the traditional filling out of a ballot and returning it by mail, and we thank you for making this effort.

We are welcoming as new Board members four fine individuals who will, I am certain, make great contributions to the Foundation: retired Lt. Generals Christopher D. Miller and Stephen G. Wood; Mr. Daniel R. Sitterly, currently serving as the Principal Deputy Assistant, Secretary of the Air Force (Manpower and Reserve Affairs), and retired Colonel Tom Owens. I too was re-elected to the Board, and am honored to continue to serving as the Foundation's president and chairman of the board.

Our most important communication to you concerns this year's celebration of the Foundation's 60th Anniversary. This is a year-long celebration that started with a July 9th gala at the Army and Navy Country Club. We were honored to have as our special guest the legendary pilot Mr. Bob Hoover. Bob regaled us with great stories of early aviation, and his unique experiences in World War II and as a test pilot during the formative years of our Air Force. Guests in attendance were also treated to the initial distribution of our 60th Anniversary Commemorative edition of *Air Power History*, sure to be a collector's item in the future. This commemorative edition features articles from the near and far past, as well as some notable writings from senior leaders, historians of note, and *Air Power* enthusiasts. Please contact us at the office or go to the Foundation web site to secure your own copy of this special publication.

This fall will also be an active time for us. On October 8th we will honor our 2014 award winners. We are very proud to announce that General Lloyd "Fig" Newton, USAF (Ret.) has been selected for the Spaatz Award, honoring him for his lifetime contribution to the making of *Air Power* history. We will also honor with our Holley Award Colonel Walter J. Boyne, USAF (Ret.) for his lifetime contribution in documenting *Air Power* and aviation history. The 19th Airlift Wing of Little Rock AFB is the winner of the Doolittle Award, presented to an existing Air Force organization that has made a significant contribution to Air Force History. The 19th earned this recognition with its superlative record starting as the 19th Bomb Group, one of the original 15 units formed by the Army Air Force prior to World War II. Please, save this date! We would be thrilled to have a strong membership representation at what promises to be a memorable event.

Undoubtedly, many of you have noticed changes to the Foundation web page. We are looking at other improvements to possibly expanding the Book Review section in *Air Power History*, one of our most strongly praised features. We are exploring options for leveraging this feature to highlight current and recent winners of the "Best Book Reviewed" Award, among others. We believe this exposure has the potential of growing our services to the membership—which is always our first responsibility—and strengthening the appeal of our Foundation to others interested in *Air Power*. Suggestions from our readership in this regard will be welcomed and seriously considered.



Dale W. Meyerrose, Maj Gen, USAF (Ret)
President and Chairman of the Board



The Search for General

A black and white aerial photograph of a dense forest. In the foreground, there is a cleared area with some low-lying vegetation. On the right side of this cleared area, there is a pile of wreckage, which appears to be the remains of an aircraft. The background is filled with a thick canopy of trees.

Walker: New Insights



Richard L. Dunn

(Overleaf) B-17E (41-9234) that crashed near Wau, New Guinea, on January 8, 1943, after an attack on a convoy near Lae. This was part of the Lae convoy operation which began on January 5, of which Gen Walker's Rabaul mission was a part. (Photo from www.warofourfathers.com.)

**THE
IMPORTANCE
OF ACTION
AGAINST THE
FIRST LAE
CONVOY AND
ACCURATE
DETAILS OF
WALKER'S
MISSION ARE
HARD TO
FIND IN
PUBLISHED
ACCOUNTS**

Brig. Gen. Kenneth Newton Walker, one of the architects of the prewar plan for strategic air war in Europe, and commanding general Fifth Bomber Command, went missing in action on January 5th, 1943, on an unescorted daylight bombing mission to Rabaul, New Britain. The B-17F in which the general flew, Walker, and the crew have never been found. He remains one of the highest ranking unrecovered officers lost in air combat in World War II. The search in the title of this article has multiple implications. First is the search for an accurate account based on credible evidence of Walker's mission and its importance. Then there is a recounting of the search missions that took place in 1943. Finally, mention must be made of the research under taken by an eclectic group of researchers to narrow the probable location of Walker's bomber; and, unfortunately the profound lack of actual searching and apparent lack of interest shown in the case by the Joint POW-MIA Accountability Command (JPAC). New insights come from previously unexploited sources: unpublished research results, diaries from participants on both sides, and, captured Japanese documents and media reports.

Most military historians have heard of the Battle of the Bismarck Sea and understand that it was seminal event in the history of air power. Most air power historians are aware of the airlift of Australian troops to Wau, New Guinea, which helped turn back a Japanese offensive in early 1943. General Walker's January 1943 mission to Rabaul targeted a Japanese convoy prior to the one in the Bismarck Sea Battle, was the first of a series of operations that thinned out Japanese reinforcements so that they were unsuccessful against Wau, led to the Bismarck Sea Battle, and, was part of turning the tide in the Pacific. The importance of action against the first Lae convoy and accurate details of Walker's mission are hard to find in published accounts that cover events of this period.

The Lae Convoy

At Lae there was an airfield which had been the headquarters of Guinea Airways, Ltd. before the war and which had been extensively used by the Japanese navy in 1942. Obscure as it was Lae had been the world's leading airport in terms of cargo tonnage in the 1930s thanks to hauling dredges, vehicles, and other heavy equipment (often broken down and welded back together on location) as well as subsistence supplies in support of gold mining operations in New Guinea's remote mountain



regions. It had also been the departure point for Amelia Earhart's last flight. At nearby Malahang was a disused pre-war landing strip cleared by Lutheran missionaries. Lae and more broadly the Lae-Salamaua-Wau area was one of the "strategic areas" which the Japanese army and navy agreed late in 1942 was needed to maintain Japan's position in New Guinea and prepare for future offensive operations. As 1943 began Lae and Salamaua were garrisoned by a weak force consisting of navy construction troops, a guard unit, and two platoons of a navy special landing party ("Japanese Marines") totaling about 1,200 men; usually 200 or so in the Salamaua-Mubo area and the rest near Lae.

Wau would be the forward defense line for Lae and Salamaua but Wau was a problem. At the center of the gold mining region, it was the base for Australian troops and native scouts that kept Lae and Salamaua under observation, occasionally clashed with Japanese patrols, and, had even raided the Japanese bases. Salamaua had an infrequently used landing strip. Wau's sloping mountainside landing strip had been the terminus of many of the pre-war flights from Lae, forty air miles distant but with jungle, ridges, gorges and mountains in between.¹

In the last days of 1942, just at the time Japanese army air units were arriving in Japan's

Richard L. Dunn is an independent consultant advising on the deployment and implementation of technology in the military and civil sectors. He was graduated with a BA, cum laude, from the University of New Hampshire and earned law degrees from the University of Maryland and George Washington University (Highest Honors). Mr. Dunn has served on several study groups of the National Academy of Science and Defense Science Board. He was a senior fellow at the University of Maryland. From 1987 to 2000, he was the General Counsel of the Defense Advanced Research Projects Agency. Previously he was with the NASA, in private legal practice and served for nine years on active duty as a Judge Advocate in the U.S. Air Force.



(Above left) Brig. Gen. Kenneth N. Walker, taken in Washington, D.C. in 1942.

(Above) Aerial view of Rabaul, New Britain.

GIVEN THE DESPERATE STRAITS OF THE JAPANESE... GARRISON AT LAE THE IDEA THAT THE JAPANESE MIGHT TRY TO REINFORCE LAE WAS HARDLY SURPRISING

Southeast Area, Japan's strategic view changed dramatically. Departing from an offensive philosophy the Japanese Imperial General Staff decided to evacuate Guadalcanal and Buna, go over to the defense in the Solomons, and switch to an active defense and limited offensive in New Guinea. Both the army and navy recognized that in the Southeast Area (approximating the Allied Southwest Pacific Area) effective air power was the prerequisite for successful operations on land or sea.

The Japanese practiced "cooperation" rather than unity of command in the Southeast Area. It was, however, apparent to both the army and navy that circumstances had created new strategic realities among which was a line which must be held to maintain Japan's position in the area. This was the line: Lae/Salamaua-New Britain-northern Solomon Islands. This line famously called "the Bismarck Barrier" in Samuel Eliot Morison's book title would be fought over for the next year. The first order of business for the Japanese 18th Army and its supporting air force was to secure the Lae/Salamaua end of that line. Initial elements of the 51st Division were arriving at Rabaul by the end of 1942. Originally slated to be part of the 17th Army and go to Guadalcanal, the 51st was allocated to the 18th Army and assigned the mission of securing the Lae-Salamaua-Wau area.

To supplement intermittent supply by submarine and small transport vessels the Japanese were planning routes and coastal hideouts for *Daihatsu* motorized landing craft to transport troops and supplies from Rabaul to Lae. These routes had yet to be developed and their capacity would never be sufficient to sustain a large force. The decision was made to risk a convoy to transport substantial elements of the 51st Division, organized around a reinforced

infantry regiment and commanded by Maj. Gen. Toru Okabe, to Lae through waters known to be constantly patrolled by enemy aircraft. Supplies and support units were also on board, including an airfield maintenance battalion. The key to success by limiting losses en route was provision of air cover for the convoy sufficient to ward off attacks by aircraft and submarines.

Given the desperate straits of the Japanese at Buna and the weakness of their garrison at Lae the idea that the Japanese might try to reinforce Lae was hardly surprising to Allied intelligence officers. At the end of 1942 and beginning of 1943 the 300,000 tons of shipping at Rabaul (fifty large and medium cargo vessels, twenty small cargo ships and seventeen naval vessels including destroyers in one sighting report) reached an all-time high.² This plus increased scouting activities by Japanese floatplanes in the Huon Gulf also pointed to the possibility of a convoy. Finally radio intercepts not only confirmed that reinforcement would be attempted but pointed to the date of the convoy's departure.

The recently arrived 11th *Hiko Sentai* (Flying Regiment, FR) of the Japanese army would have the primary responsibility for air cover. Navy bombers and fighters would attack Port Moresby to suppress Allied air power. Navy fighters would supplement the army fighters as circumstances permitted. Navy float planes or carrier bombers would fly anti-submarine patrols along the convoy route. The 11th entered 1943 with forty-nine Type 1 fighters (Ki 43) in commission. Three had been lost in combat and six had been damaged in combat or accidents and were temporarily or permanently unavailable.³ Forty-five were operational on January 5. When the navy risked denuding the Solomons of everything except for floatplanes and a handful of landplanes it could assemble as many as forty-five medium bombers and over sixty Type Zero fighters for operations from Rabaul and Kavieng for short periods. Army Type 1 fighters (Codename Oscar) were each armed with just one 12.7mm machine cannon and one 7.7mm machine gun. Navy Zeros (Zeke) were armed with two 20mm cannon and two 7.7mm machine guns.⁴

General George C. Kenney, Allied air commander and commanding general of the U.S. Fifth Air Force, laid plans to intercept and wreck the predicted convoy. He ordered a brief stand down from bomber operations to provide for rest and maintenance of his heavy bomber force. He ordered General Walker, his bomber commander, to prepare a maximum *effort* to strike Rabaul shipping on the morning the convoy was to sail. A coordinated strike with B-17s and B-24s flying from Port Moresby with another force of B-24s flying from Australia totaling more than twenty bombers would be the largest force ever to hit Rabaul in daylight. In recent months the Fifth Air Force had avoided attacks on Rabaul in full daylight. Most attacks took place at night with an occasional bomber completing its attack after dawn. Kenney directed that the bombers strike in the early morning.



(Left to right) Maj. Gen. George C. Kenney; Major-General C. A. Clowes; Brig. Gen. Kenneth N. Walker.

WALKER ORDERED AN ATTACK FOR MIDDAY AND, AS HE HAD DONE BEFORE, FURTHER IGNORED KENNEY'S WISHES BY GOING ON THE MISSION HIMSELF

But things did not go as directed. Walker disagreed with Kenney about an early morning attack. That would require a night take off and also make it unlikely his bomber force would arrive over the target in a compact formation. Walker ordered an attack for midday and, as he had done before, further ignored Kenney's wishes by going on the mission himself. The B-24s flying from Iron Range, Australia never made the trip due to bad weather. A small advance force of B-17s detailed for an airfield attack preceded the main force. The main force headed toward Rabaul in a formation consisting of six B-17s of the 43rd BG and six B-24s of the 90th BG. The B-17s carried 500-lb. bombs and the B-24s one thousand pounders.

Rabaul Mission

At Vunakanau southwest of Rabaul town the pilots of the 11th FR were assembled early on the 5th of January. Rain storms from the previous night had ended and clouds were slowly clearing. After paying homage to the Emperor they were briefed on their convoy cover assignments. The first shift of convoy cover would take off at noon (Tokyo time;

two hours behind local time). Shortly after dawn a flight under Lt. Kyoka Yanagawa took off as a security patrol over the airfield. Yanagawa's flight had landed and a second flight was about to take off when a report of approaching planes was received. Both flights scrambled.⁵ Four stand-by navy Zeros of Air Group 582 based at Lakunai airfield east of Rabaul town were also scrambled.⁶ Anti-aircraft batteries went on the alert.

Three B-17s from the 403rd BS had been sent to attack Lakunai the Japanese fighter base located on an isthmus between Matupi Harbor and Simpson Harbor, Rabaul's main anchorage but one bomber aborted. Despite multiple bomb runs the B-17s could not see the target. Shipping was observed but the number of ships seen from the bombers was considerably less than the number present. Even a couple hours after dawn significant segments of the two harbors were clouded over. A cable report specified 6/10 cloud cover. One post-mission report said "ground fairly well obscured by clouds."⁷ An anti-shipping mission flown at an early hour of the morning might well have been a washout due to cloud conditions.

Army Type 1 fighters and navy Zeros sighted the two B-17s northeast of Vunakanau. After finding their assigned target clouded over they headed for Vunakanau as an alternate hence their approach from northeast. As Japanese army pilots positioned themselves for attack their comrades on the ground were running for cover. The B-17s unleashed thirty-three one hundred pound bombs (seven hung up and were jettisoned later), that reportedly fell in the dispersal area at Vunakanau. Returning B-17 crews said that the Japanese fighters flew a parallel course with the B-17s but out of range until they pulled ahead and then turned in for head-on attacks.

Attacks began about ten miles south of Vunakanau. After their firing runs they broke away to the side or down. A couple firing passes from the sides were also noted. Action must have been hot, heavy and confusing for the B-17 crews reported that they encountered 12 to 15 fighters most identified as Zekes and during the course of their sporadic attacks shot down seven with others claimed as damaged.⁸ The Japanese army pilots reported that they had set one of the B-17s aflame and were sure it had crashed. Navy Zeros made no claims.⁹

Both B-17s headed toward the New Guinea coast sporting numerous Japanese bullet hits. Some Japanese fighters had also been hit but all returned to their bases. In addition to claiming seven victories some returning B-17 crewmen reported that a couple of their attackers were possibly Me 109s and even thought they had seen swastika emblems on their wings! Bomber crews had apparently not been briefed on a Japanese army fighter with a slim fuselage that was new to the area. The B-17F piloted by 1st Lt. Jean Jack eventually ditched adjacent to a small island off the New Guinea coast. The ditching went smoothly and entire crew survived including one man wounded in the fighter attacks. The B-17E flown by Capt. Eaton Hocutt had a broken oil line

among other damage. It landed at an emergency strip near Buna.¹⁰ The crew was evacuated in a transport plane.

The interception began shortly before 0730 (Tokyo time) or 0930 per Allied reports.¹¹ Walker's formation had taken off nearly an hour earlier. Without going into detail regarding Walker's career suffice to say he was both a leading theorist and advocate of strategic bombing. Opportunities to prove the value of strategic bombardment in the S.W.P.A. Theater were few. Here, now, was the opportunity to disrupt an entire, major reinforcement convoy at its point of origin. One suspects that Walker might have considered this the pinnacle of his service with Fifth Bomber Command to this point.

Simpson Harbor, Rabaul town's inner harbor, was where the greatest concentration of Japanese shipping was located. Other anchorages were at the smaller nearby Matupi Harbor and few miles to the south across Blanche Bay at Keravia Bay. The approach flight of Walker's bombers would take them over Matupi Harbor to Simpson Harbor and as they turned south they would be able to observe ships in Keravia Bay as well. However, unknown to the Americans the convoy's cargo ships were not in any of those anchorages. The cargo ships had completed their loading by barge or from the single pier at Kokopo (Rapopo) on the Gazelle Peninsula where the bulk of the ground forces to be transported had assembled.¹² The ships were anchored close to the shore and were about fifteen miles from the main concentration of shipping near Rabaul town. This anchorage had been reported by reconnaissance planes in the weeks before the raid but only minor shipping concentrations had ever been seen there. Indeed, the five transport ships of the convoy not yet joined by their destroyer escort amounted to little more than five per cent of the shipping arrayed in greater Blanche Bay and its anchorages.

As the bombers approached, the 11th FR at Vunakanau completed its preparation for its convoy cover mission later in the day. It continued to launch small flights for security patrols. Maintenance and repairs to fighters involved in the earlier interception were made. Fighters were serviced and made ready for action.¹³ The only sizeable navy fighter formation at Rabaul was Air Group 252. This unit was seriously under-strength, having lost the majority of its fighters destroyed on the ground at Munda during the last week of December 1942. A small contingent from Air Group 582 and at least one fighter from Air Group 253 were also at Lakunai. Japanese sources indicate there were just seventeen serviceable Zeros at Rabaul prior to the raid. That morning most Japanese navy fighters were at Buin (forty operational there on January 4th per Japanese data) in southern Bougainville 260 miles southeast of Rabaul while the main strength of Air Group 253 (twenty-three observed, January 3d) was at its base of Kavieng 140 miles northwest of Rabaul. If most of the fighters at Kavieng were operational this gave the Japanese about eighty operational Zeros out of a total strength of 102 reported early in the month.¹⁴

The navy's Bismarck Area Defense Force included 12.7cm anti-aircraft guns in its arsenal. Rabaul's army anti-aircraft defenses had recently been organized as the 19th Anti-Aircraft Command under Col. Nagaki Kawai. Scattered among Rabaul's harbor, airfields, and various support installations were AA batteries with a few dozen 12cm (actually 12.7cm), 8cm, and 7cm heavy AA guns, as well as AA units armed with a half dozen 40mm cannon, and a number of 20mm and 13mm (Japanese 13.2mm and captured U.S. 12.7mm) "machine cannon." Navy destroyers could add considerably to the array of land guns and most merchant vessels mounted some sort of AA defense.

Until the end of December the headquarters and all three firing batteries of Lt. Col Jiro Ohara's 50th Anti-aircraft Battalion had been situated near Lakunai airfield close to the flight path of the approaching bombers. But since the beginning of January Ohara's headquarters as well as one of his batteries and the battery of another AA battalion placed under his command had been positioned near Kokopo to cover the loading of the convoy. Another of Ohara's batteries was aboard ship destined for Lae. Only a single battery of 7cm AA guns of the 50th would be close to the flight path of the bombers as they approached their targets. Moreover, while the war diary of the 50th on other occasions notes air raid warnings received from the Toma radar station, on the 5th of January there is no indication of a radar warning being received.¹⁵ Other Japanese sources confirm that the raid achieved surprise.

Twelve bombers in close formation skirted Cape Gazelle southeast of Rabaul and laid a course for the ships in Matupi and Simpson harbors. The storms of the previous night had completely dissipated and only scattered clouds lay over the harbor while more clouds lay to the south constituting potential cover for the withdrawal of the bombers. There were targets enough for two or three times the number of bombers closing in on Rabaul. Peering through their windshields American pilots could see the many ships in Rabaul's inner and outer harbors. Ahead there were no fighters or anti-aircraft bursts. Contrary to General Kenney's concerns the bombing attack would not be disrupted by fighter interception.

There were three Japanese fighters aloft. Capt. Masayoshi Taniguchi's led a flight of three fighters providing security for Vunakanau. Taniguchi 1s patrol line took him near Simpson Harbor but he either did not see or did not recognize the approaching bombers as enemy before turning back toward the west. He was surprised to see fighters taking off from Vunakanau and only when he observed the bomb splashes and AA fire to the east did he react, too late to intercept as it turned out.¹⁶ Meanwhile, the warning went out to fighters at Lakunai and Vunakanau and anti-aircraft observers also saw the approaching bombers. No. 3 battery, 50th AA Battalion rushed to its guns. Before they could open fire on the formation it broke apart as bombers targeted individual ships. Instead of a formation the

guns were confronted with a dozen targets on various courses. Some bombs had already been dropped before the guns got into action. Belatedly ships in the harbor were alerted. Some with steam up got under way; a few guns got into action, then more joined in to throw up a heavy barrage but only as the bombers withdrew. On the western side of Simpson Harbor the bombers were too high and out of range for the 15th Machine Cannon Company to engage.

B-17 and B-24 bombardiers made bomb runs from about 8,500 feet or a little higher on selected ships and toggled their bombs. Bombs were dropped on ships scattered throughout the anchorages. Many of the forty 500 and twenty-four 1000-lb. bombs fell close to ships. The B-24s claimed two hits on a ship and the B-17s claimed hits on nine including one on a destroyer and one on a cargo ship that broke in two.¹⁷ That was the 5,833 ton *Keifuku Maru* which had unloaded most of her supplies but was still doing so when bombs exploded on both sides of her amidships and buckled her plates.¹⁸ She had so little warning she never fired a shot in self-defense. Amazingly only one of her crew was injured. No other ships were heavily hit but bombs caused fragment damage and some small fires broke out. The fires, on at least six ships, were the apparent cause of American claims of hits on so many ships. There were also some crew casualties, twenty on one ship.

The American bombers now made their withdrawal trying to regain formation as they did so. Bomber crews could actually observe the fighters taking off from Lakunai when over the target and after their bomb runs some could see activity at Vunakanau. Japanese AA had made a poor showing. Most naval guns had gotten into action late. No. 3 battery of the 50th AA Battalion fired several rounds but reported no success. In exchange four of its enlisted men had received wounds from bomb fragments or rounds fired from the bombers. As the bombers withdrew the AA gunners saw Japanese fighters engaging. Looking back bomber crewmen could see the sky over the harbor belatedly coming alive with AA bursts. Photographs taken while the bombers were actually over the harbor show little evidence of AA fire.

Up to this point the raid could only be considered highly successful from the American point of view. Despite the weather related abort of the B-24s from Australia a sizeable force of bombers had taken Rabaul by surprise and in good conditions inflicted considerable damage. If Japanese losses were not what were claimed, they were not inconsiderable. One ship was sunk, half a dozen damaged plus miscellaneous damage to other facilities. Of course it was not then known that none of the ships in the convoy was among those damaged. Withdrawing to the south some of the bombers flew near Kokopo and sighted ships of the convoy without recognizing the significance of the sighting. A few bombs were dropped near the ships wrecking a landing barge and inflicting casualties among personnel in the area. Other than Walker, it is unlikely that the crewmen involved knew that rather than a

general shipping strike this was primarily an effort to disrupt a specific convoy.

Although times recorded in official records are not always perfectly accurate both the 43d and 90th Bomb Group's recorded 1200 hours as the beginning of their bombing attacks.¹⁹ Bombing attacks must have commenced about that time or shortly thereafter and continued for several minutes. Petty Officer Makato Inoue of Air Group 253 who reported intercepting the bombers at 1010 was most likely the first Japanese fighter to contact the bombers. The 11th FR initially contacted the bombers several minutes later. A dozen or more army fighters scrambled and most engaged. A total of seventeen navy Zeros scrambled but the twelve from Air Group 252 after sighting the bombers lost them in the clouds and never engaged and only two of four from Air Group 582 did so.²⁰

A summary of the action from the perspective of the 11th FR was reported by Jusuke Nagai of the Japanese army press corps as follows:

At 10:18 a.m....13 Boeing and Consolidated bombers appeared...They were at an altitude of 3,000 meters. Our ground batteries sprang into action. Our Hayabusa craft rose to meet the enemy. They gave battle to the enemy as he was going to retreat in the face of intense fire from our anti-aircraft guns. Their attack came before the enemy had time to get into the formation in which they had come. There was a terrific fight. Soon it was over...one Boeing B-17 and one Consolidated B-24, [were] turned to masses of charred debris.

A formation of Hayabusa gave chase to two flying fortresses headed for the sea. One of the enemy planes started to dive, leaving a trail of black smoke. The other plane was seen to maneuver to give help to the comrade plane in trouble. Presently the enemy planes disappeared into a cloud bank.

*Several days after the battle the American authorities announced that the commander of the American air force operating in the area had been killed in action. There is no doubt that the commander met with death in one of the planes which were shot down by our Hayabusa planes.*²¹

The interception was reported in Allied Air Forces, South West Pacific, Intelligence Summary No. 68 as follows:

B-17s, during a successful raid on Rabaul shipping, 5th Jan. 1943, were engaged by 8 to 10 Type O SSF ZEKES and Type O SSF HAPS. One Japanese pilot made a desperate attack and others attempted single passes from above, but on the whole, the interception was pressed in a hesitant manner.

B-24s, co-ordinated with the B-17s on the mission, were attacked by 12 to 15 fighters, of which all except two were ZEKES. These two probable MIKES were painted various shades of green, and on the top of their wings were what appeared to be Swastika emblems. After leaving the target, interception continued sporadically at altitudes varying between 5,000 and 10,000 feet, but our crews received the



WALKER'S B-17 AND SOME OTHERS LAGGED BEHIND THE MAIN FORMATION... PERHAPS FIFTEEN JAPANESE FIGHTERS ASSAILED THE BOMBERS

impression that these Japanese pilots were inexperienced and not anxious for combat.

In general, attacks were from above and in front, with a few passes at the tail; no belly attacks developed. One ZEKE, coming from a 2 o'clock position, passed underneath and was set on fire by the B-24 tail gun. Another, approaching from 3 o'clock, was also hit by the tail gun and crashed into the trees. The tail gun of a third B-24 also destroyed a third enemy fighter.

From their perspectives both Japanese and Allied reports were generally accurate but biased by observations during frenetic combat. The B-24s reported fighter attacks began at 1205 earlier than any Japanese report and somewhat inconsistent with their reported location of the commencement of attacks being over the north shore of the Gazelle Peninsula. The B-17 report of attacks beginning at 1210 coincides with Inoue's report of engaging the bombers beginning at 1010 Japanese time. Most likely his was the first encounter. This place and time comports with Japanese anti-aircraft units observing fighters intercept the bombers before they disappeared from view to the south. The Americans were, of course, not specifically aware that the largest Japanese naval fighter unit at Rabaul, Air Group 252, as well as the majority of the Japanese army's 11th FR never engaged in the interception. One crewman noted in his diary that the preliminary raid by two B-17s might have thinned Japanese fighter opposition.

Available records are far from comprehensive but it is certain that the American bombers never fully reformed in a 12-plane formation and it is also certain the lead bomber, Walker's, was not the first to leave the target area.²² Consistent with Nagai's Japanese press report and American accounts at

least Walker's B-17 and some others lagged behind the main formation. Reports indicate a B-17 circled the harbor at lower than attack altitude before attempting to rejoin the formation. This was probably Walker's bomber observing and photographing bombing results. Some accounts suggest Walker's bomber had been damaged by AA fire but there is no way to verify this and the delayed AA reaction makes it less than likely. Walker's bomber may have appeared in distress merely because it was the lead bomber but left the target below and behind the other bombers.

Perhaps fifteen Japanese fighters assailed the bombers. On the navy side both Inoue and the pair from Air Group 582, Petty Officer Tatsuo Morioka and flyer Shinichi Hirabashi, returned to claim B-17s shot down. The Air Group 582 claim was for a bomber on fire and descending, not seen to crash but recorded as a definite victory. The 11th FR claims were approximately as noted in Nagai's story, namely one B-17 (by W.O. Hiroshi Kaminoto, 2nd *Chutai*) definite and one B-24 plus another indefinite. In addition they reported a bomber that disappeared into the clouds trailing black smoke from an engine.²³

The combat was sporadic but continued over an extended period of time. The diary of one Japanese army pilot, Sgt. Mitsuo Senoo of the 3rd *Chutai*, reported five attacks on the bombers ranging from south of Rabaul harbor out over the sea beyond Wide Bay. He initially attacked from the side with no effect. His second attack was from the vertical and he claimed to have knocked out an engine. His third attack was a steep frontal attack on a bomber that turned and descended into clouds at a relatively low level. Two additional attacks were ineffective due to oil on the windshield spoiling his



Brig. Gen. Walker in New Guinea.

THE AMERICAN BOMBERS DID NOT GET AWAY UNSCATHED

aim.²⁴ American accounts indicate at least one B-24 was under attack for more than half an hour.

The Japanese did not get away unscathed. The Japanese navy Zeros all returned to base. The army fighters were not so fortunate. New comer 2d Lt. Hisashi Nagayo of the 1st *Chutai* never returned. Sgt. Maj. Haruo Takagaki of the 2nd *Chutai*, a high ranking ace from Nomonhan, bailed out of his damaged fighter and survived. Corporal Kiyomi also of the 2nd *Chutai* returned to Vunakanau badly wounded in a damaged aircraft. These losses tend to verify the claims of the 90th Bomb Group's gunners.

The American bombers did not get away unscathed either. The B-17F with General Walker, Maj. Jack Bleasdale, executive officer of the 43rd BG, and pilot Major Allen Lindberg, commander of the 64th BS on board was last seen entering clouds pursued by Japanese fighters with an engine on fire. The B-17, No. 41-24458 named *San Antonio Rose*, never returned and its wreckage and the body of General Walker have never been found. Captured documents and other information indicate that Bleasdale and co-pilot Capt. Benton Daniel bailed out inland from Wide Bay, were eventually captured but their subsequent fate is unknown and they were unlikely to have survived captivity. Most of the

bombers had received some hits from the reportedly "inexperienced" and uneager attacks. At least one badly damaged bomber was in distress as it made the homeward flight.

A shot up B-24 of the 400th BS limped toward New Guinea with one engine out and rather than try to cross the mountains diverted to Milne Bay on the far southeast tip of New Guinea. Although records are not complete the stranded aircraft apparently sat in the dispersal area there for nearly two weeks before being destroyed in a Japanese bombing raid as was the B-17 which made an emergency landing near Buna. Ultimately the two raids cost the 5th Air Force two B-17s which went down on the day of the raid and a damaged B-17 and B-24 later destroyed on the ground. It would be more than nine months before the 5th Air Force again attempted a daylight raid on Rabaul and on that occasion the bombers were accompanied by a fighter escort.

In the hours after the shipping strike eleven American bombers made their way toward home and as described above some in better shape than others. In the early afternoon the 11th FR took up its assignment of covering the convoy as it left Rabaul. The various *chutai* mounted nine or more fighters per shift. The afternoon passed without an encounter with enemy planes. Despite the effort devoted to the bombing raid there was a B-17 prowling along the southern coast of New Britain on armed reconnaissance. Through the vagaries of timing, position or the intervention of cloud cover it did not find the convoy. The B-17 dropped five bombs on the airstrip at Gasmata and three others at Lae.²⁵

In the days that followed the convoy was tracked and repeatedly attacked on its way to Lae. One ship was sunk en route. The infantry battalion on board suffered hundreds of casualties and when the survivors reached Lae or returned to Rabaul they were essentially *hors de combat* lacking heavy weapons and in many cases without personal arms. A second ship was disabled and beached in Lae harbor. Much of its cargo was lost as was a portion of the supplies landed from other ships.²⁶ Throughout the operation Allied attacks were often mounted in uncoordinated, piecemeal fashion. Fighter escorts sometimes failed to stop Japanese fighters from disrupting bomb runs. Lessons were learned and corrective actions would be applied in the Battle of the Bismarck Sea. One of those lessons was that ships of the convoy could not be distinguished from other shipping while in harbor.

Among the mysteries about the mission led by General Walker is that only twelve heavy bombers participated. That was too few to take full advantage of the numerous targets in Rabaul's various anchorages as well as stand a good chance of actually hitting ships detailed for the convoy. The failure of the B-24s from Iron Range to join in is understandable. Their airfield was water logged from tropical downpours. However, there were at Port Moresby a dozen B-17s from the South Pacific's 11th Bomb Group. They arrived for a week's temporary duty on December 29th and had flown only two

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THE NOON STRIKE CAUGHT THE JAPANESE BY SURPRISE AND ... MAY HAVE CAUSED WALKER TO THINK IT SAFE TO CIRCLE THE TARGET AREA

missions during their stay. Some pilots from the 43rd BG thought they had been ordered to fly the January 5th mission. On January 5th they flew from Moresby to Guadalcanal. Whether they were actually considered for the January 5th mission or whether an extension of their stay in order to participate was requested, indeed the exact circumstances of their departure on the day of that critical mission, is yet to be determined. What makes the question of their departure more remarkable is the fact that they were sent to Port Moresby in significant part to raid Rabaul; the one B-17 raid on Rabaul from Guadalcanal on 25 December 1942 was flown with reduced bomb loads, only six B-17s of eleven taking off made it to the target where minor damage was inflicted on two cargo ships.²⁷

A summary of the most credible evidence regarding the attack is as follows. The Allies learned of a Japanese convoy operation which would bring major reinforcements to New Guinea. General Kenney planned to break up the convoy in port by conducting a day raid on Rabaul. As originally planned this would be the largest daytime attack ever carried out against Rabaul. However, part of the planned force was diverted by weather at its base. Twelve heavy bombers made the strike. Kenney and his bomber commander disagreed on details namely whether to attack at dawn when Kenney thought there was less likelihood of fighter opposition disrupting the bombing or noon when the bombers were more likely to arrive in formation and hit their targets in concentrated fashion. Later Kenney would characterize Walker's execution of a noon strike as disobedience of his orders. By personally going on the mission Walker further "disobeyed" Kenney's orders as he had done many times previously without suffering adverse physical or administrative consequences. Early morning weather conditions at Rabaul might well have interfered with a dawn attack. Japanese army fighters were on alert beginning at dawn.

The noon strike caught the Japanese by surprise and bomb runs were carried out without fighter opposition and initially with no anti-aircraft fire. This may have caused Walker to think it safe to circle the target area for observation and photographing results. Walker's bomber trailed the main formation leaving the target area. Fighters intercepted the bombers south of the target over the Gazelle Peninsula. In a running fight south of Rabaul to and over Wide Bay a number of bombers were hit. Both U.S. and Japanese witnesses saw a bomber which was undoubtedly Walker's descend into clouds with its left outboard engine smoking or on fire. Two men are known to have survived from the B-17; both bailed after the bomber entered the clouds and landed inland from Wide Bay in difficult jungle country in which each wandered for many days before being captured by the Japanese.

The search

In the hours after the last of the returning bombers was accounted for it became evident that

Walker and B-17F *San Antonio Rose* was missing. Royal Australian Air Force searchers and reconnaissance planes were quickly alerted to search the route to Rabaul and in the Trobriand Islands between New Guinea and Rabaul. According to General Kenney's account which apparently relates to the sixth a "report came in during the evening that Walker's airplane was down on a coral reef in the Trobriand Islands off the eastern end of New Guinea. I told General MacArthur that as soon as Walker showed up I was going to give him a reprimand and send him to Australia for a couple weeks." MacArthur responded "All right, George, but if he doesn't come back, I'm going to send his name to Washington recommending him for a Medal of Honor." Walker's biographer, Martha Byrd, makes much of Kenney's supposed anger at Walker for attacking at noon rather than dawn and personally flying the mission. She gratuitously adds "officially" to reprimand. Kenney had previously determined that Walker was overly tired and intended to send him to Australia for a rest. We have only Kenney's account and Byrd's interpretation of what transpired between Kenney and Walker since Walker never returned.²⁸

Kenney relates the following morning that an Australian flying boat rescued the B-17 crew from the "reef in the Trobriands" (actually Urasi I. south of the Trobriands) and discovered it was Lt. Jack's crew and not Walker. Kenney lost hope at this point. "I was certain that his plane had been shot down in flames and unless the crew bailed out they were gone." Despite this additional search missions were ordered. Moreover, there was a convoy to find and attack. Walker's biographer apparently relying on Kenney's personal papers rather than his published book or official records erroneously asserts that when the convoy was spotted "no Allied forces were available to attack it" because of the effort devoted to the search for Walker.

On the morning of the 6th the 11th FR had 41 aircraft operational and the first fighters were up by 0600 hours. Japanese pilots were conscious that in the attack on the 5th interception had taken place only after bombs had been dropped. That must not happen to the transports they were guarding. In the first daylight hours no enemy planes appeared. In fact the only other planes seen was a mass formation of forty-four navy bombers and dozens of Zero fighters passing over the convoy on its way to attack Port Moresby. This attack was aborted by weather. Navy fighters reported encountering a B-24 over Wide Bay on their return flight and claim to have shot it down. The B-24D of 1st Lt. George Rose was detailed to search for General Walker along the New Britain coast. Rose's Liberator failed to return.²⁹

Several B-17s and B-24s were sent out to track the convoy during the morning and carry out attacks as opportunity presented. One of these was a B-24D flown by 1st Lt. Walter Higgins. When Higgins left cloud cover to make a bombing run on the convoy Type 1 fighters of the 11th FR's 3rd *Chutai* attacked. Unit leader 1st Lt. Hiroatsu

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Hirano pressed an attack dangerously close to the bomber both aircraft being damaged. Additional damage was then inflicted on the B-24 by Sgt. Major Koibuchi and the bomber was reported as destroyed. Hirano's damaged fighter made an emergency landing at Gasmata where its wing was found stained red. In Japan it was widely reported that Hirano had pressed his attack so closely that his enemy's blood stained his fighter.³⁰ If there was a red stain most likely it was hydraulic fluid. In any event Higgins bomber limped away from the fight with a damaged engine that eventually caught fire. He ditched near a small islet some miles from Kawa Island.³¹ Another B-24 flown by a fellow pilot of the 321st BS, James McMurria, spotted the Higgins crew. For a time it was thought Walker had been found but when an R.A.A.F. flying boat arrived it confirmed that the survivors were not from Walker's plane.

In addition to attacks by individual B-17s and B-24s the convoy was attacked by five B-26s. A B-17 led fifteen P-38s, seven with bombs, to the convoy. All the bombs missed but the P-38s claimed nine Japanese fighters in air combat.³² Only one Japanese fighter went down and its pilot was rescued by ships of the convoy. The B-17 was badly shot up.

Combat over the convoy reached its height on January 7th and 8th and eventually petered out as the convoy made its return trip to Rabaul on the 9th and tenth. Despite General Kenney's belief that Walker would not return additional search missions were flown. Details of one of these missions came to light as recently as May 2014, when a member of a B-17 crew provided details to Douglas Walker.

Former Technical Sergeant Herbert Billington flew on what he believes was the last search mission flown by the 43rd BG looking for Walker. The crew flying the mission was a volunteer crew available for special missions under Col. Roger Ramey the group's commander. According to Billington the crew was at a de-briefing of the January 5th mission and heard what the returning crews reported. On the final search mission with Ramey in the right seat next to pilot Lt. Fuller, Billington flew as flight engineer directly behind the pilot and co-pilot. The purpose of the mission was to retrace the flight track of *San Antonio Rose* from just south of Rabaul to the point where it went into the clouds and then search the likely crash site. According to Billington the *San Antonio Rose* "went into the clouds just south of the north side of Wide Bay and did not go down in the water but went inland through the clouds. We picked it up at the same point and were in and out of clouds as I am sure was S/R. We made a lot of looking all up and down the area about 2+ hours." Billington who went through the de-briefing of the January 5 mission and flew the special mission as just described emphasizes his firm belief that the *Rose* did not go down in water but inland from Wide Bay.³³

Translations of Japanese interrogation reports on Bleasdale and Daniel were reproduced in the Allied Translator and Interpreter Section's Enemy Publication No. 280. Bleasdale and Daniel are not

actually named in the translated interrogation reports but from Japanese press reports and radio broadcasts it is known that both survived and were captured by the Japanese. From context they are clearly identified with two of the interrogation reports collected in EP No. 280. Both reports describe events leading to their capture. "This PW, flying a B-17 attacked Rabaul but our fighter planes attacked and damaged his left engine. Losing altitude his airplane circled southward. Realizing his danger PW took to his parachute over the mountains north of Wide Bay."³⁴ Both men wandered through the jungle for nearly three weeks before being captured by the Japanese who had a detachment at Zungen on Wide Bay.

Weeks earlier hope of finding Walker and the rest of the *San Antonio Rose* crew had been all but given up. On January 11th Walker's family was notified and it was officially announced that Walker was missing. Western New Britain was invaded in December 1943 and during the following year much of the island was occupied by Allied forces. Rabaul held out until final surrender in 1945. Post war there were a couple expeditions to the Powell River area looking for downed Allied aircraft and aircrew remains. Some aircraft wreckage was found but Walker's B-17 was not among them. The Powell River is little more than ten miles from the Kol Mountains which as noted below is the most likely crash site of Walker's aircraft. However, the country is particularly rugged. Unaided ground searches would be very challenging and aerial surveys using visual observations are likely to reveal little.

The Research

In January 1944 a year after the crew of B-17F 41-24458 was declared missing the Adjutant General's Status Review and Determination Section concluded that crew members may have survived a crash landing or parachuted from the stricken plane. They might have become unofficial prisoners. They "may reasonably be presumed to be living" and thus were continued as missing in action.³⁵

In September 1945 a Missing Personnel Investigation Unit arrived at Rabaul with the occupation forces. It found that local natives had generally assisted the Japanese and were unlikely to have aided downed airmen. Japanese records on prisoners had been thoroughly destroyed. During their work the Unit reached the conclusion that a presumption of death should be applied to men reported missing over New Britain.

The Status Review and Determination board reviewed the case once again in December 1945 this time with the input of information from prisoners who had survived captivity at Rabaul as well as other information that had come to light such as Bleasdale having been taken prisoner. It concluded that the crew members could not be presumed to be alive.

In 1948 the Secretary of the Army requested the Command in the Pacific to make an effort to

A U.S. B-25D Mitchell bomber executing a low level attack on Japanese shipping, Rabaul, 1943.



THE STORY OF WALKER'S LAST MISSION AND HIS LOSS DID NOT COMPLETELY FADE AWAY... DOUGLAS WALKER, THE YOUNGER OF GENERAL WALKER'S TWO SONS, HAS PURSUED THE CASE IN HIS RETIREMENT

locate missing planes and if possible determine the fate of their crews. The 604th Graves Registration Company conducted an investigation of the several hundred aircraft missing over New Britain and adjacent waters. The unit discovered a number of remains. Their physical search included villages surrounding Wide Bay. The only information relevant to Walker's crew came from a Belgian priest Father Poncelet who had himself been a captive in Rabaul. According to the unit's report Poncelet stated that Capt. Daniel had been brought to his POW camp early in 1943.

The Walker case was officially closed on July 20, 1949 by action of the Board of Review of the Headquarters American Graves Registration Service. Walker and the other members of the crew with the exception of Bleasdale and Daniel were determined to be non-recoverable. The board proceedings note multiple locations recorded for the last sighting of the B-17 apparently concluding it was last seen "just east of Vunakanau" at 5,000 feet with its left outboard engine smoking and under attack by fighters. As demonstrated in the narrative above the earliest fighter action *began* after the bombers exited from Blanche Bay roughly due east from Vunakanau. Another location mentioned was ten miles south of the northern end of Wide Bay (from Walker's Form 371, Data on Remains not yet Recovered or Identified). While navigator 1st Lt. John Hanson's form 371 placed the last sighting as over Keravia Bay. On this inconsistent and shoddy note official interest in the fate of General Walker and the crew was at an end.

The story of Walker's last mission and his loss did not completely fade away. It was documented in George C. Kenney's *General Kenney Reports* (original publication 1949; reissued by Office of Air Force

History in 1987) which has been quoted in the narrative above. Unofficial research in the case has been conducted by a number of individuals notably Gene M. Monihan who has uncovered numerous fascinating details directly or tangentially related to Walker's loss. After a career with the CIA, Monihan has spent decades delving into notable air missions and personalities of World War II. His research is noted in the acknowledgment section of numerous books. Monihan's research is expressly dealt with in the Walker biography by Martha Byrd, *Kenneth N. Walker: Airpower's Untempered Crusader* which was issued by Air University Press in 1997.³⁶

Douglas Walker, the younger of General Walker's two sons, has pursued the case in his retirement. Doug Walker has had a number of interactions with JPAC, the Pentagon's organization charged with accounting for missing military personnel and other organizations with related responsibilities. The high point of Doug Walker's contacts with the MIA accounting agencies came in 2003 when Johnnie E. Webb, Army Identification Laboratory deputy commander, stated in a letter that his organization had personnel in New Guinea and that "we hope the research will lead us to conducting a field investigation which could possibly lead to an excavation of his [General Walker's] site should the evidence support such activity"³⁷ No work was ever done in eastern New Britain and JPAC has since dealt with Walker in what might be described as a bureaucratic and reactive mode. When provided with a plausible reconstruction of the path *San Antonio Rose* took after leaving the target JPAC responded in 2007 with a lengthy "analysis" of available "evidence" which included many of the canards and obviously inconsistent reports mentioned in the 1949 Board of Review decision. JPAC even cast



The last photo of Brig. Gen. Walker in New Guinea.

IN RECENT YEARS DOUG WALKER HAS BEEN THE CENTER OF GRAVITY PULLING TOGETHER THE EFFORTS OF A NUMBER OF RESEARCHERS

doubt on the fact (possibly not aware of Japanese press reports, broadcasts and interrogation reports) that Bleasdale and Daniel had survived and parachuted over land hence finding that its flight path crossed the mountains north of Wide Bay no more than speculation.³⁸ JPAC conveyed its impression to Doug Walker that General Walker's bomber most likely went down at sea in Wide Bay or beyond and there is no way to find it or recover any remains of the crew. As with the 1949 AGRS Board of Review the case is essentially closed.

In recent years Doug Walker has been the center of gravity pulling together the efforts of a number of researchers interested in the Walker case. In addition to Monihan this group includes a Japanese diplomat whose career included service in Papua New Guinea (PNG), the daughter of a 5th Air Force pilot who has visited PNG several times and documented a number of B-17 crash sites, an expert in gee-spatial remote sensing, and other distinguished professionals including Dr. David Lindley.

David Lindley (B.Sc. first class honors, Ph.D., University of South Wales) is an Australian geologist whose experience includes 35 years of fieldwork throughout PNG. During that time he trekked and mapped extensive sections of eastern New Britain, the Gazelle Peninsula in particular. He lived in Rabaul for 18 years and was a founding board member of the East New Britain Provincial Government's War Museum. His interest in WWII recoveries evolved from search and recovery of several allied crash sites during mineral exploration activities. He has direct experience in the search and recovery of crash sites throughout New Britain. His first-hand knowledge of weather conditions and terrain, trekking and mapping (during mineral exploration) of many rivers and creeks on Gazelle Peninsula has enabled him to make significant contributions to research related to the search for the *San Antonio Rose*. He speaks fluent New Guinea Pidgin English.

Lindley was able to create a reconstruction of the flight path of the *San Antonio Rose* which other

members of the Walker team consider to be highly credible.³⁹ Lindley's reconstruction makes note of the fact that during the northwest or "wet" season in the early part of the year of the year clouds typically build up into solid formations over the northwest-facing mountains of New Britain but not over the open sea on the lee side of the island. Over the sea the skies may be entirely clear or covered by only sparse cloud cover while nearby northwest-facing mountainous land masses are typically entirely socked in. Lindley's personnel experience is also confirmed by satellite imagery.

Applying this knowledge to the narrative of the Walker mission described above it can be seen that *San Antonio Rose's* disappearance into clouds strongly suggests she was over land and most likely over mountains. This observation is consistent with the PW interrogation of the airmen that bailed out of the B-17. To further the point, if after disappearing in clouds near the north end of Wide Bay the B-17 had then turned and proceeded out over the waters of Wide Bay, she would have broken free of the cloud cover. However, shortly after the B-17 was lost from sight in clouds both the American bombers and some of the Japanese fighters flew over Wide Bay. In stark contrast to multiple credible reports of a stricken bomber disappearing into clouds there are no reports from either side of seeing a B-17 with a smoking engine emerging from clouds, descending toward the bay.

Lindley's reconstruction of the flight path takes the bomber from the mountains north of Wide Bay, down the Mevolo River Valley to the Kol Mountains an area of extremely rugged terrain. The Kol Mountains or a nearby area is the most likely crash site of *San Antonio Rose*. Finding wreckage in that region or other territory inland from Wide Bay would not be a simple task. At a minimum it would probably take an aerial survey utilizing advanced state of the art sensing equipment followed up by a ground search when the remote sensing equipment indicates a potential target.

JPAC in conjunction with the Office of Naval Research sponsored experiments with a Multi-band Synthetic Aperture Radar (MB-SAR) mounted in a Pilatus aircraft over the Central Province and Morobe Province of PNG during late 2013.⁴⁰ As this article is written the process of doing ground follow up to verify if the targets indicated by remote sensing are indeed World War II wrecks is in progress.

The latest information available is that JPAC has no current plans to continue MB-SAR sensing in PNG or to conduct any kind of investigation for potential crash sites in East New Britain Province. Such an investigation might result in the discovery of the wreckage of the *San Antonio Rose* as well as remains of Walker and eight other members of the crew. It would almost certainly discover some hitherto undiscovered crash sites dating to World War II. Unfortunately JPAC simply seems to have no interest in undertaking such a project. Meanwhile JPAC is active in PNG but the usefulness and cost of its efforts are being seriously questioned.⁴¹ ■

1. For strategy and general background see Milner, *Victory in Papua* (US Army, Chief of Military History, 1957); Miller, *Cartwheel: The Reduction of Rabaul* (CMH, 1959); Craven & Cate, *The Pacific: Guadalcanal to Saipan, August 1942 to July 1944* (Univ. of Chicago Press, 1958); and, Morison, *Breaking the Bismarck Barrier* (Little Brown, Boston, 1950). For background on Lae see Gwynns-Jones, "New Guinea's Great Aerial Gold Rush", *Air and Space* (1986).
2. Allied Air Forces, S.W.P.A., Intelligence Summary (ISUM) No. 65.
3. 11th FR Situation Report, 31/12/1942 (14th Air Force Language Officer translation); other strength reports for 11th FR are from Southeast Area Operations Record, 18th Army (US Army, Chief of Military History, Japanese Monograph No. 37).
4. For Japanese air operations see Southeast Area Air Operations Record, Nov. 1942 - Apr. 1944 (CMH, Mono. 32); Mono. 37 (note 3, *Ibid.*); Southeast Area Naval Operations, Part 1 (Mono. 98); Outline of Southeast Area Naval Air Operations, Part 3, November 1942-June 1943 (Mono. 122); Southeast Area Operations Record Part 4, November 1942-August 1945 (Mono. 127).
5. Nagai, *Nippon Times* {3/12/1943}, "Brilliant Record Won in South Pacific Area by Army Winged Units".
6. Unit Mission Record (*Kodochosho*), Air Group 582, available at Japan Center for Asian Historical Research website <http://www.jacar.go.jp> (Translation of this and other mission records by Osamu Tagaya or via Justin Taylan).
7. Cable report (09091641/L), Advanced HQ, 5th Air Force; Consolidated Mission Report, crew of 1st Lt. Jean A. Jack (1/9/1943).
8. Allied Air Forces, SWPA, ISUM No. 68.
9. Note 6, *Ibid.*
10. Cable report (note 7); crew evacuated by transport: diary of Sgt. Haymond Quillen, 403rd BS (International History Research Associates archive via Edward Rogers).
11. Note 8, *Ibid.* Field Diary and Battle Reports, 50th Field A/A Gun Battalion (Nov. 1942-Jan. 1943), Allied Translator and Interpreter Section (ATIS) Enemy Publication (EP) 22.
12. Operations orders (various dates), 102d Infantry Regiment, in ATIS EP No. 116.
13. Note 5, *Ibid.*
14. Izawa, *Rikko and Ginga* (unpublished manuscript in possession of the author); Intelligence Center Pacific Ocean Areas, Air Target Bulletin No. 1, Rabaul: Lakunai, Malaguna, Vunakanau (1/12/1943); see also notes 4 and 6,
15. Field Diary and Battle Reports, 50th AA Gun Battalion (Note 11); Bombers "arrived without warning..." (POW Interrogation Report No. 57, ATIS serial 99, PW No. JA 145427).
16. E-mail from O. Tagaya (20 May 2014) with abstract of Tanaguchi auto-biographical information; Claringbould, "Rabaul's Ultimate Mystery: The Loss of Brigadier-General Kenneth N. Walker", *The Daedalus Flyer* (2002). Tanaguchi's three fighters were apparently observed by the B-24s (Report, Mission IV, Allied Air Force Field Order, Mission M-4, Jan. 1943).
17. Note 8, *Ibid.*
18. Imperial Japanese Navy in WWII, (CMH, Mono. 116); S.W.P.A., ISUM 140 (quoting PW Interrogation report).
19. Note 8, *Ibid.*
20. Note 6, *Ibid.*
21. Note 5, *Ibid.*
22. The navigator of Walker's wingman states Walker's bomber led the bombing run but the No. 2 plane was the first off the target (diary of Francis G. Sickinger, 64th BS, I.H.R.A. archives via E. Rogers). Sickinger also states his B-17 was not intercepted by Japanese fighters until well clear of the harbor.
23. Mission details from the Japanese side from Tagaya e-mail (note 16); e-mail Harumi Sakaguchi to Douglas Walker (2/18/2009); notes 5 and 6, *Ibid.* Claringbould (note 16).
24. Mitsuo Senoo diary abstract via H. Sakaguchi (note 23); the memoir of another 11th FR pilot, Hironojo Shishimoto, describes a similar scene (quotation in e-mail H. Sakaguchi to D. Walker (7/24/2008).
25. Note 8, *Ibid.*
26. Details in various intelligence reports of the 51st Division (*Moto Heidan*), ATIS EP 44.
27. Salacker, *Fortress Against the Sun*, p. 304 (Combined Publications, Pennsylvania, 2001); diary of Lt. J. Castro, 42d BS, via E. Rogers. Interestingly on this same day five B-17s escorted by six P-38s flying from Guadalcanal attacked Buin in southern Bougainville. Eight Japanese fighters intercepted. The B-17s escaped harm but two P-38s were lost. Four Japanese dive bombers escorted by Zeros attacked Allied ships near Guadalcanal and damaged New Zealand cruiser Achilles.
28. References and quotations attributed to Kenney from Kenney, *General Kenney Reports* (Duell, Sloan & Pearce, NY, 1949); references to Martha Byrd/Walker's biographer from Byrd, *Kenneth N. Walker: Airpower's Untempered Crusader* (Air University Press, 1997).
29. Data at <http://www.Pacificwrecks.com/date/1943/1-43.html>.
30. Note 5, *Ibid.*; Note 29, *Ibid.*
31. Note 29, *Ibid.*
32. Note 8 *Ibid.*
33. E-mail Herbert Billington to D. Walker (5/15/2014).
34. Intelligence Record No. 14, Interrogation of Allied PW (2/26/1943), ATIS EP 280; Both Bleasdale and Capt. Benton Daniel were named as the subjects of interviews by journalists in broadcasts from Japan recorded by the Foreign Broadcast Intelligence Service (initially on 11/3/1943, transcripts in National Archives, RG 263). A press account which from context references Bleasdale was published in *Nippon Times* (1/19-20/1944), "U.S. Flying Fortress Claimed Mediocre".
35. Thanks to Gene M. Monihan for collecting the full text of the administrative documents discussed in this section and summarizing them in "Circumstances Surrounding the Fate of Brigadier General Kenneth N. Walker and the Crew of San Antonio Rose" (unpublished monograph in possession of the author).
36. Note 28, *Ibid.*
37. Ltr., U.S. Army Central Identification Laboratory (9/4/2003) to D. Walker.
38. E-mail, JPAC J2 (C. McDermott) to D. Walker (7/19/2007).
39. Lindley provided comments on the description of his reconstruction and certain geographical references in this article, e-mail D. Lindley to author (6/10/2014).
40. U.S. Embassy, Papua New Guinea, "U.S. Team Uses New Radar to Search for WWII Wreckage" (Press release, 12/12/2013).
41. Cole, "Cost and value of New Guinea road trigger probe of JPAC", *Honolulu Star-Advertiser* (5/27/2014).

Reconnaissance Drones: Their First Use in the Cold War





R. Cargill Hall

(Jverleaf) Antiaircraft artillery site west of Than Hoa, taken from 500 ft. with a Fairchild F415Y on Ryan 147SC drone. (All photos courtesy of Col. John Dale, USAF (Ret.)

RYAN AERONAUTICAL COMPANY... CONDUCTED A STUDY TO DETERMINE WHETHER [DRONES] COULD BE ADAPTED TO PERFORM LONG-RANGE AERIAL RECONNAISSANCE

In 1959, Ryan Aeronautical Company, which produced the jet-powered “Firebee” target drones for the U.S. Air Force and U.S. Navy, conducted a study to determine whether these machines could be adapted to perform long-range aerial reconnaissance. Indeed, the study found that they could and that with lengthened wings they could operate at much higher altitudes. Two months after a U-2 was shot down over the Soviet Union, in July 1960, Air Force Under Secretary Joseph Charyk approved a small contract for two flight tests of a modified Firebee. Conducted in September and October, they revealed that a few basic alterations (screening the jet intake and applying radar absorbent materials to the fuselage) greatly reduced the airplane’s radar signature. Subsequent plans to contract for the design and construction of an advanced reconnaissance version, known as Ryan Model 136 (Red Wagon), sailed through Pentagon approvals. Deputy Secretary of Defense James H. Douglas also recommended in favor of funding the project and sent the package to Secretary of Defense Thomas S. Gates in November. But just a few days before, Republican Richard Nixon had lost the presidential election to John Kennedy, and the secretary declined to authorize so large a contract start for an incoming Democratic administration. That ended all work on drones for more than a year. Ultimately, in February 1962, Under Secretary Charyk approved a far less expensive order for four modified target drones that would fly a programmed course over a 1,200-mile range at an altitude of 55,000 feet.

Identified as Ryan Model 147A (code name “Fire Fly”), these classified vehicles¹ had a 30-inch plug inserted in the fuselage to carry additional fuel (increasing capacity from 100 to 160 gallons), which increased their length from 23 feet to 27 feet (some

Editor’s Note: Increased employment of drones, or Remotely-Piloted Aircraft (RPAs), in military operations has created public interest in these machines and, when equipped with weapons, concurrent controversy over collateral civilians casualties that occur in combat zones. Moreover, many see a dangerous potential for spying on American citizens. The military is attracted to this form of airpower because it allows long endurance, long range overflights of enemy territory without endangering a pilot. This informative report from official sources traces the early development and surprisingly wide employment of the Ryan reconnaissance drones in Vietnam.

Cargill Hall is Emeritus Chief Historian of the National Reconnaissance Office (NRO), an intelligence arm of the Department of Defense. Previously he served as Chief of the Contract Histories Program in the Air Force History Support Office, as Chief of the Research Division and concurrently Deputy Director of the Air Force Historical Research Agency, and as a historian at Headquarters Military Airlift Command and Headquarters Strategic Air Command. Still earlier Hall served as historian at the Jet Propulsion Laboratory, California Institute of Technology, for the National Aeronautics and Space Administration. He is the author of Lunar Impact: A History of Project Ranger (Washington, D.C.: NASA/GPO 1977), and is the editor, among other volumes, of Case Studies in Strategic Bombardment (Washington, D.C.: Air Force History and Museums Program, 1998); and Lightning Over Bougainville: The Yamamoto Mission Reconsidered (Washington, D.C.: Smithsonian Institution Press, 1991).

later versions would reach 30 feet). The wing was a standard Firebee with extended replaceable wing tips, providing a span of 13 feet. The initial guidance system consisted of a simple time-based programmer capable of being set to command heading changes, controls for the payload, and a gyrocompass for heading control. The drones, flown in a cruise-climb mode, continued to ascend as fuel burned off. Launched from beneath the wing of a DC-130 “Hercules,” the 147A was operator programmed to fly a specified route and return to a predetermined point where a beacon and radio turned on, and control was assumed by a ground-based command system that directed drone recovery. When recovery was commanded, the engine shut down, parachutes deployed, and the vehicle descended to earth. After additional flight tests conducted in April and May 1962 from Holloman AFB over New Mexico and Utah proved successful, officials in the National Reconnaissance Office contemplated an order for more vehicles for operational testing and eventual use.

Back in September 1961, Secretary of Defense Robert McNamara had established a secret National Reconnaissance Program (NRP) that funded all United States overflight technical collection assets, and a clandestine National Reconnaissance Office (NRO) in the Pentagon to manage and direct the effort.² This highly classified activity he placed under the direction of Under Secretary of the Air Force Charyk who, in 1962, created four alphabetic programs to procure, launch, and operate reconnaissance vehicles.³ The last of these, Air Force “Program D,” was responsible for development, test, and evaluation (DT&E) of aerial reconnaissance vehicles including drones. (An exception was the CIA A-12, for which Program D provided only the NRP funds.) Thus, beginning in 1962, a covert Program D placed the orders for all classified Ryan drones, their reconnaissance payloads, and their test and evaluation through a “cut out”—Air Force Logistic Command’s Big Safari Office,⁴ and paid for them with NRP funds. In government offices and contractor facilities this special drone procurement effort, like its immediate successors, was conducted in a Top Secret compartment. Unlike the NRO satellite programs, however, Program D did not operate any of the aerial assets it developed, which meant that Program D and its agent, Big Safari, had to find an Air Force command willing to perform that function before it ordered any more.

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SWEENEY,...
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IN A RECON-
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PROGRAM
CONDUCTED
WITH
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RPAS....
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RECONSIDER
THE ISSUE!”



With test and evaluation proceeding well in April–May 1962, the NRO sought an operator for the Model 147 reconnaissance drone. Its representatives, Big Safari officials, first briefed General Walter C. Sweeney, Commander of Tactical Air Command (TAC), and requested that his organization assume operational control of the program for tactical reconnaissance. Sweeney, whose command consisted of the so-called “fighter Mafia,” emphatically refused to participate in a reconnaissance program conducted with *unmanned* RPAs. As one participant recalled, the meeting ended on a Sweeney exclamation: “When the Air Staff assigns eighteen-inch pilots to this command, I’ll reconsider the issue!” The next stop was Headquarters Strategic Air Command (SAC), home of the “bomber Mafia,” where Major General William H. “Butch” Blanchard, SAC’s deputy chief of operations, received the briefing. SAC operations included a large strategic aerial reconnaissance component, part of which included U–2 airplanes of the 4080th Strategic Wing. Afterward, following further discussion, Blanchard agreed to accept this novel reconnaissance mission, and he assigned Lt. Col. Ellsworth Powell to monitor the upcoming “summer tests” of the Model 147 reconnaissance drones that would be conducted from Eglin and MacDill AFBs in Florida.

Operational testing of and training with the Ryan Model 147 reconnaissance drones continued

in Florida and in the southwest United States throughout 1962 and into 1963, although at a pace much slower than desired because at that time Big Safari had modified only two DC–130 aerial launchers⁵ for SAC’s use. In July 1963, SAC formally assigned RPV operations to the 4028th U–2 “Strategic Reconnaissance Weather Squadron” when it moved from Laughlin AFB in Texas to Davis-Monthan AFB in Arizona. Meanwhile, on the other side of the world, the conflict in Vietnam intensified.

The Model 147 jet-powered Ryan drones that SAC would operate were now given a new code name “Lightning Bug,” most likely because they were relatively small and fast, flying at speeds of 420 knots at altitude. They evolved over the next eight years through a series of alphabetical designations. The higher altitude 147B had its wingspan lengthened from 15 feet to 27 feet, increasing its operational ceiling from 55,000 to 62,500 feet. Other short-winged versions, at the request of Headquarters SAC, Ryan designed specifically to operate at programmable lower altitudes between 500 and 20,000 feet. Later models featured much improved engines and guidance systems, and barometric altimeters. Each of them was equipped either with camera, signals intelligence (SIGINT), or surface-to-air missile (SAM) “sniffer” payloads—the latter intercepted and relayed the Soviet “Fan Song” radar and SAM-2 transponder signals. Other

The mission launch airplanes always carried two drones for any given mission in the event one of them had a checkout problem at launch.

DRONE OVER-FLIGHTS OF NORTH VIETNAM AND SOUTHERN CHINA RESUMED FROM BIEN HOA ON OCTOBER 11 AND CONTINUED THROUGHOUT THE REMAINDER OF THE 1960s



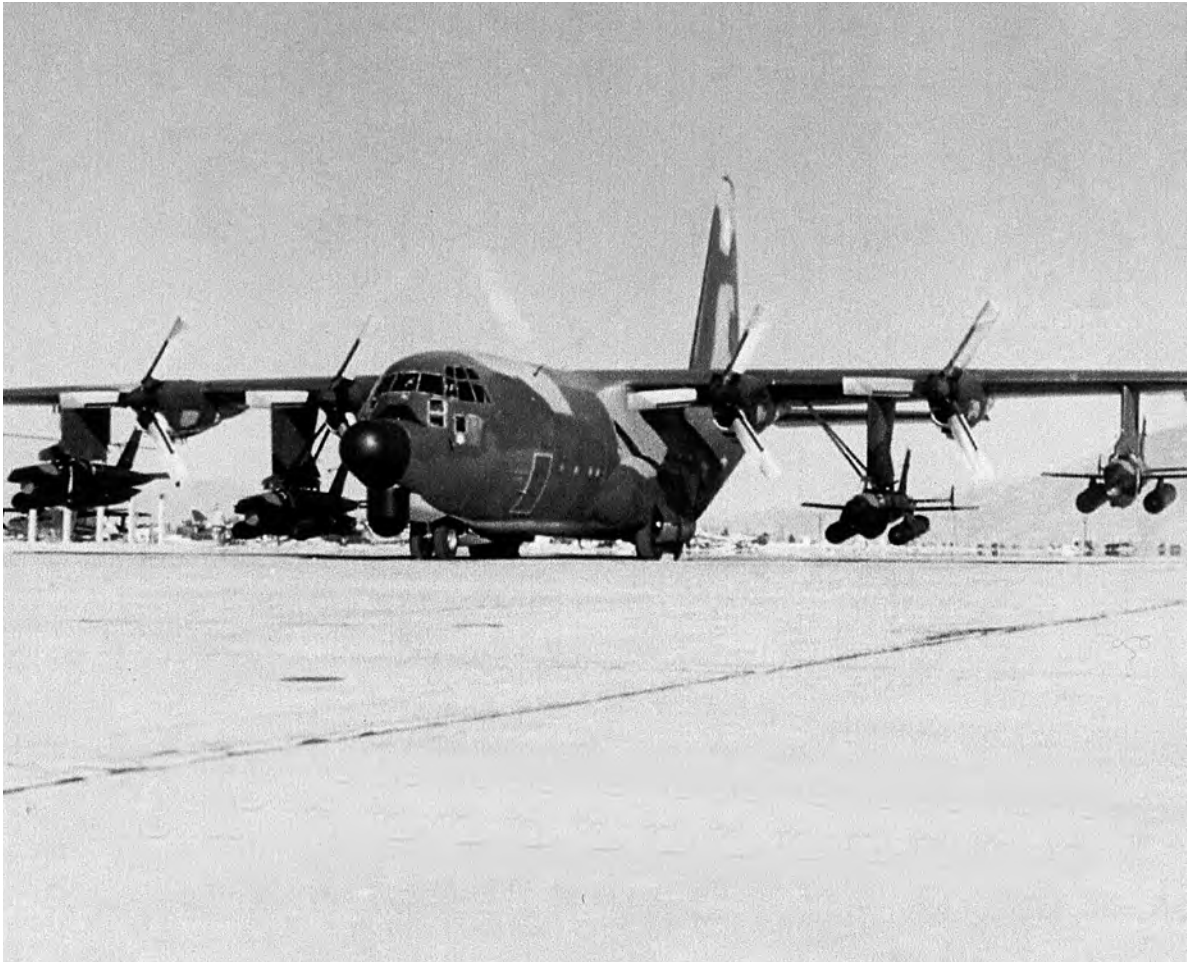
versions mounted electronic countermeasure (ECM) packages that actively jammed SAM radars, or pods that dispensed metallic chaff to passively jam radars. Still another version transmitted real-time TV images to a DC-130 mother ship that loitered off the coast. A few, modified to dispense propaganda leaflets over North Vietnam, were known affectionately among its operators as “Bull Shit” bombers. But whether designed to operate at low or high altitudes, all Air Force versions were launched from DC-130s, flew programmed routes, and returned to a pre-designated spot where ground control took over and they descended by parachute and were recovered on the ground, or, later in the decade, in the air by special energy absorbing winch-equipped CH-3 helicopters. Refueled and with their payloads reset, the 147s were quickly turned around and flown on another mission. One long-lived low-altitude Ryan Model 147S known as “Tom Cat” completed 68 operational missions in Southeast Asia before it was lost.

In April 1964, the 4080th wing deployed from Arizona to Bien Hoa AB in South Vietnam. U-2 reconnaissance overflights of North Vietnam began in early June; the first operational 147 drone mission took place on August 20, when a high-altitude version launched from a DC-130 based at Kadena AB on Okinawa overflew mainland China and recovered in Taiwan. Additional flights over China continued from Okinawa until the end of September,

when the 4028th launch and recovery detachments returned to Bien Hoa to focus on overflights of North Vietnam in the aftermath of the “Gulf of Tonkin incident.” The drone overflights of North Vietnam and southern China resumed from Bien Hoa on October 11 and continued throughout the remainder of the 1960s. A recovery detachment deployed north to Da Nang AB (just south of Hue), where helicopters supplied by base tenants (Army, Marine, or Air Force) retrieved those 147 drones that survived their overflight missions and parachuted to earth. Now available in quantity, DC-130s then returned the drones from Da Nang to Bien Hoa, usually on the same day to avoid being caught overnight in one of the frequent rocket attacks on that northern air base. When in April 1966 Mid-Air Retrieval (MARS) with modified CH-3s helicopters became available, they too were stationed at Da Nang joining the detachment already in place. Almost a year earlier, on July 1, 1965, with the pending arrival of CH-3s to join the DC-130s and the drones, Headquarters SAC issued General Order 115 that activated the 4025th Reconnaissance Squadron responsible exclusively for drone operations. The 4080th wing, now composed of two squadrons, nevertheless would not last long as a SAC unit.

On June 25, 1966, Headquarters SAC inactivated the 4080th Strategic Wing and its two squadrons. Headquarters Air Force replaced them by activating the 100th Strategic Reconnaissance

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WASHINGTON, D.C.



Wing and two squadrons: the 349th Strategic Reconnaissance Squadron (SRS) (U-2s) and the 350th SRS (DC-130s, CH-3s, and 147 drones), which activated on the same day. The men of the 4080th all sewed on new shoulder patches and continued their respective reconnaissance activities. The 147 drones that the 350th most consistently employed during the late 1960s and early 1970s were the low-altitude 147S (AQM-34L/M) and high-altitude 147H and 147T (AQM-34N/P) models. The 147S featured a wingspan of fifteen feet, incorporated a new guidance system with a barometric altimeter, and operated over distances of 400 to 800 miles at variable operator-programmed altitudes between 500 and 20,000 feet. They proved least vulnerable to enemy air defenses and became the vehicle most often used; Ryan built about 1,000 of them. With a wingspan of thirty-two feet, their 147H and 147T counterparts operated at altitudes as high as 75,000 feet, but were used sparingly because of the Surface to Air Missile (SAM) threat and because the high-altitude reconnaissance targets over south China and North Vietnam decreased in number.

Throughout the war in Southeast Asia, the approved lists of strategic, priority-one reconnaissance targets for high- and low-altitude 147 drone overflights of China and North Vietnam arrived at the 350th SRS in the sea port city of Da Nang, sent from SAC's Strategic Reconnaissance Center (SRC) back at Offutt AFB in Nebraska. Headquarters

SAC, in turn, received these targets from Washington, D.C., where an interagency intelligence Committee on Imaging Requirements and Exploitation (COMIREX) selected them, as it did for all U.S. overhead assets. A CIA officer chaired COMIREX, which functioned as an organ of the United States Intelligence Board (USIB).⁶

Farther to the north, in April 1969, North Korean fighters attacked and shot down a U.S. EC-121 reconnaissance airplane in international waters in the East China Sea with the loss of all thirty-one on board. Responding to this attack, Pentagon officials ceased manned peripheral reconnaissance airplane missions in the region and substituted in their place 147 reconnaissance drones. After completing preparations, in August 1970 SAC deployed a detachment of the 350th SRS to South Korea. This operation, known as Combat Dawn, flew two modified versions of the high-altitude 147 series with SIGINT payloads: the 147TE and 147TF (AQM-34Q/R). Equipped with drop fuel tanks, an improved jet engine, and launched from DC-130s based at Osan AB in South Korea, these latter systems flew long endurance stand-off orbit missions in the Yellow Sea and Sea of Japan against North Korea and China until 1975.

Back on July 11, 1970, as the United States began to disengage from the conflict in Southeast Asia, the 100th SRW redeployed from Bien Hoa AB in South Vietnam to U-Tapao Royal Thai Airfield on



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the Gulf of Thailand, whereupon it resumed drone overflights of North Vietnam. (The last 147 drone overflight of south China had occurred on October 28, 1969. At that time President Richard Nixon, who sought an “opening with China,” ordered these missions halted.) The recovery detachment of the 350th SRS followed the DC-130s in November 1972, moving from Da Nang AB to Nakhon Phanom Royal Thai Airfield located in northeast Thailand. That year proved an intense one for the 350th, especially when its drones conducted low-level photographic Bomb Damage Assessments of the December B-52 Linebacker raids that brought North Vietnam back to the conference table in Paris.

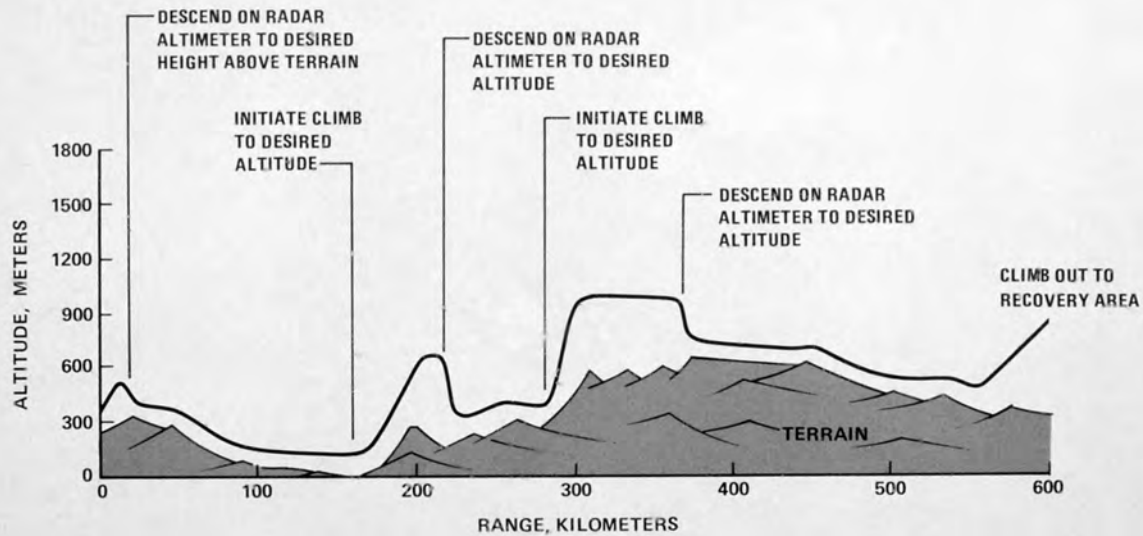
In the meantime, having observed strategic drone reconnaissance in Southeast Asia (SEA) and its intelligence products made available to them in Saigon and the Pentagon, leaders of the Tactical Air Command at Langley AFB in Virginia had a change of heart, and now actively sought a tactical reconnaissance role for drones in support of its flight operations. While the SEA conflict continued, however, SAC owned the drone reconnaissance role. Therefore, in August 1968, TAC established a command-controlled 4472nd Tactical Support Squadron, stationed it at Davis-Monthan AFB in Arizona, and purchased sixty-seven Model 147 drones from Ryan Aeronautical that mounted a large pod under each wing—these to serve RF-4 reconnaissance fighters in an ECM-chaff role. But the unit never deployed to SEA, and many of its pod-equipped 147s were bailed to SAC for use in theater as Bull Shit bombers. Then, a few years later on May 18, 1971, TAC inactivated the 4472d TSS, and Headquarters Air Force replaced it with

the 11th Tactical Drone Squadron, albeit one still confined to the ECM mission and still stationed at Davis-Monthan AFB.

On the other side of the Pacific Ocean, SAC reconnaissance drone operations from Thailand continued until the last 147 mission over Vietnam, conducted five weeks after the fall of Saigon on June 3, 1975. The 100th Strategic Reconnaissance Wing and its squadrons returned to the United States shortly thereafter; the remaining 147 drones were placed in storage and the units inactivated a year later, on July 1, 1976. At that time, in the post Vietnam drawdown, all Air Force major commands received word that they would have to reduce their force structure by ten percent. Coincidentally at that time, leaders of the Tactical Air Command appealed to the leaders of SAC to relinquish the drone reconnaissance role to them. Without a peacetime mission for its drones and with a cost burden attending its DC-130s and CH-3 recovery helicopters, the choice was not hard to make. Not long after the 100th SRW inactivated, Headquarters SAC agreed to consign its drone reconnaissance role and related assets to TAC. Headquarters TAC, in turn, assigned the airplanes, helicopters, and reconnaissance drones to its 11th Tactical Drone Squadron at Davis-Monthan, which for the next three years continued limited training operations.

Headquarters TAC officials actively sought a mission for its drones. They examined in particular the possibility of using them in Europe in the event of a nuclear war with the USSR. But the weather in Europe, aerial congestion there, and command and control issues militated against that option. By early 1979, TAC’s leaders faced the same choice that

TYPICAL LOW-ALTITUDE PROFILE



ON APRIL 1, ALL FOOLS DAY, HEAD-QUARTERS AIR FORCE INACTIVATED THE 11TH TACTICAL DRONE SQUADRON. THAT ACTION ENDED ALL DEFENSE DEPARTMENT DRONE ACTIVITY UNTIL LATE 1981

SAC had previously addressed. Without a peacetime mission for its remotely piloted reconnaissance drones and with the acquisition costs for its manned F-15 and F-16 fighters exceeding original funding estimates, the command requested that all Air Force drone operations be terminated. On April 1, All Fools Day, Headquarters Air Force inactivated the 11th Tactical Drone Squadron. That action ended all Defense Department drone activity until late 1981, when Congress authorized and funded the classified research, development, test and evaluation of more Remotely Piloted Aircraft.

The modern American reconnaissance drone first flew classified combat missions during the war in Southeast Asia. In low- and high-altitude overflights of China and North Vietnam in the 1960s and early 1970s, they returned a wealth of photo-

graphic, signals, and communications intelligence. Much of this could not be acquired by their U-2 and SR-71 high-altitude counterparts. A single SAC unit operating in theater set the standard for intelligence acquisition: Between its first operational mission in August 1964 and the last one in June 1975, the 350th Strategic Reconnaissance Squadron flew 3,466 Lightning Bug sorties. During that period, it lost 578 drones to air defenses, failed recoveries, and other causes. CH-3 helicopter recovery crews made 2,655 mid-air Lightning Bug catches in 2,745 attempts, achieving a remarkable 96.7 percent success rate. Although not enamored of Remotely Piloted Aircraft, had former CINCSAC and manned bomber proponent Curtis E. LeMay known of these SAC reconnaissance accomplishments he doubtless would have applauded them. ■

NOTES

1. The best source for this effort in the open literature is William Wagner, *Lightning Bugs and Other Reconnaissance Drones* (Fallbrook Calif. Aero Publishers, Inc., 1982.)
2. Even the name National Reconnaissance Office was classified Secret within compartmented channels until 1992, when the Department of Defense publicly acknowledged the organization's existence.
3. Program A, Air Force reconnaissance satellites; Program B, CIA reconnaissance satellites; Program C, Navy reconnaissance satellites; Program D, Air Force aerial reconnaissance assets including funding of the CIA A-12 and Idealist U-2s.
4. Big Safari began as a classified program in 1951-52. The Big Safari office modified military and commercial airplanes for the Air Force and intelligence community for special missions, and, like the NRO, could pursue procurement sole-source, with a mini-

mum of paperwork.

5. The D meant "Drone" C-130. Initially, Big Safari identified these two airplanes as GC-130s, the G standing for "Guidance."

6. The CIA Ad Hoc Requirements Committee (ARC) began selecting targets for U.S. overhead reconnaissance assets in 1955, the overflights of "denied territory" at that time conducted by modified Air Force airplanes and, in 1956, U-2s. James Q. Reber chaired this committee and its successor, the Committee on Overhead Reconnaissance (COMOR), when it was subsumed by the United States Intelligence Board in 1960. In July 1967, following reconnaissance satellite operations, the USIB renamed COMOR the Committee on Imaging Requirements and Exploitation (COMIREX) and established separate committees for SIGINT and COMINT.

Team Sport, Combat Search and Rescue over Serbia, 1999





Darrel D. Whitcomb & Forrest L. Marion

(Overleaf) Special Forces personnel performing CSAR duty for combat operations over Serbia. (Photo sources are individually indicated.)

AIR OPERATIONS PLANNERS CALCULATED ON A VERY SHORT CAMPAIGN

In the 1990s, United States military forces, as part of the great NATO Alliance, were involved in the Balkans region of Europe, primarily against the forces of Serbia. The last part of that conflict involved direct action against Serbia itself as NATO attempted to staunch their atrocities directed at the southern region of Kosovo. The Serbians had long-considered Kosovo as part of their nation. In 1389 at the Battle of Kosovo Polje, according to Serbian culture, Serbia saved Europe from the Ottomans by “sacrificing itself to halt the Turks in Kosovo.” Serbia’s gaining of independence in 1878 rekindled its desire for control of Kosovo. As a U.S. Air Force study noted, to Serbian nationalists, “Kosovo was an intrinsic part of Serbia.” Under Marshal Josip Broz Tito’s rule following World War II, Kosovo enjoyed a degree of autonomy while under Serbia’s control. But in the post-Tito 1980s, ethnic Albanians in Kosovo—comprising 90 percent of the population—appeared to threaten Serbian aspirations for control of the province. Playing upon Serbian nationalism and fears, Slobodan Milosevic rose to the presidency in Serbia in part upon his promises of retaining control of “ancestral” Kosovo. In 1989, Milosevic withdrew Kosovar autonomy and permitted the removal of Kosovar Albanians from government jobs including the police. By 1991–92 as the former Yugoslavia disintegrated, Kosovar Albanians formed a shadow government. Still, the province remained relatively peaceful.¹

In the spring of 1998, however, Kosovo began to unravel. In March, Yugoslavian—essentially, Serbian—security forces initiated attacks against insurgents of the independence-minded Kosovo Liberation Army (KLA). The violence increased, including the forced evacuation of Kosovar villages and the murders of ethnic Albanians. Nevertheless, by summer the KLA controlled about one-third of Kosovo. Serbia responded with a major offensive. Meanwhile, fearful of what appeared to be the start of another round of ethnic cleansing—as occurred in Bosnia several years earlier—NATO defense ministers considered military options against Serbia. In mid-October 1998, the NATO Council authorized air strikes against Serbia which, for the time being, persuaded Milosevic to comply with a UN-directed cease-fire and the withdrawal of Serbian forces from Kosovo.²

Although Milosevic did, in fact, withdraw a sizeable number of his security forces from Kosovo, the cease-fire was short-lived due to violations on both sides. By early 1999, Serbian forces returned to

Kosovo. Reports of human rights abuses against ethnic Albanians increased, including evidence of a massacre, in January, of Kosovar civilians at Racak, Kosovo. Meanwhile, thousands of Kosovar refugees, driven from their homes and villages in what appeared to be a systematic campaign by the Serbians, began crossing the borders into neighboring Albania and Macedonia. In February and March 1999, last-ditch diplomatic efforts at Rambouillet and Paris, respectively, failed to secure a return to the October 1998 agreement or an end to Serbian operations in Kosovo. On March 20, Serbian forces renewed an offensive against the KLA and continued ridding Kosovo of ethnic Albanians. Three days later, the Secretary General of NATO, Dr. Javier Solana, directed the start of air operations against Serbia. The NATO operational name was ALLIED FORCE (OAF); the U.S. component, NOBLE ANVIL (NA).³

Air operations planners calculated on a very short campaign. In fact, U.S./NATO leaders anticipated that only two or three nights of limited air strikes would convince Milosevic to change his rogue-like behavior. As the campaign began, the forces of U.S. Army Gen. Wesley K. Clark, Supreme Allied Commander Europe (SACEUR), had only fifty-one fixed targets approved. He forbade any form of ground attack, instead directing USAF Lt. Gen. Michael C. Short, the commander of Allied Forces Southern Europe, to conduct an air campaign utilizing the almost 550 U.S. and 650 allied combat and support aircraft assigned to strike the designated targets.⁴

The air planners were also concerned about the possibility of allied aircraft being shot down. They recalled how several NATO aircraft had been shot down in earlier Balkans operations. On April 16, 1994, a British Sea Harrier aircraft was downed by an SA-7 missile near Gorazde, Bosnia.⁵ A year later, on June 2, 1995, a Serbian SA-6 brought down a USAF F-16 pilot, Scott O’Grady, over western Bosnia.⁶ Both the British and American pilots were rescued. On August 30, 1995, near the town of Pale, Bosnian Serbs employing a surface-to-air missile scored against a French Mirage 2000K, call sign “Ebro-33.” U.S. aircraft flew ninety-two dedicated sorties in support of recovery efforts for Ebro-33 until officials confirmed that the Serbians had captured the two-man crew. The crews’ release later served as a stepping stone toward the Dayton Peace Accords in November 1995.⁷

All U.S. forces in OAF were organized as Joint Task Force (JTF)-NA. As expected, SOCEUR would

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SEVERAL OF THE USAF CREW MEMBERS OBJECTED TO HAVING THE “EXTRA” TROOPS ON BOARD

provide supporting special forces. Its commander, U.S. Army Brigadier General Eldon Bargewell, activated JSOTF - NOBLE ANVIL to do so. Under it, the Joint Special Operations Task Force (JSOTF)-2 headquarters element at Brindisi was assigned to specifically provide combat search and rescue (CSAR) capability. The Air Force Special Operations Command's (AFSOC) 21st Special Operations Squadron (SOS) reinforced its element there to four MH-53Js and crews. The 20th SOS at Hurlburt Field, FL, was directed to deploy augmenting forces. Capt. Jim Cardoso was serving as the B Flight commander and deployed his flight with five MH-53Js, crews, and support personnel for the operations, as requested by the 21st SOS so that it could have a standardized fleet and intermix crews. However, as the Airmen and aircraft were en route, AFSOC ordered them to return the aircraft to Hurlburt for replacement with five MH-53Ms, which had just been modified with upgraded navigational and threat alert systems. They were joined by four MH-60s and crews from the 55th SOS as part of the larger Task Force Helo, commanded by the 21st SOS commander, Lt. Col. Paul Harmon.⁸

AFSOC assets at the base also included MC-130P Combat Shadow (tanker), and AC-130H (gunship) aircraft as well as Special Tactics (ST) combat controllers and pararescuemen (PJs)—highly-trained members of the small Air Force spe-

cial operations community that expected to perform their jobs on the ground, often in denied or hostile areas.⁹

AFSOC also increased the ST elements. Under the leadership of Maj. Terry “Eugene” Willett and his successor, Maj. William “Bill” Sherman, the 321 Special Tactics Squadron (STS), based at RAF Mildenhall, United Kingdom, was “spun-up” no less than three times in anticipation of contingency operations in response to Serbian actions in Kosovo. The third time, however, in March 1999, was the real deal. Later, Lt. Col. Bradley Thompson—a captain in 1999—recalled he was tasked initially with forming three CSAR teams, totaling about ten personnel. By the time the air campaign against Serbia began, however, he was the mission commander for some seventy personnel, including operators who deployed to the JSOTF2 from Special Tactics and Air Rescue units at Hurlburt Field and Patrick AFB, FL, Portland International Airport, OR, and Moody AFB, GA. It was one of the largest concentrations of deployed Special Tactics operators (even though some personnel were under the conventional Rescue organization) in one location prior to September 11, 2001.¹⁰

General Bargewell took a proprietary interest in the rescue mission and closely watched the preparation at JSOTF2. Harmon briefed him on the options that his team had scripted. Bargewell knew that the Serbians expected the allied force to mount recovery operations for any downed aircrews and wanted his Airmen to have the best possible chance for success and survival. He did not want the Pave Lows operating singly or even in two-ship formations. Instead, he accepted a three-ship mini-task-force option consisting of two MH-53s—one MH-53M and one MH-53J—and an MH-60G. The MH-53s would lead and provide fire support, while the MH-60 would be the designated recovery aircraft. A rescue mission commander (RMC) would be aboard the lead Pave Low. This individual would be someone seasoned—such as Lt. Col. Steve Laushine, the 55th SOS commander, or Lt. Col. Tom Trask, the 20th SOS operations officer—who would be in charge and empowered to make whatever tactical decisions needed to execute the recovery. All helicopters would have an ST element aboard for the actual pickup. Additionally, Bargewell ordered a U.S. Army Special Forces Operational Detachment Alpha (ODA) unit to be dispersed on board the helicopters. The ODA element would be available as another tactical option if, for some reason, it made sense to land the team members and have them execute some form of initial overland recovery.¹¹

Several of the USAF crew members objected to having the “extra” troops on board, arguing that it forced the helicopters to fly with less fuel and placed more lives at risk. They took their concerns to Lt. Col. Harmon. He addressed the issue with Bargewell who “in no uncertain terms” made it clear to the helicopter crews that this was the way the missions were going to be organized. He dictated very specific considerations and criteria for their deployment and use. When that was cleared up, the

The Vega-31 rescue crew. (Left to right) Capt. Matt Glover, Capt. Chad Franks, TSgt. Joe Kirsch and SSgt. Shawn Swift (Source: Col. Chad Franks)



CAPTAIN CARDOSO ... HAD NOW FLOWN BOTH THE MH-53J AND M MODELS AND KNEW THAT THE NEWER M MODELS WERE MORE TECHNOLOGICALLY ADVANCED

aircrews, ST elements, and ODA assumed alert posture at Brindisi.¹²

Combat operations would begin on March 24. Colonel Harmon worked with Capt. Jim Slife also from the 21st SOS to build five helicopter packages, each led by a very experienced flight lead: from the 20th, Capt. Jim Cardoso and Capt. Paul Pereira, and from the 21st, Capt. Jim Breck, Maj. Lou Caporicci, and Capt. Jim Slife. Every 24 hours, two teams would be on alert as primary and secondary. They would rotate through the schedule with primary, secondary, and local duties. The primary would move forward to Tuzla, Bosnia-Herzegovina, reducing reaction time over Serbia, and the secondary would sit alert at Brindisi and respond to calls in Kosovo. Since two models of Pave Lows were on site, whatever type the lead crew flew would lead. The two squadrons did not intermix their personnel. Captain Cardoso agreed with this plan. He had now flown both the MH-53J and M models and knew that the newer M models were more technologically advanced. However, he also believed that the theater experience of the 21st SOS guys was clearly a mitigating factor; later stating that "having theater experience outweighs the machine."¹³

Vega 31

On the night of March 27, a 20th SOS crew, including Captain Cardoso as flight lead for the rescue package and copilot Capt. John Glass, took off in an MH-53M. Their call sign was Moccasin 60. One wingman, Moccasin 61, was an MH-53J from the 21st SOS, flown by Capt. Shawn Cameron with copilot Capt. Matt Daley and crew. The other wingman was Gator 07, an MH-60G from the 55th SOS, commanded by Capt. Chad Franks with copilot Capt. Matt Glover and crew. Colonel Laushine was aboard Moccasin 60 as the RMC. As directed, an ODA package from the 1st Battalion, 10th SFG, as well as USAF special tactics personnel were dispersed among the three aircraft.¹⁴

As the flight of three helicopters proceeded to

Tuzla, the crews checked in with the NATO AWACS on station and overseeing the strikes that evening. The weather over the region was poor, with mixed rain showers and low visibility, and many strikes had been cancelled. Cardoso and his group landed at Tuzla and taxied to the refueling pits to fill their tanks. As they were doing so, the crews aboard Moccasin 61 and Gator 07 heard a Mayday call on the UHF "Guard" (military aircraft emergency) frequency.¹⁵

Immediately, Laushine and the aircraft commanders went into the Tuzla command center to determine what was going on. There they were told that an F-117 had gone down in Serbia. They quickly began to formulate a recovery plan and tasked intelligence for the most accurate location of the pilot, Lt. Col. Dale Zelko, call sign Vega 31, from the 49th Fighter Wing at Holloman AFB, NM. Laushine asked for data on the enemy threats that they would have to deal with to get him out. Cardoso was a bit concerned, thinking, "a Stealth just got shot down and now [they] want us to go in there?" However, he was now a highly experienced Pave Low pilot and knew that, while the immediate plan was not clear, the crews knew what they had to do and would figure out a way to get Zelko out of there.¹⁶

The requested information promptly flowed into the command center. Intelligence sources indicated that Vega 31 was down near Novi Sad, Serbia, an estimated 90 miles from Tuzla. Those sources also reported that the Serbs realized they had shot down an F-117 and were scrambling to capture the pilot. Several flights of A-10s and other supporting aircraft were being launched to assist in the rescue. With that information, Laushine directed his task force to take off and head north to set up a rendezvous with the A-10s near Osijek in northeast Croatia.¹⁷

An hour later, at 2050Z, the Combined Air Operations Center (CAOC) authorized the rescue force to launch. The three helicopters quickly launched and headed north. In this area, at least,

Table 1.
Special Tactics Personnel, "Vega-31" F-117 Rescue, March 27/28, 1999

MH-53M (Chalk Lead)	MH-53J (Chalk 2)	MH-60G (Chalk 3)
Anthony "Tony" Negron (PJ)	Nate C. (PJ)	Eric G. (PJ)
Lance Supernaw (PJ)	Ronald E. (PJ)	John M. J. (PJ)
Rob P. (CCT)	Christopher B. (CCT)	Donald "D. J." Cantwell (CCT)

Source: History, AFSOC, Jan-Dec 1999, vol 1, pp 101-106 email, CMSgt Wayne G. Norrad (USAF, Ret) to Marion, Aug 31, 2010; email, Lt Col Dale P. Zelko (USAF, Ret) to Marion, Sep 29, 2010; various emails.

the air was clear, and night visibility was good, although the moon was slowly setting. En route, though, they had difficulties establishing communications with the A-10s and other support aircraft as Laushine tried to organize the recovery effort. Meanwhile, Zelko had been able to use his handheld GPS to determine his location and had securely passed it to a C-130 orbiting over Kosovo. The C-130 crew quickly forwarded it through intelligence channels to Laushine. The reported position, validated by the A-10 flight lead, Capt. John Cherrey, who had established radio communications with and authenticated the survivor, indicated that Vega 31 was on the ground just south of the city of Ruma, 25 miles farther south. This was much closer to Belgrade, the heavily defended Serbian capital, and necessitated a complete rework of the recovery plan as the helicopter crews quickly entered Zelko's reported GPS location into their navigation systems.¹⁸

To save fuel, Cardoso directed his flight crews to land their helicopters and dismount their ST elements and some ODA troops to provide site security. The ST elements aboard the helicopters consisted of the individuals listed above in Table 1.

Meanwhile, Cardoso, copilot Glass, and seat flight engineer SSgt. Bill Clemons frantically built a new route to the survivor while the crew of Moccasin 61 coordinated for a MC-130P to refuel the helicopters. Once that was worked out, the helicopters re-launched, quickly rendezvoused with the tanker, just 700 feet above the ground, and took on fuel as ground fog and low clouds were forming in the area. They repositioned to a holding point west of Ruma but still in Bosnian airspace and awaited the arrival of Cherrey's flight, which would escort them in to the survivor and provide top cover against any threats that challenged them.¹⁹

Enemy forces were now aware of Zelko's presence and were fully mobilizing to capture him. Time was of the essence. As Captain Cherrey was orchestrating his portion of the effort, he received an intelligence report that Zelko had been captured. Cherrey called him on his survival radio and re-authenticated him. The rescue was on.²⁰

Finally, the rescue package received approval to cross into Serbian airspace. At the holding point, Cherrey briefed Cardoso and his flight on the escort and recovery plan. He told Cardoso to call him when they were two miles from Zelko so that he could tell Zelko to turn on his signaling device. They all acknowledged the plan, and Cherrey directed them to execute.²¹

Descending to fifty feet above the terrain, the CSAR three-ship proceeded inbound toward the survivor. Several times, Cardoso increased his altitude to one hundred feet to avoid obstacles and populated areas. Throughout the night, the helicopters had been operating mostly in clear air. As they turned inbound to Zelko, though, they encountered a layer of low-hanging clouds, fog, and rain. Flight engineer TSgt. Ed Hux, serving as the right-door gunner and scanner on Cardoso's aircraft, noted, "It was probably in the top five of the darkest nights that I have ever flown in 30 years of flying." As visibility rapidly deteriorated, Cardoso and his crew, already wearing NVGs, began utilizing the forward-looking infrared radar (FLIR) system to proceed. Unfortunately, as they entered the low scud, Cherrey and his flight could no longer see the helicopters to provide direct fire support. They themselves were being engaged by deadly SA-6 missile batteries and were now occupied just avoiding Zelko's fate.²²

Entering the scud at about 50 feet above the ground, the two other helicopters held tactical formation on Moccasin 60 so that they did not get separated while so dangerously close to the ground. On board all three helicopters, gunners and flight engineers were earnestly scanning for immediate physical threats such as trees, towers, or power lines—anything that could damage or destroy a helicopter—as well as enemy forces. Suddenly, Hux spotted an uncharted power line in the haze, just ahead and level with the helicopters. He quickly shouted, "Wires! Climb! Climb!" as copilot Glass echoed his call. Cardoso immediately reacted and pulled back on the controls, flying his helicopter up and over the threatening wires. The other two crews maintained formation and also avoided the threat. Once clear of the wires, Cardoso descended the flight back down about 100 feet and proceeded toward Zelko.²³

Approaching Vega's location, the helicopters encountered Serbian spotlights vainly looking for them. But there was no ground fire. About three miles from Vega, the CSAR team spotted three Serbian trucks evenly spaced on a road as enemy troops searched for the F-117 pilot. Two miles from Vega's location, the rescuers contacted the survivor but they could not see him. Vega's infrared strobe was inoperable and he couldn't locate his pen-gun flares. Cardoso's team told him to fire his overt flare. Vega did so. Immediately, SrA. Shawn M. S. (last initial only), the MH-60G flight engineer, spotted it—one-half mile to the east. Seeing the flare, Capt.

The crew of Moccasin 60 the morning after rescuing Vega 31. Lt. Col. Dale Zelko: (Left to right), MSgt. John Dubuissou, Capt. John Glass, TSgt. Ed Hux, SSgt. Bill Clemons, SrA. Chris Bloomfield, and Capt. Jim Cardoso. (Source: Col. Jim Cardoso.)

IN SPITE OF THE...INITIAL EXPECTATIONS OF A SHORT, LIMITED AIR CAMPAIGN, THE OPERATION INCREASED IN INTENSITY



Chad P. Franks, the Pave Hawk aircraft commander, turned toward Vega and headed inbound. The two Pave Lows also turned so as to overfly Vega, then turned to the west to hold. Franks flew the approach to the ground, the helicopter settling down as close to Vega as was relatively safe—the survivor was just outside the path of the rotor blades. Special Tactics personnel—consisting of pararescuemen Eric G. (last initial only) (team lead, 304th Rescue Squadron) and John M. J. (last initial only), and combat controller Donald “D. J.” Cantwell—quickly exited and assisted Vega aboard. Zelko heard the almost incredible greeting for which he might have lost hope. Grabbing him, they announced, “Your PJs are here to take you home!” Forty-five seconds after landing, Franks’ aircraft was airborne, heading that way.²⁴

Rejoining the Pave Lows, the MH-60G and the 53s flew a different route leaving Serbia than on the ingress. As they approached the border with Bosnia, they observed Serbian anti-aircraft fire in the vicinity of their previous flight path. Without being able to see the aircraft, the Serbians appeared to be firing volleys in hopes that the helicopters were flying the same route as before. After the grueling five and one-half hour mission, Cardoso’s team landed safely at Tuzla at 0254Z. To Captain Cardoso, the results spoke for themselves. “We went in with 37 [personnel], and came back with 38.”²⁵ Colonel Zelko underwent a physical examination before being flown to Aviano AB, Italy. Both Cardoso and Franks earned

Silver Stars for the rescue mission; other crew members received the Distinguished Flying Cross (DFC), and in 2000, Cardoso received the James Jabara Airmanship Award for the leadership he provided in the rescue.²⁶

However, this mission had another significance, perhaps unrecognized at this time but profound in its historical implications. In 1967, at a time when the USAF was engaged in an intense theater war in Southeast Asia (SEA) and losing aircraft and aircrews on a daily basis, its commanders in SEA forwarded to the Pentagon a requirement, SEA Operational Requirement 114, which called for “an integrated system to enable . . . helicopters to perform the essential elements of search and rescue under conditions of total darkness and/or low visibility.”²⁷ It took another thirteen years of development before that capability was finally consummated in the HH-53H helicopters that then became the MH-53 Pave Low aircraft. However, it took the right crews, PJs, ST airmen, young air commandos, men of consummate professionalism and intense drive, to operationally bring those helicopters alive. It was the men and machines together that made it all work. And this rescue operation was classic air commando. Moccasin 60 did not land to recover Vega 31, although it could have done so. Instead, it provided the overall leadership for the mission to facilitate the recovery action by the brave crew of Gator 07.²⁸

The simple truth is that in the early morning

The crews of Skat 11 and 12, the morning after rescuing Hammer 34. (Left to right), top: TSgt. Lou Orrie, 1st Lt. Tom Lang; middle, SSgt. Vince DePersio, SSgt. Dan Weimer, SrA. Grady Galvin, SrA. Eric Fricsons, 2d Lt. Dan Nielson; front, Capt. Kent Landreth, SSgt. Barry Bergschneider, 1st Lt. Tom Palenske, SSgt. Dub Scott, SSgt. Bill Kerwood (deceased). (Source: Lt. Col. Kent Landreth.)



hours of March 28, 1999 in the skies over Serbia, a concept germinated 32 years earlier in the frustrations of the long war in Southeast Asia finally came to fruition. More than three decades of conceptualizing, planning, modifying, organizing, and training jelled in one seminal moment, and the rescue of Vega 31, Lt. Col. Dale Zelko, was the final and ultimate fulfillment of that requirement. His freedom was the end result of the right equipment and the right men at the right place at the right time, and for all of the right reasons.²⁹

Hammer 34

In spite of the U.S./NATO's initial expectations of a short, limited air campaign, the operation increased in intensity, continuing until early June when Milosevic, faced with a crumbling economy and dwindling popular support, finally agreed to withdraw from Kosovo. The Serbian leader remained obstinate until perhaps beginning to fear that a NATO ground option into Kosovo—which, unwisely, had been taken “off the table” at the outset—might be under consideration. In any case, the prolonged air campaign provided a second opportunity for the combat rescue of a downed Airman from Serbia. By that time, the CSAR crews spent several days at a time forward-deployed to Tuzla AB rather than sending crews from Brindisi on a daily basis, a practice that taxed people and machines more than was necessary.³⁰

On May 2, Serbian ground fire severely damaged an A-10 over Kosovo. However, the pilot was able to land the aircraft at the airport at Skopje, Macedonia. Later that evening, though, Serbian gunners downed a USAF F-16CG, call sign

“Hammer-34,” flown by Lt. Col. David Goldfein, near the border with Bosnia-Herzegovina. The primary CSAR alert package of three helicopters—just as before, two Pave Lows and a Pave Hawk—launched from Tuzla AB as soon as the downed pilot was located, authenticated, and a threat assessment accomplished. Again, the RMC was Lt. Col. Steve Laushine. His lead MH-53M was flown by Capt. Greg Landreth, 1st Lt. Tom Palenske, and crew, with the call sign of Skat 11. Capt. Tom Lang, 1st Lt. Dan Nielsen, and crew, flew the second MH-53 as Skat 12; and Capt. Bill Denehan, 1st Lt. Tom Kunkel, and crew, flew the MH-60 as Skat 13. Just like the Vega 31 recovery force, the helicopter package also had ST elements and an ODA onboard.³¹

Hammer's shoot-down occurred four hours later into the night than did Vega's, which gave the CSAR force less time to work with. Almost certainly, a daylight rescue in many parts of Serbia would have been too risky to undertake. Unlike the first mission, as the rescue force crossed the Serbian border it came under surface-to-air missile fire. Executing standard countermeasures, each helicopter crew managed to evade no less than three missiles while inbound to the objective area. Also unlike the Vega mission, on May 2 the night was beautiful, clear, with no clouds and a full moon—which increased the threat because “the Serbs knew we were coming,” noted one crewmember, and enjoyed better visibility of the rescue force.³²

The helicopters also encountered large caliber antiaircraft fire but evaded it by jinking and terrain masking maneuvers. Despite hearing radio traffic suggesting that the helicopters should hold and await close air support escort, mission commander Colonel Laushine, aboard Skat 11, pushed the small

AS SOON AS
THE MH-60G
LANDED,
HAMMER 34
BOLTED
FROM THE
NEARBY
TREELINE

(Left to right) Lt. Col. Steve Laushine, and the crew of Skat 13: Capt. Tom Kunkle, SrA. Rich Kelley, Capt. Bill Denehan, SSgt. Jack Gainer, all 55th SOS personnel.



THE CASE OF BOTTLED WATER SERVED AS A CONVENIENT STEP FOR THE SCAMPING AIRMEN AS THEY SCRAMBLED ABOARD

force forward to the objective area. Once in the area, the rescue helos linked up with Goldfein's flight lead, Hammer 33, who had assumed the OSC role, and vectored the helicopter task force to the survivor's position. Two miles from his location, the MH-60G pilot, Capt. Denehan, spotted ground fire from his aircraft's four o'clock position. The flight engineer, SSgt. Richard D. K. (last initial only), returned fire using the helicopter's minigun. Immediately, the rescuers contacted the downed pilot and directed him to turn on his strobe light. Making one pass over the survivor, the Pave Hawk and MH-53M failed to obtain a "visual" on him. However, they turned on their Precision Location System which gave them a vector towards the survivor's location. Denehan spotted Goldfein's strobe light and dashed in for the pickup as the Pave Lows orbited above, guns ready to suppress any immediate threat to the force. Denehan landed his Pave Hawk at 0245Z on sloped terrain in a field near the survivor. The Special Tactics team of PJs Jeremy Hardy (team lead) and Ronald E. (last initial only) and combat controller Andrew Kubik jumped out to secure the survivor. As they did, they inadvertently knocked out a case of bottled water. In the distance, they could hear guns aboard one of the Pave Lows engaging Serbian forces.³³

Unfortunately, Serbian soldiers had also spotted Hammer-34, and "were closing in quickly," as the AFSOC command historian, Mr. Herb Mason, stated later:

As soon as the MH-60G landed, Hammer 34 bolted from the nearby treeline. Unable to identify the pilot as a friendly, Sergeant Hardy trained his M-4 rifle on the pilot who immediately went submissive. Taking just seconds to authenticate the F-16 pilot, the special tactics team placed Hammer 34 aboard . . . and quickly piled on top of him to pro-

tect him from any incoming ground fire. A scant 20 seconds after landing, Captain Denehan quickly took off to the sound of gunfire coming from the southwest.³⁴

The case of bottled water served as a convenient step for the scampering airmen as they scrambled aboard and shouted "go, go, go!" Unaware that Goldfein's legs were still partly dangling out of the aircraft, Denehan lifted off and climbed quickly to rejoin the MH-53s. Changing their outbound route, the flight of helicopters encountered minimal ground fire but required a "hard break left" near the border to avoid an enemy position. The rescue team landed safely at Tuzla at 0330Z. As in the rescue of Vega-31, the pickup helicopter pilot (Capt. Denehan) and the lead MH-53M pilot (Capt. Landreth) each received the Silver Star; their crews received DFC's. Comparing the two rescues, mission commander Laushine noted that overall the second CSAR "went a lot smoother than the first," despite the fact that radio discipline was poor. There were "way too many people on the radios talking," he added. There was irony in the fact that the unit to which the Vega and Hammer pickup helicopters belonged was the 55th Special Operations Squadron. The 55th was slated for inactivation later in the year. This deployment was their "swan song."³⁵

For rescuer and rescuee, there was at least one personal remembrance of the dramatic event in later years. In 2010, pararescueman Jeremy Hardy was promoted to chief master sergeant. The presiding official for the ceremony was Maj. Gen. David L. Goldfein—Hammer-34, Hardy's rescued pilot.³⁶

Six weeks after the rescue of Hammer-34, the air campaign ended as Serbian ruler Milosevic returned to the negotiating table and agreed to pull his forces out of a ravaged Kosovo. The two success-

Table 2.
Special Tactics Personnel, “Hammer-34” F-16 Rescue, May 2, 1999

MH-53M (Chalk Lead)	MH-53J (Chalk 2)	MH-60G (Chalk 3)
Robert W. B. (PJ)	Darryl C. (PJ)	Ronald E. (PJ)
Isaiah S. (PJ)	Juan M. Ridout (PJ)	Jeremy S. Hardy (PJ)
Ryan M. Stanhope (CCT)	Christopher B. (CCT)	Andrew Kubik (CCT)

Source: Hist , AFSOC, Jan-Dec 1999, vol 1, pp 106-109; vol 5, SD 111-19 ; email (U), SMSgt Jeremy S. Hardy (USAF) to Marion, Sep 3, 2010; various emails.

ful combat rescues of Vega-31 and Hammer-34 were, in the words of the official USAF report on the campaign, “among the most significant tactical successes of the air war over Serbia.” Arguably, it was only the *success* of both rescues—particularly the first—that precluded their *strategic* signifi-

cance from being more readily appreciated. Put another way, had a U.S. Air Force F-117 pilot been captured and shown to the world on camera, the situation would have been far more than a tactical issue for the U.S. and its allies; rather, a strategic and political crisis of the highest order.³⁷ ■

NOTES

1. Report, *The One Year Report of The Air War Over Serbia: Aerospace Power in Operation Allied Force, Volume 1* (Washington DC: Headquarters USAF, Oct 2000), pp. 5-7. Legally, Kosovo was under Serbian sovereignty.
2. *Ibid.*, pp. 7-8.
3. *Ibid.*, pp. 9-11, 45.
4. *Ibid.*, p. 1.
5. Nick Richardson, *No Escape Zone* (London, UK: Little, Brown and Company, 2000), pp. 140, 229.
6. Martin R. Berndt, “Recovery of Basher 52,” *US Naval Institute Proceedings*, vol 121, no 11 (Nov 1995), pp. 41-43.
7. Darrel Whitcomb, “Searching for Ebro-33,” *Air Power History* 49 (Fall 2002), pp. 34-39; Roger Thurow, “Among Serbs, Facts Clash With Fancy In Attack on Gorazde,” *Wall Street Journal*, Apr 18, 1994, p. 1; History, Air Force Special Operations Command [AFSOC hereinafter], Jan-Dec 1995, vol 1, pp. 150-51. All unit Histories cited herein are held at the Air Force Historical Research Agency, Maxwell AFB, AL.
8. Darrel Whitcomb, *On a Steel Horse I Ride: A History of the MH-53 Pave Low Helicopters in War and Peace* (Maxwell AFB, AL; Air University Press, Sep. 2012), pp. 446-47.
9. History, AFSOC, Jan-Dec 1998, vol 1, p. 92; History, AFSOC, Jan-Dec 1999, vol 1, pp. 86, 88, 96-97. The third specialty included under Air Force Special Tactics was that of Special Operations Weather Team personnel. All three specialties were under the Air Force’s 720th Special Tactics Group. based at Hurlburt Field, Fla. At the start of operations in March 1999, in addition to the deployed helicopters, AFSOC had four MC-130P tankers and two AC-130U gunships stationed in Italy.
10. Interview F. L. Marion, AFHRA, with Lt. Col. Bradley P. Thompson (USAF), Dec 18, 2006.
11. Whitcomb, *On a Steel Horse I Ride*, p. 447.
12. Interview Darrel Whitcomb, with Col. (USAF, Ret.) Paul Harmon, Oct 15, 2009; Interview Darrel Whitcomb, with Brig. Gen. Tom Trask, Aug 12, 2009.
13. Interview Darrel Whitcomb, with Col. Jim Slife, Jan 26, 2010; Interview Darrel Whitcomb, with Col. Jim Cardoso, Sept 21, 2009.
14. Whitcomb, *On a Steel Horse I Ride*, pp. 448-449.
15. *Ibid.*, pp. 448-49.
16. Interview Whitcomb – Cardoso.
17. Whitcomb, *On a Steel Horse I Ride*, pp. 449-454.
18. *Ibid.*, pp. 449-50.
19. *Ibid.*
20. *Ibid.*, p. 450.
21. *Ibid.*
22. Interview Darrel Whitcomb with CMSgt (USAF, Ret) Ed Hux, Feb 1, 2010.
23. Interview Whitcomb - Hux.
24. History, AFSOC, Jan-Dec 1999, vol 1, p. 104-105; email, CMSgt Wayne G. Norrad (USAF, Ret) to Marion, Aug 31, 2010; email, SMSgt Robert Lapointe (USAF, Ret) to Marion, Sep. 6, 2010; email, Dale P. Zelko to Marion, Sep. 29, 2010; email, Donald J. Cantwell to Marion, Jul 26, 2011; Richard J. Newman, “Silver Stars,” *Air Force Magazine*, vol. 83 (Jun. 2000), pp. 82-83.
25. Interview Whitcomb - Cardoso.
26. History, AFSOC, Jan-Dec 1999, vol 1, pp. 101-102, 105; Newman, “Silver Stars,” pp. 82-83; Whitcomb, *On a Steel Horse I Ride*, p. 666.
27. History, Aerospace Rescue and Recovery Service, 1 July 1970 – 30 June 1971, vol 1, p. 191.
28. Whitcomb, *On a Steel Horse I Ride*, p. 453.
29. Whitcomb, *On a Steel Horse I Ride*, p. 454.
30. Report, *One Year Report . . . Air War Over Serbia*, pp. 71-72; Interview F. L. Marion, AFHRA, with Lt Col Stephan J. Laushine, Sep. 10, 2001.
31. Whitcomb, *On a Steel Horse I Ride*, p. 456.
32. History, AFSOC, Jan-Dec 1999, vol 1, pp. 106-107; Report, *One Year Report . . . Air War Over Serbia*, p. 48; Interview Marion - Laushine.
33. History , AFSOC, Jan-Dec 1999, vol 1, pp. 107-108; Interview Marion - Laushine; email, Andrew Kubik to Marion, Jul 6, 2011; Newman, “Silver Stars,” p. 82; Presentation. Lt. Col. Bill Denehan, CSAR Conference, Moody AFB, GA, May 30 2014.
34. History, AFSOC, Jan-Dec 1999, vol 1, p. 108; Newman, “Silver Stars,” p. 82.
35. History AFSOC, Jan-Dec 1999, vol 1, p. 108-109; Interview Marion - Laushine; Newman, “Silver Stars,” p. 82; Presentation. Lt Col Bill Denehan, CSAR Conference, Moody AFB, GA, May 30 2014.
36. Email, SMSgt. Jeremy S. Hardy (USAF) to Marion, Sep. 3, 2010.
37. Report, *One Year Report . . . Air War Over Serbia*, p. 48 [emphasis added].



Getting to the Target: The Penetration Problem in Strategic Air Command during the 1950s



Phillip S. Meilinger

(Overleaf) The Boeing B-52, the mainstay of SAC for much of the command's existence. (All photos courtesy of the author.)

ALTHOUGH SAC WAS SUPPOSED TO BE THE ELITE CORPS ...CHRONIC SHORTAGES OF SKILLED PERSONNEL LED TO A DISMAL AIRCRAFT-IN-COMMISSION RATE

A NEW COMMANDER WAS BROUGHT IN TO STRAIGHTEN THINGS OUT: LIEUTENANT GENERAL CURTIS E. LEMAY

Strategic Air Command (SAC) was established in March 1946 by commanding general of the U.S. Army Air Forces (AAF), Gen. Carl A. Spaatz. SAC was meant to be the jewel in the AAF crown and was thus given the largest number of assets in personnel, aircraft and funding. Its mission was deterrence, but if that failed, SAC was expected to launch an atomic air attack and defeat the enemy. That enemy was assumed to be its erstwhile ally, the Soviet Union. The commander of the command was Gen. George C. Kenney, a senior airman who had served with Gen. Douglas MacArthur in the Pacific for much of the war. SAC immediately encountered hard times.

Demobilization after the war hit all of the services hard. The AAF went from 232 total groups down to ninety within six months of VJ-Day and over the next two years would fall to forty-eight; worse, few of those groups were even combat-ready.¹ Although SAC was supposed to be the elite corps within the air arm, it was hard hit as well. Chronic shortages of skilled personnel led to a dismal aircraft-in-commission rate of forty-two percent.² When SAC launched a maximum effort simulated bombing attack against New York City in May 1947, only 101 of 180 bombers were able to make it to the target—and this was without anyone shooting at them. Several months later SAC tried again, against Chicago, but the results were even worse.³

When the Berlin crisis broke out in mid-1948 and the Soviets blockaded the city, it appeared the world was moving towards war. Fortunately, that was averted, and the newly created U.S. Air Force instead launched a massive airlift to supply the beleaguered city with food and coal. The eleven-month Berlin Airlift was one of the greatest Western victories of the Cold War, and it was achieved without firing a shot.⁴ SAC was nonetheless in the limelight during that period, because if matters escalated and shooting began, U.S. war plans made it clear that the few ground troops involved in occupation duties in Germany would serve merely as speed bumps as the massive Soviet Army sped to the English Channel. But SAC was not ready, and internal investigations by the Air Force revealed that depressing fact.⁵ Kenney was relieved and a new commander was brought in to straighten things out—Lieutenant General Curtis E. LeMay.

LeMay, a gruff and no-nonsense young general, had enjoyed a meteoric rise during the war. Arriving in England as a bomb group commander and lieutenant colonel in mid-1943, eighteen months later he was a major general in command of a bomb divi-



sion. In January 1945, he took command of the XXI Bomber Command in the Mariana Islands—the B-29s conducting a strategic bombing campaign against Japan. He was still on Guam when the atomic bombs were dropped on Hiroshima and Nagasaki ending the war. After the surrender, LeMay served in research and development on the Air Staff, and then became the air commander in Germany. When a replacement was needed at SAC in October 1948, LeMay was the obvious choice. In 1951, he would pin on a fourth star: at age 44 he was the second youngest full general in American history behind U.S. Grant who beat him by a few months.⁶

The next several years would witness a dramatic increase in capability of Strategic Air Command.⁷ LeMay was famous for his emphasis on rigorous and realistic training. Although some argued the advent of atomic and later nuclear weapons made the need for accuracy moot, LeMay disagreed. He drilled his crews relentlessly on the necessity of putting bombs precisely on target. Other problems existed that were just as fundamental: How would SAC bombers penetrate deep inside Soviet airspace in the event of war, find their targets, and successfully attack them? The extreme distances involved, combined with increasingly robust Soviet air defenses, made these formidable problems. Several potential solutions presented

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(Left) Gen. George C. Kenney, commander of Far East Air Forces during World War II and the first commander of SAC.

(Above) The Boeing B-17 was a workhorse in World War II and was involved in early tests of air refueling during the war.

(Right) Lt. Gen. Curtis E. LeMay upon taking over as commander of SAC. He would later pin on a fourth star and become the second youngest full general in American history.

THE U.S. AND ITS ALLIES WERE OUT-NUMBERED BY AT LEAST THREE-TO-ONE ... IN POSTWAR EUROPE

The Boeing B-50, an upgraded version of the B-29 that had more powerful engines and a taller tail.



themselves, one of these concerned increasing the range of existing bombers via air refueling.

The Challenge of Range

Although Allied bombers had the range to reach most targets in Nazi-occupied Europe, the distances in the Pacific were far greater and it was not until mid-1944 that forward bases and long-range B-29 bombers were available. On the other hand, experience proved that despite prewar doctrine, fighter escort for the bombers was necessary. Until the arrival of the P-51, such long-range fighters were not available. Air refueling would have been useful, for both the bombers and the fighters.

Despite experiments in April 1943, using a B-24 as a tanker with a B-17 as a receiver, the procedures were too complex to employ the system on a major scale. Air refueling was not even considered for fighter escort during the war, however, perhaps because of the sheer scale of the problem—by mid-1944 there were over 5,000 U.S. fighters in Europe. At a time when factories were straining to produce aircraft to supply a global war, building hundreds of tankers was unthinkable. The issue of air refueling lay dormant until the Cold War when the advantages offered by air refueling were reexamined.

The U.S. and its allies were outnumbered by at least three-to-one on the ground in postwar Europe.



SAC would be the equalizer. But Moscow was a long way from the U.S.—5,000 miles—how could the bombers extend their range? A Heavy Bombardment Committee met in September 1947 at SAC headquarters and discussed the problem. Very long range aircraft like the B-36 was one answer, but the sleek new jet-powered B-47 then in the development stage was only a medium bomber. Air refueling was the obvious solution.⁸

On June 30, 1948, SAC formed its first air refueling squadron, and in December an air-refueled B-50 flew non-stop for 10,000 miles.⁹ In February 1949 another B-50 made the first non-stop around the world flight using eight in-flight refuelings along the way. Upon landing back in Texas, LeMay stressed the flight's importance: "This means that we can now deliver an atomic bomb to any place in the world that requires an atomic bomb."¹⁰

Over the next several years methods were tested to improve the speed and efficiency of in-flight refueling. A "probe and drogue" system involving a hose reeled out from the tanker with a basket attached shaped like a huge shuttlecock was one such method. The receiver aircraft was equipped with a probe that plugged into the basket. This system worked well for small aircraft, but large planes were difficult to maneuver while trying to plug a basket.¹¹ In addition, the amount of fuel transferred by this method was limited, approximately 250 gallons per minute. Other problems included oscillation and whipping of the hose and fuel leaks.¹² Nonetheless, the system was useful for fighters. In September 1950 an F-84E flew non-stop from England to Maine—a flight of ten hours that was a transatlantic first for a jet fighter.¹³ During the Korean War a squadron of KB-29s deployed to Japan to test the system in combat with jet fighters. The world's first combat air refueling took place on July 6, 1951. Far East Air Force (FEAF) and Tactical

The Boeing B-47 medium bomber using Jet Assisted Take Off bottles for a maximum effort takeoff. The B-47 replaced the B-29 and B-50.



IN 1952, TANKERS BEGAN ESCORTING AND REFUELING FIGHTER SQUADRONS ACROSS BOTH THE ATLANTIC AND THE PACIFIC

Air Command were pleased with the realization of how air refueling could impact fighter operations. In 1952, tankers began escorting and refueling fighter squadrons across both the Atlantic and the Pacific. In July, operation FOX PETER I deployed the 31st Fighter Wing to Japan: 58 F-84Gs, led and periodically refueled by KB-29s, flew from Turner AFB in Georgia to Japan. It would be the first of many such deployments. SAC, which contained several fighter escort wings, deployed them to Korea to practice the new procedure in anticipation of a major war.¹⁴

The limitations of the probe and drogue system for large aircraft led to the flying boom. By 1950 Boeing had perfected the use of a boom extending down and telescoping out from the rear of a tanker. A boom operator, sitting in the old tail gunner's position, could actually "fly" it via a small wings termed "ruddervators." The receiver aircraft maneuvered behind the tanker and flew formation; the boomer would then fly his probe into the other aircraft's receptacle. The boom system transferred fuel at 600 gallons-per-minute—more than twice that of the probe and drogue.¹⁵ The first boom-equipped KB-29P was delivered to SAC on September 1, 1950.

Over the next several years the number of tankers in SAC exploded—by the end of 1954 there were 683 tankers in thirty-two squadrons.¹⁶ With the move towards an all-jet bomber force, however, even the KB-29s and KC-97s were inadequate. Piston-driven tankers could not keep up with the jet

bombers, nor could they reach their altitude when loaded with fuel. As a result, B-47s had to descend and slow down to rendezvous with the tankers. What ensued became almost comical. As the B-47 took on gas and grew heavier, its stall speed increased, which meant it had to accelerate in order not to fall out of the sky. This in turn required both the tanker and the bomber to go into a descent in order to pick up speed to stay above a stall. Eventually, both aircraft would then go into a climb. As the airspeed slowly bled off, another descent was necessary. This porpoise maneuver, while connected, required inordinate skill for both the tanker and the bomber pilot. Moreover, once the refueling was accomplished, the B-47 had to climb back to cruising altitude and accelerate—a process that used up 25 percent more fuel than if the refueling had occurred at the bomber's altitude and cruising speed.¹⁷ The Air Force needed a jet tanker, and the solution was the KC-135, born in 1955.

The KC-135 provided a quantum jump in capability over the KB-29. It could carry 31,200 gallons of fuel, while also hauling 40 tons of cargo or 160 passengers. The jet tanker could offload six times as much fuel as the KB-29 and twice that of the KB-97, and because it had twice the range of the KB-97, it meant that one KC-135 could take the place of three or more piston-driven tankers. Moreover, the "Stratotanker" could do so at the same speed and altitude as the B-47 and B-52.¹⁸ SAC embraced the KC-135 and purchased 732 of



The F-85 "Goblin," designed to be carried internally by a B-36 and then deployed via trapeze to serve as an escort fighter while in Soviet airspace.

them, while also buying 744 B-52s. These aircraft were to become a team over the next several decades.

Entering Enemy Airspace

Range was crucial, but it was not the only problem. The B-17s and B-24s had been able to reach targets in Germany, but enemy interceptors proved a major menace. Fighter escort was essential, but designing and building small, agile fighters with the requisite range was a technological challenge. The P-51 Mustang solved the problem during the war, but the concern reemerged afterwards.

When SAC was formed in 1946 it was assumed escort would be necessary for the B-29s if they went against the Soviet Union. SAC therefore included escort wings in its numbered air forces. Originally, SAC was to have twelve fighter wings, but that number dropped quickly. In mid-1946 there was only one wing operational (two others on paper); by

late 1947 there were five; a year later it was down to two; and in 1951 back up to seven.¹⁹ In April 1950 LeMay admitted that SAC had no long-range escort capability.²⁰ Because targets in the Soviet Union were even farther off than had been German factories, the issue of long-range escort was obvious. SAC began to experiment.

First, air refueling was used to extend the range of existing fighter jets like the F-84, but this was insufficient for going all the way to the target and back. The arrival of jet bombers meant that although the F-84 could stay with the B-50 and B-36, it lacked the speed and altitude capability to accompany B-47s. Moreover, the appearance of the Soviet MiG-15 during the Korean War revealed the F-84s were outmatched. A study conducted by SAC in February 1951 revealed that "neither current escort fighters nor programmed escort fighters have a capability of adequately defending bombers" and as a result, the bomber force would "suffer an unacceptable loss rate during daylight conditions over enemy territory defended by interceptors."²¹

Because range for fighter escorts remained a major obstacle, unusual—if not bizarre—solutions were offered. In 1948 a parasite fighter, the XF-85 "Goblin," was built to be carried inside the bomb bay of a B-36. The intent was for F-85-carrying bombers to accompany the nuclear-toting B-36s into enemy territory. If enemy interceptors appeared, two "Goblins" would be dropped via a trapeze mechanism, ignite their engines, and maneuver to take on the attackers. At the conclusion of the dogfight, the F-85s would return to the B-36, reattach to the trapeze, and be lifted back into the bomb bay.²² The XF-85 flew four times, but re-engaging the trapeze proved so difficult the project was dropped.

SAC experimented with other ideas for its fighter force besides escort. The revolution in nuclear weapons design that made them dramati-

RANGE WAS CRUCIAL, BUT IT WAS NOT THE ONLY PROBLEM

The Convair B-36, a hybrid with turboprops and jets that was used as a bomber, reconnaissance asset and electronic warfare aircraft.



An F-84F being dropped from the trapeze of a B-36 in an attempt to solve the problem of fighter escort and penetration for the bombers.

THE GREATEST UTILITY [AND GREATEST LIABILITY] OF OVERSEAS BASES IS THEY ARE NEAR POTENTIAL CRISIS AREAS



cally smaller and lighter meant fighters could deliver them as well. In January 1953, SAC converted its F-84s so they could carry the new weapons and become part of the nuclear strike force—perhaps small, quick fighters could penetrate more successfully than big bombers. The problem of range remained, however, so one scheme included mounting a trapeze bracket on the underside of a B-36. An F-84F would be attached to the trapeze (which was external and not in the bomb bay as with the XF-85) and would carry a nuclear weapon. Upon entering Soviet airspace the fighter would be dropped and zoom off to deliver its bomb. It would then return to its mother ship, reattach itself to the trapeze and both would return home.²³ In a related concept, straight-wing F-84Es would attach themselves to the wing tips of a modified B-36. The fighters would then shut down their engines and be “towed” by the bomber to enemy airspace where the faster and more maneuverable fighters would restart their engines, detach, and fly on to drop their nuclear weapons. They would then reattach to the bomber for the ride home.²⁴

These ideas went nowhere, but the fact they were even attempted illustrates the seriousness of the problem. The Korean War indicated once again that unescorted bombers would have difficulty penetrating even modest air defenses in daylight—and during the summer months northern Russia was always in daylight. Yet, repeated attempts to build a suitable escort fighter were unsuccessful. Eventually, SAC gave up on the escort idea: the fighter force, which had never been a high priority within the command, was given to other commands that could make better use of it. The original problem remained: how would SAC’s bombers penetrate enemy airspace to complete their mission?

The Forward Basing Option

Other solutions seemed to offer better results. SAC built deployment bases on the periphery of the

Soviet Union. Escort fighters would launch in the event of war, top-off their tanks with air refueling once airborne, and then escort the bombers as far as possible into enemy territory before turning back.²⁵ This idea ran into difficulties.

The greatest utility of overseas bases is they are near potential crisis areas. The greatest limitation of overseas bases is they are near potential crisis areas. The issue was vulnerability. Plans called for SAC aircraft to base at forward locations in Europe, the Middle East and Asia—within un-refueled striking distance of their targets.²⁶ With the detonation of the Soviet atomic bomb in August 1949, SAC realized such forward bases were increasingly vulnerable. It therefore pushed for bases in North Africa—close enough to the Soviet Union for staging, but far enough back to allow some protection from an enemy strike.²⁷ Construction began on four bases in French Morocco, and the first was completed in 1951. Three more bases were built in Spain.²⁸ These, along with airfields in England, Turkey and on Guam, would serve as bulwarks of an overseas basing system designed to outflank the Soviet Union. To be sure, numerous bases would also be built throughout Germany, Italy, France, etc. for short-range fighter aircraft, but the bombing offensive was initially planned to rely on bases farther back.

General LeMay recognized the vulnerability of overseas airbases and in January 1952 stated his goal as “to launch our offensive from this continent.”²⁹ That was not yet possible so forward bases were essential. In 1954, however, a study by the RAND think tank concluded those forward bases were highly vulnerable to a Soviet first strike, especially if nuclear weapons were used. The analysts examined the distances involved and then compared the forward-basing scheme against a scenario relying on US-based aircraft with intercontinental range. Their conclusion was stark: regarding forward basing “we can expect the majority of the force to suffer serious damage on the ground.”³⁰ That

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sounded too much like Pearl Harbor and Clark Field in 1941, so RAND called for a U.S.-based bomber force relying on air refueling and brief stops at staging bases in Europe and the Middle East—the concept LeMay favored.³¹

This report had a significant impact. In exercise FULL HOUSE that same year, SAC used forward bases for post-strike staging only. In other words, air refueling would allow the bomber force coming from the U.S. to hit their targets; on the way back they would stop in England, the Middle East or Guam to refuel. Because of this exercise, SAC made the post-strike profile their basic war plan.³²

Within a year of the RAND study the Air Force had placed an order for its first KC-135 tanker, and within a decade it had bought over 700, of which over 400 are still in service. As SAC became more reliant on the long-range B-52, plans would change again. The new U.S. strategy in the event of war was to launch the B-52 fleet from secure bases in the continental US—air refueling would get them to their targets and back. The bombers would lift off from their bases and hit tankers flying out of Goose Bay, Thule, etc. fly to their targets in the Soviet Union, and hit the tankers again on their way home.³³

The Importance of Electronic Warfare and Countermeasures

The need for aerial refueling, the problem of penetrating enemy airspace, the resultant inability to provide escort fighters, and the crucial issue of overseas airbases all related to the difficulty in carrying out the war plan. How would SAC fulfill its task of delivering a devastating bombing offensive? All the factors just noted chipped away at the problem but left unanswered the fundamental problem of how precisely would the bombers reach targets deep in the Soviet Union, destroy them, and make their way back to safety?

The solution finally adopted by SAC was to send its bomber force in without escort, employing instead electronic countermeasures (ECM) and decoys to slip past Soviet defenses. These, in addition to high altitude penetration, were a temporary solution. Before surface-to-air missiles (SAMs), the main threat to aircraft was from interceptors and anti-aircraft artillery (AAA). One of the major aspects of the B-36 debate with the Navy in 1949 was whether the big bomber could get through; the sailors thought jet interceptors would be able to knock it down. The introduction of the B-47 and B-52 upped the altitude capability of the bombers while also increasing speed. It was believed a 600 mph bomber at 40,000 feet would make it through. Unfortunately, the deployment of high-altitude capable SAMs, specifically the Soviet SA-2 system that shot down the U-2 of Francis Gary Powers in May 1960, put an end to that idea. The reverse idea was then suggested—the bombers would go in at low altitude—barely above the tree tops and thus hopefully *below* the capabilities of the Soviet SAMs and radar-guided AAA.³⁴ Sometimes, bombers—like

the B-58—would go in fast and low; at other times, B-52s would go in low and slow, trusting to ECM for safety. It was an on-going and complex cat-and-mouse game fought between SAC and Soviet air strategists and tacticians throughout the Cold War.

There were still problems. Most ECM operators were demobilized when the war ended, decimating the electronic warfare field in the AAF. SAC was especially hard hit because it was more dependent on electronic warfare than anyone else. Yet, when the war ended, of the 5,600 electronic warfare (EW) specialists needed by the AAF, over 70 percent were mustered out by March 1946. Worse, SAC personnel policies ensured such vital individuals were made to feel unwelcome. Major General Clements McMullen, the vice commander of SAC until September 1948, had little use for non-rated officers (those not wearing wings)—which most EW specialists were—and he labored to push them out of his command. By mid-1947 there were barely a dozen such officers left in SAC.³⁵

Major General Roger Ramey at Eighth Air Force wrote LeMay that his command needed far more personnel and equipment devoted to this area. Specifically, the B-29s needed jammers to counter Soviet radars; otherwise, SAC bombers would have little chance of penetrating enemy airspace.³⁶ Another report was even grimmer: the need for ECM was of “desperate urgency”; otherwise, taking on Soviet radars would be “inordinately dangerous.” The SAC history confesses that when LeMay assumed command “the electronic countermeasures capability in SAC units was practically non-existent.”³⁷

In January 1951, an exercise to test the ECM capability of B-50s against air defenses was a near total failure—the bombers reached the “target” (Abilene, Texas) with barely half their required ECM gear still working—had it been actual combat, the attacking force would have been decimated.³⁸ The few dozen jammers existing in SAC in 1949 were of Second World War vintage; even those were not installed on the aircraft. Instead, racks were built into the bombers, and if intelligence gathered for the mission to be flown indicated a threat, jammers would be installed. There was not enough room to install enough jammers to counter the entire frequency spectrum; instead, analysts would provide guidance on what threats the crew was likely to face and the specific jammer needed was then loaded on board. Even so, the B-29 and B-50 were not programmed to carry an ECM operator. If jammers were installed, a gunner would stand down, the radio operator would become a gunner, and the ECM expert would sit in.³⁹

The above illustrates that when SAC sent its B-29s to war in Korea, they were unprepared for a serious ECM fight. Far East Air Forces had paid almost no attention to electronic warfare. Fortunately, North Korean air defenses were of a primitive nature, so the B-29s met little opposition, at first. Although the B-29's ECM gear was obsolescent, the left-over Japanese radars used by the North Koreans were worse. That changed with the



North American F-86s, which served briefly in SAC in the role of airbase defense.

BY THE END OF THE KOREAN WAR, LEMAY REALIZED ECM WAS CRUCIAL TO THE SURVIVABILITY OF THE SAC BOMBER FORCE

Chinese intervention and the arrival of MiG-15s and Soviet-made radars. Now the B-29s would have to fight their way to the target. The dearth of suitable ECM personnel and gear was quickly felt and classically revealed when the ECM operator added to the B-29 was not even afforded a real crew position. He monitored his instruments sitting on the crew chemical toilet that included no seat belt, oxygen hookup or intercom jack!⁴⁰

Tactics called for ECM-equipped RB-29s to accompany the bomb droppers to help nullify enemy radar defenses. Even so, by mid-1951 the B-29s were in trouble. On the evening of June 11, 1951, the bombers ran into MiGs receiving guidance from ground sites using Russian gun-laying and searchlight radars. Of the four bombers, two were shot down and the other two severely damaged. Making conditions worse was LeMay's decree that the latest ECM equipment could not be utilized by the B-29s in Korea. LeMay feared that using the full panoply of electronic systems would provide the Soviets and Chinese too much intelligence on American capabilities. He wanted to hold back information to protect SAC in the event "real war" broke out and the bombers would have to go against the full might of Soviet or Chinese defenses. As a result, the latest jammers were not sent to the Far East. Partly, this was due to the lack of room and electrical power output of the B-29s—as noted, the ECM operator did not even rate a true crewmember position.⁴¹

Even so, the Korean War laboratory provided insights into Soviet and Chinese equipment and tactics, while also training and educating a new generation of SAC crewmembers on the importance of electronic warfare. Obviously, SAC was surprised by the quality and capability of Soviet equipment. It had been customary to disparage Russian technology and assume it was a generation behind that made in America. The explosion of a Soviet atomic bomb years ahead of schedule and the appearance of the MiG-15 over North Korea quickly disabused American airmen of these notions. It was also not lost on LeMay and his command that just as SAC had held back some of its latest and best equipment so as not to tip its hand, so too were the Soviets probably holding back to mask their own capabilities.

By the end of the Korean War, LeMay realized ECM was crucial to the survivability of the SAC bomber force, and during that period its ECM budget quintupled.⁴² By the end of 1954 the B-36—but especially the RB-36—was fitted with increasingly advanced ECM gear. The plane's size made the incorporation of extra equipment, antennae and an additional ECM crewmember a simple task.⁴³ The B-47, on the other hand, was virtually defenseless when first built—it was thought the bomber's high speed and altitude capability would keep it safe. The emergence of the MiG-19 put an end to such folly. Eventually, the "Stratojet" was equipped with an automatic jamming pod installed in the bomb bay: EB-47s would accompany the bombers to clear a path in to the target and back out. In later models two ECM operators would occupy the pod during flight.⁴⁴ The B-52 would be the first jet bomber designed and built with ECM in mind from the outset—the crew position of electronic warfare officer was included from the beginning.⁴⁵

Summary

How to penetrate Soviet airspace and defenses? That was the major problem confronting SAC at the onset of the Cold War. Range issues remained fundamental. As the SAC chief of plans, Major General John P. McConnell, noted dryly: "as long as the Soviet Union is the enemy and not Canada, range matters."⁴⁶ The distances to targets deep in Russia were simply too great without either forward basing or air refueling. Both would eventually be used—airbases in Europe, the Middle East and the Pacific were built to serve as pre-strike staging bases for bombers. LeMay was leery of this concept—he had commanded the B-29s in India and their staging bases in China so he understood the problems. He was reluctant to rely on politically risky forward bases for the success of his mission. Changes of government could result in previous basing agreements going awry—this is what happened in Morocco, Libya, Saudi Arabia, France, Iceland and elsewhere and which remains a problem today.

Military risk was another matter. During the Berlin Blockade, LeMay, who was then the air commander in Europe, fretted over the vulnerability of



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his airfields to a Soviet surprise attack. Staging bases were nonetheless built because they had to be. LeMay knew the danger and believed the solution was an intercontinental bomber flying from the U.S. that did not rely on forward airfields. A RAND study of 1954 confirmed SAC fears, arguing that forward bases would be wiped out at the beginning of a nuclear war. European bases were still used, but they would largely be post-strike recovery fields.⁴⁷ After refueling they would return home to reload. This became the SAC plan that was enabled by air refueling. This plan soon changed.

The advent of nuclear-tipped ballistic missiles made even post-strike staging bases vulnerable. LeMay returned to his goal of relying solely on U.S. bases. The advent of the B-52 and KC-135 helped realize this aim. In 1954 the Air Force proposed construction of a string of radar sites in the Arctic stretching across the Aleutians, Canada, Greenland and Iceland. This DEW Line (Distant Early Warning) consisting of nearly 100 sites, became operational in April 1957 and provided warning of a Soviet bomber attack. Even so, the threat of a Soviet missile first-strike necessitated changes: a ballistic missile early warning system was built in 1959 to give some warning (fifteen minutes) of a Soviet missile attack.⁴⁸ This threat also led to SAC countermeasures: dispersal, and both ground and airborne alert programs. This entire subject illustrates the iterative nature of strategy: weapons or technologies generated new plans, which in turn resulted in enemy counters, leading to different plans and technologies, which in turn led to more counters, etc. It was a never-ending cycle of actions and reactions.

Aerial refueling was attempted soon after the First World War had ended, but was not used during the Second World War. Air refueling would have been useful to enable fighter aircraft to escort the bombers, but technical impediments and the large number of escorts used on a given day—nearly a

thousand—made the production of so many tankers impractical. The capability remained dormant until after hostilities ended. At that point the need for range greater than that during the war forced a reexamination of the air refueling issue.

Initially, B-29s were converted to tanker use as were C-97s. Hundreds were built for SAC and did yeoman service. The advent of the jet bombers indicated, however, that piston-driven tankers were inadequate—a jet tanker was essential, and the solution was to be the KC-135, of which over 700 were purchased by the Air Force.

Air refueling was bound up with the problem of penetration. Getting the bombers into Russia was only part of the problem: how would they survive once there? During the Second World War the Eighth Air Force had paid a heavy price for prewar myopia that argued escort fighters were technically infeasible and unnecessary. It was a huge error, and Curtis LeMay had been a witness to that poor decision. Fighter escort had saved the bomber offensive, and it seemed reasonable to assume escort would remain necessary. Yet, the distances involved were so much greater, the development of a truly long-range escort fighter was simply impossible. Subterfuges were attempted such as parasite fighters. Today, such experiments appear silly, but at the time they were trying to address a real problem. Speed was also attempted as a possible solution, as was altitude—both high and low.

In the end, it was decided the bombers would need to go in alone, and for this, electronic warfare was critical. EW had been used during the Second World War when radar, navigation beams and jammers were used by all sides. At the end of the war and demobilization, this area hit SAC particularly hard. The Korean War demonstrated anew how important this arcane technology and expertise were to successful air operations. Fortunately for SAC, the North Koreans were similarly deficient in this field—the B-29s had a breathing space to catch



The Distant Early Warning Line (DEW Line)—a string of radar sites across Alaska and Canada that served as the first line of defense against a Soviet bomber attack.

up. It was not a moment too soon: the Chinese intervention introduced Soviet-made equipment of a far higher caliber than that of the North Koreans. SAC would scramble to match it.

In short, range extension—air refueling—coupled with forward bases, escort fighters, speed/altitude tactics, and electronic warfare were all used and combined in varying mixes to solve the prob-

lem of penetration. The ultimate goal was ensuring SAC bombers reached their targets deep inside the Soviet Union, deployed their weapons accurately, and were then able to get back out of enemy airspace and home. SAC was certain it could do this, and experimented and trained relentlessly to ensure its accomplishment. Fortunately, it never had to prove it. ■

NOTES

1. Herman S. Wolk, *The Struggle for Air Force Independence, 1943-1947* (Washington, D.C.: Air Force History and Museums Program, 1997), p. 81.

2. "Strategic Air Command—1946: Organization, Mission, Training and Personnel," Official History, vol. I, 28. (Hereinafter the annual official histories will be referred to as, for example, "SAC History—1946." There are multiple volumes each year, although not necessarily the same number. Some volumes consist of "exhibits"—copies of the actual letters, memoranda, etc. upon which the history is based. All of these histories are located in the AF Historical Research Agency (AFHRA), at Maxwell AFB in Alabama. The call number for the histories is either 416.01 or K416.01 depending on the year.)

3. "SAC History—1947," I, pp. 185-86.

4. For a good account of the crisis, see Avi Shlaim,

The United States and the Berlin Blockade, 1948-1949 (Berkeley: University of California Press, 1983); for the Airlift itself, see Roger G. Miller, *To Save a City: The Berlin Airlift, 1948-1949* (College Station: Texas A&M University Press, 2000).

5. The Air Force chief of staff, Gen. Hoyt Vandenberg, called in, among others, his old friend Charles Lindbergh and asked him to visit SAC bases, check proficiency and readiness, and report back to him. The report was damning. "Lindbergh Report," Sep 14, 1948, LeMay papers, Library of Congress (LOC), box 61.

6. There are several biographies of LeMay, but all fail to cover his entire military career in sufficient depth. The best of a poor group is Thomas M. Coffey, *Iron Eagle: The Turbulent Life of General Curtis LeMay* (New York: Crown, 1986).

7. By the mid-1950s the Air Force was garnering

nearly half of the Department of Defense budget; SAC was getting around one-third of the Air Force budget. U.S. Dept of Defense, *Annual Report of the Secretary of Defense* (Washington, D.C.: GPO, various years, various pages); and Clark R. Mollenhoff, *The Pentagon: Politics, Profits and Plunder* (New York: G.P. Putnam's Sons, 1967), Appendix A.

8. Thomas A. Julian, "The Origins of Air Refueling in the United States Air Force," in Jacob Neufeld, George M. Watson, Jr., and David Chenoweth (eds.) *Technology and the Air Force: A Retrospective Assessment* (Washington, D.C.: Air Force History and Museums Program, 1997), pp. 87-88.

9. The Boeing B-50 was an updated version of the B-29. It had more powerful engines and a taller tail, but otherwise it was difficult to tell the aircraft apart. The B-50 did have slightly improved performance characteristics—better speed, altitude capability, range and payload.

10. *SAC History—1950*, VI, pp. 65-75.

11. "SAC History—1950," I, 91; ltr., Adams to Cabell, Jan 24, 1950, in "SAC History—1950," II, exhibit 1. The probe and drogue method is still in use today for U.S. Navy/Marine Corps aircraft and helicopters. KC-135s can be modified on the ground to use the probe and drogue system. The KC-10, and the new Boeing tanker under development, can use either method on the same flight.

12. Ltr., Austin to Cabell, Jan 24, 1950, in "SAC History—1950," III, exhibit 1.

13. "SAC History—1952," I, 225-30. This system was invaluable for deploying fighter wings overseas during an emergency—it would ordinarily take several weeks to disassemble a fighter unit, put its aircraft on ships to be moved overseas, and then for the aircraft to be reassembled after unloading.

14. Richard K. Smith, *Seventy-Five Years of Inflight Refueling* (Washington, D.C.: Air Force History and Museums Program, 1998), pp. 34-38. Eventually, TAC gained its own tanker force of KB-50s.

15. Smith, pp. 26-27.

16. *Ibid.*, 31. The C-97 was a cargo aircraft based on the B-29; the KC-97 was modified as a tanker.

17. "SAC History—1952," I, pp. 182-201; Carroll L. Zimmerman, *Insider at SAC: Operations Analysis under General LeMay* (Manhattan, Kans.: Sunflower Press, 1988), p. 63.

18. "Capabilities and Features of the KC-135 Tanker-Transport," Sep 10, 1958, AFHRA, file K416.861-1, pp. 6-11.

19. "Development of Fighter-Escort in Strategic Air Command Through 1951," SAC historical study, Jun 1, 1952, AFHRA, file K416.01-29, p. 261.

20. "Notes from Commanders Conference, Exercise DUALISM" Apr 25-27, 1950, AFHRA, file 168.15-10, p. 219.

21. Robert J. Boyd, "SAC Fighter Planes and Their Operations," SAC Historical Study, 1988, p. 5.

22. Don Pyeatt and Dennis R. Jenkins. *Cold War Peacemaker: The Story of Cowtown and the Convair B-36* (North Branch, Minn.: Specialty Press, 2010), pp. 221-22; Frank Gudaitis, "It Seemed Like a Good Idea at the Time," *Aviation History*, Mar 2011, p. 68.

23. Pyeatt and Jenkins, pp. 222-24. The Republic F-84 came in different models: most were straight-wing designs termed the "Thunderjet." The F model had swept wings and was called the "Thunderstreak." The RF-84F reconnaissance version was the "Thunderflash."

24. Pyeatt and Jenkins, pp. 224-26. C.E. Anderson,

"Dangerous Experiments: Wingtip Coupling at 15,000 Feet," *Flight Journal*, Dec 2000, pp. 64-72. Initial tests were conducted on a modified B-29. After several dozen successful flights the idea was abandoned when an F-84 while connected rolled over onto the bomber—both planes went down and all crewmembers were killed.

25. One of the benefits of air refueling is that aircraft can fly at a heavier weight than they can take off. Therefore, it is common for aircraft to take off with a reduced fuel load but heavy payload, climb to altitude, and then fill their tanks with an air refueling.

26. For the story surrounding these early basing plans, see Elliott V. Converse III, *Circling the Earth: United States Plans for a Postwar Overseas Military Base System, 1942-1948* (Maxwell AFB, Ala.: Air University Press, 2005).

27. "Overseas Bases: A Military and Political Evaluation," AF History Division study, Apr 2, 1962, AFHRA, file K416.601-13, p. 2.

28. Kurt W. Schake, "Strategic Frontier: American Bomber Bases Overseas, 1950-1960," PhD Dissertation, Norwegian University of Science and Technology, 1998, chapter 3.

29. "Overseas Bases" study, p. 4.

30. A.J. Wohlstetter et. al., "Selection and Use of Strategic Air Bases," Study R-266 (Santa Monica: RAND, Apr 1954), p/ viii.

31. *Ibid.*, p. xv.

32. "Overseas Bases" study, p. 5.

33. "SAC History—1956," II, pp. 175-80.

34. Project LONG RANGE was conducted by SAC in 1957 testing the feasibility of B-36s penetrating at low altitude, around 500 feet, to keep them below radar coverage. As they approached their targets, the bombers would ascend quickly to "medium altitude" to deliver their weapon. "SAC History—Jan-Jun 1957," I, p. 73.

35. Daniel T. Kuehl, "The Radar Eye Blinded: The USAF and Electronic Warfare, 1945-1955," PhD Dissertation, Duke University, 1992, pp. 49-53, 63, 80.

36. *Ibid.*, 89.

37. "SAC History—1951," I, p. 194.

38. Kuehl, pp. 117-18.

39. "SAC History—1951," I, p. 211.

40. Kuehl, 127; "SAC History—1951," I, p. 174. Not every B-29 carried an ECM operator when going into combat; usually, one such aircraft would accompany a bomber formation to provide protection.

41. Kuehl, pp. 160-61. Alwyn T. Lloyd, *Boeing's B-47 Stratojet* (North Branch, Minn.: Specialty Press, 2005), pp. 181-82.

42. "SAC History—1951," I, p. 213.

43. Pyeatt and Jenkins, pp. 125-26.

44. Lloyd, p. 111.

45. Kuehl, pp. 207-19.

46. Elliott A. Converse III, *History of Acquisition in the Department of Defense, Vol. I: Rearming for the Cold War, 1945-1960* (Washington, D.C.: Department of Defense Historical Office, 2012), p. 480.

47. Despite their vulnerability, LeMay tolerated the use of forward bases simply because they compounded the Soviets' targeting problems. Interview with Gen Curtis E. LeMay, by Robert M. Kipp and John T. Bohn, Nov 16, 1972, AFHRA, p. 44.

48. For the development of the DEW Line and ballistic missile warning, see Kenneth Schaffel, *The Emerging Shield: The Air Force and the Evolution of Continental Air Defense, 1945-1960* (Washington, D.C.: Air Force History Office, 1991), chapters 8-10.

Developing the Next Generation of Military Leaders: Challenges, Imperatives, and Strategies Edited by Julie Bélanger and Psalm Lew. Kingston, Ontario: Canadian Defence Academy Press, 2011. Diagrams. Charts. Tables. Notes. Glossary. Index. Pp. 206. \$34.95 ISBN: 978-1-100-19212-3

This book is the result of the 2011 International Military Leadership Association (IMLA) Annual Meeting. It contains some of the weaknesses of such volumes but also has significant strengths, since most of the articles are excellent in presentation and analysis. It is also strikingly diverse in the national representations of its authors (United States, Canada, New Zealand, Australia, Singapore, Switzerland, The Netherlands, and Indonesia) and quite current in its content and scholarship. It provides a lot of engaging contemporary thought regarding leadership issues and approaches from various perspectives that are all focused on improving leadership development for the future.

The volume covers many pertinent topics. From an American perspective, one example is an examination into the generational differences in military organizations with the rise of EMO and Gen X cohorts and their potential relationship to a military charged with conducting a wider variety of military operations with the rise of COIN. Other articles look at irregular warfare and new domains for conflict, such as cyber. There is also an intriguing essay on the interplay between economics, strategy, and security in the wake of the recent global recession and the leadership challenges this poses. From Canada, there are two excellent essays on the relationship between traditional education and experiential leadership education in both the active forces and at the Royal Military College of Canada.

The chapter relating Fourth Generation Warfare to leadership development in Indonesia is fascinating. There are a few entries discussing leadership development in New Zealand and Australia within the ranks and at the strategic level. Another chapter focuses on challenges dealing with networks and globalization from a Swiss perspective. Finally, chapters originating from Singapore and The Netherlands focus on developing leadership capacity within their respective military organizations.

The authors of these diverse chapters are a mixture of serving officers and academics. The issues analyzed are timely and germane to current and future challenges and provide a lot of useful frameworks for analysis, comparison, and utility in many

forums both in and out of the military. Overall, the compendium is quite good and a nice fit for anybody interested in studying military leadership or interested in diversifying perspectives in a professional military setting.

John G. Terino, Jr., Associate Professor, Air Command and Staff College



You Are Here: From the Compass to GPS, the History and Future of How We Find Ourselves. By Hiawatha Bray. New York: Basic Books, 2014. Notes. Index. Pp. xiv, 258. \$27.99 Hardcover ISBN: 978-0-465-03285-3

Knowing one's position relative to friend and foe, how to get from point A to point B, and the synchronized timing of events, always have been important to the success of military operations. In our modern workaday world, positioning, navigation, and timing (PNT) also have become necessary for efficiently conducting business and personal affairs. While relatively few users of the Global Positioning System (GPS) might know that the Department of Defense developed it and Air Force Space Command operates it, millions of people around the world take its availability for granted. For nearly two decades, GPS has been acknowledged as a global utility that provides extremely accurate, free PNT to anyone with a properly calibrated receiver.

In *You Are Here*, Bray takes readers on a skillfully crafted, delightfully readable historical odyssey. Beginning with the ancient skill of celestial navigation, this technology reporter for the *Boston Globe* guides us on a *tour de force* through the appearance of the compass, chronometer, radio, gyroscope, atomic clock, and more. He explains, in easy-to-understand terms, how these inventions contributed to the conceptualization and development of GPS. Bray does not forget the important individuals Ivan Getting, Roger Easton, and Brad Parkinson who formed brilliant teams and pioneered three-dimensional, space-based PNT. He acknowledges the Easton-Parkinson dispute about who really "invented" GPS and delivers an even-handed assessment of both individuals' contributions. Anyone interested in the technical roots of this issue should read the recently published, *GPS Declassified* (2013) by Richard Easton and Eric Frazer.

An excellent synthesis of secondary sources, *You Are Here* morphs midway into something more than a history of navigation. Bray explores how the availability of extremely precise PNT has revolutionized social interaction around the world and

created significant privacy issues. Rather than relying on sometimes inaccurate official maps, people can now make their own by strolling through an area to fill in details. People can automate their maps to record traffic problems, hazardous conditions, or other transient phenomena. Building GPS into phones and adding a Wi-Fi location service, subscribers can locate each other in crowded downtowns and easily rendezvous at the nearest Starbucks. Humankind essentially has solved its age-old problem of location.

In the process, however, Bray perceives that the perfection of PNT has corroded our privacy, the right to be left alone. Once, people had the freedom to disappear by moving around; now, in countless ways, devices with embedded PNT capabilities track our every move, impinging on our freedom to lose ourselves in the crowd. Bray finds a disturbing irony in the observation that many people seem unperturbed or unoffended that they no longer have the freedom to move around unobserved or undetected. For those people wanting to reclaim their privacy, he suggests that only legislation, judicial fiat, or public outrage can limit societal or governmental intrusions. Then almost as an afterthought, Bray finds hope in privacy features built into the software on mobile devices.

You Are Here presents some interesting history and poses some intriguing questions. Devoid of academic pomposity and intellectual stuffiness, it draws experts and general readers alike into a technologically sophisticated and unbelievably complicated tale. Moreover, it leaves one wondering about the implications of what the inventors and users of GPS have wrought. If anyone could ask for more, it might be an examination of how GPS has transformed modern warfare, but Michael Russell Rip and James Hasik initially tackled that subject in *The Precision Revolution* (2002).

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



The Same Yet Different: Continuity and Change in the Canada-United States Post 9/11 Security Relationship. By Bernard James Brister. Kingston, Ontario: Canadian Defence Academy Press, 2012. Notes. Bibliography. Appendices. Index. Pg. ii, 234. Paperback is free ISBN: 978-1-100-19744-9

Canada and the United States have had a close and cooperative relationship especially because of shared security

objectives. From the Canadian perspective, however, an underlying consideration in the relationship has been its concern for preserving Canadian sovereignty. Apprehension in the United States for its own security following the incredible attacks of 9/11 had a ripple effect on relations with Canada. Brister has examined how 9/11—as a watershed event—challenged the binational security relationship of the two nations.

Brister first explains why the Second World War and the Cold War joined the two nations in common purpose. He points out that Canada aligned its own national policies with those of the United States on major issues of security because it, with the other Western nations, sought security under the umbrella of global American power.

In the aftermath of the Cold War, there emerged a growing pattern of divergence between American global policy and that of Canada, although Canada continued to commit forces to overseas contingencies. Canada, pleased with its trade relationship with the United States, especially with the North American Free Trade Agreement (NAFTA) implementation, focused more, in the pre-9/11 relationship, on economic security over physical security. The 9/11 attacks on the American homeland, however, compelled both nations to revisit their security relationship. The consequences of change raised again concerns for Canadian sovereignty. Interestingly, some of the issues Brister raises in this book are also the subject matter of the very popular television series, *The Border*, a Canadian production that depicts the changes in security arrangements in everyday situations and their impact on the average Canadian's attitude toward the United States.

Brister also addresses the most visible component of the Canada-U.S. security arrangement: NORAD (North American Aerospace Defense Command). In the post-Cold War era and prior to 9/11, its relevance had become unclear as a consequence of significant diminution in global tensions. In the moments after hijacked aircraft crashed into the World Trade Center towers, NORAD suddenly became a major player in defense of the homeland. Additionally, Article Five of the North Atlantic Treaty compelled NATO member nations, including Canada, to respond to the attacks on the U.S. Consequently, the security relationship between the two countries again became of great importance and a topic of intense scrutiny.

The Same Yet Different examines how the relationship has changed and, yet, remained the same. The book is informative because it goes beyond nation-to-

nation relations. It importantly examines Canadian public opinion and the fears of average Canadians that American security would dictate Canadian policy decisions. Brister reminds us that the heavy-handed, go-it-alone-if-necessary mentality of the Bush Administration further exacerbated the tension. The with-us-or-against-us statements further awoke Canadian fears of American domination.

This book goes a long way to explaining why it is in Canada's best interest, because of shared values and security requirements, to accommodate the United States, despite reservations.

Col. John Cirifici, USAF (Ret.), Milford, Del.



The Fight in the Clouds: The Extraordinary Combat Experience of P-51 Mustang Pilots During World War II.

By James P. Busha. Minneapolis Minn.: Zenith Press, 2014. Illustrations. Photographs. Index. Pp. xvii, 238. \$30.00 ISBN: 9-780-760345184

No pilots loved their airplanes more than those who flew the P-51 Mustang. Busha emphasizes that sentiment based on his interviews with hundreds of pilots over fifteen years. His book records the Mustang's combat roles by relating a long string of accounts of pilots who flew the plane in the Second World War. The book's action centers on operations in Europe, with its closing pages given to escort duties over Japan.

Busha repeatedly refers to the Mustang's 1,651-horsepower, Packard-built, Rolls-Royce Merlin engine and signature teardrop canopy, because those features won the instant admiration of pilots, most of whom transitioned from the P-47 Thunderbolt. The Mustang's sleekness, speed, range, and maneuverability convinced them it was the ultimate fighter of the war.

Busha intersperses post-war interviews with wartime "encounter reports" to build the P-51's history. Even though a majority of his interviewees are aces, their straightforwardness and absence of egoism enhance the historical value of their words. The narratives, however, still describe the dangers encountered and the inherent fears. An excellent index makes it simple to find references to fighter groups and squadrons as well as individual airmen. Because most of the narrators were unfamiliar to me, I saw their experiences as fresh views of old, but important, topics. Basically, the book is enlightening and enjoyable.

The pilots recall all phases of flying

the P-51, a few starting with their leaving college to fight in the war. They talk about the good and the bad. There was a mass night takeoff during which a P-51 crashed: *The control tower was still smoldering when I landed. The only thing left of Lieutenant Frascotti's airplane was the Rolls-Royce engine lying on the floor in the control tower. With full fuel, he had plowed right into the darkened tower.* Or the gut-wrenching anti-aircraft artillery: *"The train was dead ahead, sitting quietly at the end of a peaceful valley. . . . As our flight neared . . . all hell broke loose. We took fire from 20mm and 40mm guns, and from small arms. The fire erupted from the trees, the church, and the headstones. We had flown into a trap and I was the rat caught in the valley of death!* There was the mind-altering reality of combat: *I . . . watched the pilot fall, looking for his chute to blossom. The parachute never opened, and he fell to his death in a plowed field. That scene kind of shocked me; I stared in disbelief. True, I had meant to destroy his airplane, but that was the first time I had seen one of my foes killed.*

Although the stories focus on bomber-escort missions and low-level strafing-bombing runs, they begin with a brief history of the P-51's development. Born as the NA-73 and initially employed by the British Royal Air Force as the Mustang Mark I, the plane became Americanized as the A-36 Apache before completing twenty-five variants ending with the P-51H that never saw combat. While the British used the plane to repel the *Luftwaffe*, Americans first employed it as a dive-bomber/ground-attack platform. Major Charlie Waddell thought, . . . *the A-36 was designed perfectly for its dive-bombing role and was mystified as to why the Air Corps gave them up.* Nevertheless, the Air Corps quickly converted the Apache to the long-range Mustang and deployed it to England in November 1943.

The P-51 pilots stress the responsibility they felt as bodyguards for bomber crews. They devised maneuvers to remain close to the slower bombers and to intercept and destroy *Luftwaffe* FW 190s, Bf 109s, and Me 262s before they flew within firing range of the bomber box. At the same time, the P-51 pilots looked forward to home-ward-bound strafing runs against trains and vehicles. P-51 attacks at low-level were so destructive that, on May 21, 1944, Gen. Jimmy Doolittle ordered the bombers to stand down; he divided Occupied Europe into specific areas for each fighter group to attack airfields, train yards, marshalling yards, communication lines, and any other military vehicles they could find. On D-Day and beyond, P-51 pilots flew as many as three missions a day to support the troops

on the ground. Overall, losses taken by Mustangs from flak and ground fire outnumbered those from air-to-air combat—the price of success.

A friend once told me that when he reads my writing, he feels as if he is talking with me over a beer. The same can be said for *The Fight in the Clouds*. Busha allows pilots to tell their stories casually and unhindered, adding only short commentaries that fuse them into a captivating history lesson about combat flying in the P-51 Mustang.

Lt. Col. Henry Zeybel, USAF (Ret.), Austin Texas



The Tuskegee Airmen: An Illustrated History: 1939-1949. By Joseph Caver, Jerome Ennels, and Daniel Haulman. Montgomery Ala.: NewSouth Books, 2011. Maps. Illustrations. Photographs. Index. Pp. 230. \$27.95 ISBN: 978-1-58838-244-3

Celebrated in film, books, and numerous other media, the Tuskegee Airmen have become one of the iconic faces of “the Greatest Generation” for their important role in hastening the defeat of both fascist totalitarianism abroad and institutional racism at home. Caver, Ennels, and Haulman, all historians associated with the U.S. Air Force’s Historical Research Agency, have assembled the definitive collection of photographs detailing the origin and exploits of the famed “Red Tails” during World War II; in the early postwar period; and, to some degree, up to the present. As an illustrated history, the strength of this work is the photographs; but it also has a useful quick reference page of statistics, a fine 49-page chronology covering the establishment and units of the Tuskegee Airmen from 1939 to 1949, a page of unit emblems, and a pilot roster.

The text is quite readable, and the captions for the photographs integrate very well with the prose and structure of the work to detail the extraordinary story of these young African-Americans who fought for freedom on multiple levels. Virtually no aspect of their experience is left out. The authors provide all the evidence needed to rebut the dominant myths (such as having never lost a bomber during escort missions) surrounding the famous flyers while simultaneously reaffirming the valor and impressive capabilities of the Tuskegee Airmen. Even though the vast offering of photographs alone is enough to carry the book, the sources, facts, and detailed history are equally valuable and up to the same standards as the images.

There are, however, a few annoying typographical or editing errors that may rankle some readers. The biggest one is a reverse of a common mistake seen in many airpower related histories. Mitchel Field was a prominent Air Corps base between the World Wars. It was named after John Mitchel, a former mayor of New York City, who perished in an aircraft accident while training for combat during WWI. The field is often misspelled as *Mitchell* Field, presumably in reference to noted airpower advocate Billy Mitchell. In three photographs of B-25 Mitchell bombers, named in honor of Billy Mitchell, the captions list them as B-25 *Mitchel* bombers. Yet, in a caption for a photo showing famous boxers Jackie Wilson and Ray Robinson, they are correctly placed at *Mitchel* Field. There is a similar misspelling of Curtiss Field. There is a mischaracterization of a gunnery competition won by the Tuskegee Airmen in 1949 as being akin to the Navy’s “Top Gun” competition. Top Gun is not a gunnery competition; it is for advanced training in aerial combat. Typically, the winner of any U.S. Air Force gunnery and weapons competition is bestowed the title of “Top Gun.” Finally, in another photo, aircraft are misidentified as AT-6s when they are really some variant of a BT-13.

Despite these very minor flaws, the book is an exceptional pictorial resource on the enduring legacy of the Tuskegee Airmen and a wonderful tribute to these path-breaking aviators. The Class Photographs section at the end is an amazing assembly of period photographs that visually shows these young airmen at a proud time. All the photographs collected in this book tell the vital story of the Tuskegee Airmen in a fantastic manner and make this book a must for any serious fan of the Red Tails or any historian interested in the Tuskegee Airmen or World War II aviation in general.

John G. Terino, Jr., Associate Professor, Air Command and Staff College



Unforgotten Hero: Remembering a Fighter Pilot's Life, War and Ultimate Sacrifice. By Jim Escalle. Bakersfield Calif.: Traylor House Publishers, 2013. Maps. Photographs. Notes. Bibliography. Index. Pp. 262. \$16.95 paperback ISBN: 978-0-9887851-1-3

On June 19, 1953, U.S.A.F Lt. Jim Escalle was lost while flying his F-86 Sabre over North Korea. Although not conclusive, circumstances suggested that he was killed when his airplane crashed on a

strafing run. A year and a day later, with no evidence to indicate Escalle was alive, the Air Force changed his status from “missing in action” to “presumed dead.”

That might have been the end of Escalle’s story, were it not for his namesake and nephew. Author Jim Escalle first learned about his uncle while browsing through old family photos as a child. He peppered his relatives for information but lost interest until two events rekindled that interest and enabled him to begin a search to learn the full story of his uncle’s life and death. First, the government published a report in 1993 suggesting the possibility that Escalle was among thirty-seven airmen captured and handed over to the Soviet Union. Second, several years later he was introduced to the Internet as a powerful research tool.

Starting with old newspaper clippings, letters written by the elder Escalle, and memories of local friends, he was able to find and interview dozens of people who had known his uncle. He used the results of this research to weave an interesting, highly readable story of a man he had never met but came to know very well.

Born in 1929, Escalle grew up in a small farming community in California and learned the virtues of hard work, excelled academically and athletically, and was an exceptional leader. He took engineering courses at a two-year junior college to prepare for a career in aviation.

The Korean War began just as Escalle was completing his two-year degree. Intending to serve as a pilot, he signed up for the Air Force’s Aviation Cadet Program. As a cadet he trained at Lackland AFB Texas, Columbus AFB Mississippi, and Big Spring AFB Texas. His final training assignment was at Nellis AFB Nevada, where he received fighter-weapons training in the F-80 and F-86.

When he reported to Suwon AB in Korea in February 1953, Escalle was assigned to a ground-attack unit, flying F-86s with the 36th Fighter-Bomber Squadron. He was soon recognized as a better-than-average pilot and was designated an element leader, leading one of two, two-ship formations that made up a flight.

Escalle flew his forty-first combat mission deeper inside North Korea than was usually the case. North Korean and Chinese ground forces were reinforcing the front lines in an attempt to seize and hold as much terrain as possible prior to the impending armistice. Escalle’s flight was assigned a two-part mission. First, all four aircraft were to attack a cluster of personnel and supply shelters. That part of the mission was successful, and the shelters were completely destroyed. The

aircraft then split into two elements, each searching for vehicular targets along the main supply route. Escalle and his wingman identified a parked convoy and strafed it with .50-caliber machine guns. On his second strafing run Escalle went down, presumably a victim of enemy anti-aircraft artillery fire. Other pilots spotted the wreckage, but Escalle could not be seen, and he didn't respond to repeated radio calls. Because the action had taken place so deep inside North Korea, and with no direct evidence that Escalle has survived, a rescue attempt was considered impractical.

In 2007, the Department of Defense advised the Escalle family that, notwithstanding the 1993 report, there was no evidence of their lost airman having been found and that it was highly unlikely the Soviets would have had access to him after he was downed. Family members' dim remaining hopes for any further information hinged upon a 2008 agreement between the U.S. and the Chinese government, in which the Chinese agreed to allow the U.S. to search their archives for information regarding prisoners of war from the Korean conflict. It remains to be seen whether those hopes will be realized.

It seems that most military books deal with significant battles, great campaigns, or noteworthy individuals. *Unforgotten Hero* is the exception, as it tells us the story of just one "average" man. But in shining a light on his uncle's life, the author has, in effect, told us the story of many such average men, the men who step forward and fight for their country when called upon. Escalle the airman led a life to be proud of, and Escalle the author has given us a rich narrative that enables us to appreciate that life.

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



Duty: Memoirs of a Secretary at War.

By Robert M. Gates. New York: Alfred A. Knopf, 2014. Photographs. Index. Pp. x, 618. \$35.00 ISBN: 978-0-307-95947-8

Duty is Gates's memoir of his service as Secretary of Defense (SECDEF) under Presidents Bush and Obama. Throughout his tenure (2006-2011), he dealt with innumerable issues yet focused on a single theme: a deep concern for the lives of all soldiers who fought in Iraq and Afghanistan.

Gates had served under six presidents in various capacities, including CIA Director. He was a welcome replacement for the controversial Donald Rumsfeld, an ideologue bent on making the Pentagon

kowtow. Considered by many a pragmatist and someone who would listen, Gates was confirmed by the Senate by a vote of 95-2.

Gates dismissed both Air Force Secretary Michael Wynne and Chief of Staff Michael Mosley over the stewardship of nuclear weapons. He considered Air Force actions, such as the mistaken shipment of nuclear nose cones to Taiwan, a gradual erosion of nuclear standards and a lack of oversight by Air Force leadership. Although there were other accountable parties, Gates believed responsibility belonged at the top.

By his third year as Secretary in the first few months under President Obama, Gates drew up a consolidated list of priorities that dealt directly with service men and women. He wanted to further improve the process of getting equipment to the troops faster. He had done much during his first two years under President Bush in procuring mine-resistant, ambush-protected MRAP vehicles to replace Humvees that were too vulnerable to enemy weapons. Gates believed that by pushing Congress on this topic both he and those who supported the project had saved many American lives. Throughout his tenure Gates pressed for more intelligence, surveillance, and reconnaissance. He also wanted to improve the issue of getting the wounded out of Afghanistan within an hour as had been done in Iraq. In addition, he wanted more focus on post-traumatic stress and the appalling rise in suicides. In addition, he also made a concerted effort to end "stop loss," the practice of retaining troops on active duty after their scheduled service time had expired—a most unpopular practice.

No recent President had faced the multitude of problems confronting Obama when he assumed office, and many of these would involve Gates: a foundering economy, two wars, the Iranian nuclear problem, economic instability throughout Europe, growing nationalism of China and Russia, a belligerent North Korea with nuclear missiles, and the unpredictable government of Pakistan. Also, Obama was saddled with campaign promises of having all U.S. troops out of Iraq by the end of 2011 and closing Guantanamo Bay's detention center.

Gates gives no quarter in presenting the personalities of White House principals, members of Congress, Defense and State Departments, and other cabinet members. He didn't like the politics that showed its ugly facade on practically every issue and is very upfront in his assessments of many individuals and readily relates his own imperfections. Gates felt the Congressional bullying, belittling, and insulting tactics used against DoD wit-

nesses violated nearly every norm of civil behavior. He saw most members of Congress as *uncivil, incompetent in fulfilling basic constitutional responsibilities (such as timely appropriations), micromanagerial, parochial, hypocritical, egotistical, thin-skinned, often putting self (and reelection) before country.*

The question of the surge brought out divergent opinions and, in some cases, outright disparaging remarks against the military from White House advisers and National Security Council staffers. Particularly annoying for Gates was National Security Advisor Deputy Tom Donilon's comments characterizing JCS Chairman Adm. Mike Mullen and the military as "insubordinate" and in "revolt." Gates was infuriated and wrote how someone who had not served in the military and never even been to Afghanistan could second guess the commanders in the field. Gates wrote that he reached the end of his tether with them on the campaign against Libya when the "know-nothings" started questioning targeting of ground forces there. At a meeting of principals, he blew up at them; *You are the biggest micromanagers I have ever worked with. You can't use a screwdriver reaching from D.C. to Libya on our military operations. The president has given us his strategic direction. For God's sake, now let us [Defense] run it.*

The defense budget would capture much of Gates' energy during 2010-11, and he challenged some of Obama's projected cuts. Gates had to remind President Obama, who himself was confronted with a budget crisis, a deficit issue, and severe domestic cuts, that he had promised that DoD could reinvest all the savings it had accrued during previous reduction efforts. During his remaining few months as SECDEF, Gates used his last public speeches to warn Americans about the consequences of significant reductions in defense capabilities. He was worn out asking the President "what do you want us to stop doing?"

Gates' memoir serves as an excellent presentation of the inner workings of the decision process that occurs between the President, his cabinet, and the advisory staffs; i.e., the inner workings of the Executive Branch.

Secretary Gates comes across as fair-minded, kind, and open to ideas from both outside the DoD and from his own people. He would be a decent person to work for. Briefly stated, *Duty* is a superb historical memoir!

Dr. George M. Watson, Jr., Retired Senior Historian, Air Force History and Museums Program.



The Pulitzer Air Races: American Aviation and Speed Supremacy, 1920-1925. By Michael Gough. Jefferson N.C.: McFarland, 2013. Maps. Tables. Photographs. Notes. Appendix. Bibliography. Index. Pp. 238. \$45.00 paperback ISBN: 978-0-7864-7100-3.

Before and during World War I, U.S. aircraft designers lagged far behind their European counterparts. The gap between U.S. and Europe was so pronounced that just one U.S. design—the Curtiss HS-2L flying boat—flew in combat during the war. The U.S. had to rely on French- and British-designed aircraft to equip its military aviation units. But by the mid-1920s, the situation had changed dramatically: U.S. airplanes and pilots held virtually every internationally recognized aviation speed record, and the U.S. had become pre-eminent in high-performance aviation. In *The Pulitzer Air Races*, Gough presents a convincing argument that the Pulitzer Trophy Race, run from 1920 to 1925, was the driving force behind this significant turnaround.

The race was conceived by the family of newspaper publisher Joseph Pulitzer. Several years after his death, they created the ornate trophy and planned to award it, and a cash prize, annually to the winner of a transcontinental air race. World War I put the competition's start on hold. After the war, other groups sponsored transcontinental races, but these resulted in a disturbing number of fatalities. The Aero Club of America (ACA), the sanctioning body for aerial competition in the U.S., recommended to Pulitzer's son Ralph that the Pulitzer Trophy Race be turned into an annual closed-course speed competition. Ralph agreed.

The first two (1920 and 1921) competitions were stand-alone events, with the Pulitzer Trophy Race being the only race on the agenda. But in its remaining four years, the Pulitzer program expanded significantly, with as many as ten other races being conducted in addition to the Pulitzer. Results from the first two years made it clear that the Pulitzers would be dominated by military aircraft; additional events provided a racing venue for a broader range of pilots and airplanes—civilian pilots flying light airplanes, mail-service flyers, builders of Liberty engines, and specific military aviation units among them.

With this expansion, the Pulitzer also took on a more lofty title, indicative of its vast popularity: from 1922 to 1925, the Pulitzer event was also billed as the National Air Races. The results lend credence to Gough's primary theme, namely that the Pulitzers catapulted American aviation to a position of worldwide leader-

ship. With the exception of a one-year dip in 1924, the winning speed in the Pulitzer Trophy Race increased every year. Lt Corliss Moseley of the Army Air Service (AAS) won the inaugural race, flying a Verville VCP-R to a winning speed of 156.5 mph. In the final Pulitzer, AAS Lt. Cy Bettis took top honors with a speed of 249.0 mph in a Curtiss R3C-1. Thus, in just six years, the winning speed increased by 92.5 mph. In every year except 1924, Pulitzer winners posted the best closed-course speeds in the world. In three years (1923, 1923, and 1925), they also had the fastest absolute speeds. The Pulitzers ended after just six years because aviation experts realized that racing was no longer needed in order to test and prove new designs.

To provide an overall assessment of the Pulitzer Trophy Race, Gough asks five key questions: Did the races result in faster, better-performing airplanes? Would American Pulitzer racers have been competitive even if other nations had chosen to participate? Were design features of Pulitzer racers transferred to other aircraft? Did any of the racing-associated innovations achieve commercial success? And finally, did the races attract and hold public attention for the betterment of aviation? Gough analytically addresses these questions and answers "yes" to each.

It is difficult to find fault with this exceptionally well-researched book. Gough does an excellent job of weaving several inter-related themes: how the Pulitzer Trophy Race program was conceived, expanded, and faded away after a brief but productive life; the development and evolution of aircraft and propulsion systems over the six-year period; the role of sanctioning bodies such as the ACA, the Flying Club of America, and the National Aeronautical Association; and, of course, the actual conduct of each of the Pulitzer races. There are other books that provide a more all-encompassing history of air racing, most notably Don Berliner's *Airplane Racing: A History, 1909-2008*. But for the reader who wants an in-depth look at the Pulitzer Trophy Race, Gough's book is the one to buy.

*Lt. Col. Joseph Romito, USA (Ret.), Docent,
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The German Aces Speak II: World War II through the Eyes of Four More of the Luftwaffe's Most Important Commanders. By Colin D. Heaton and Anne-Marie Lewis. Minneapolis Minn.: Zenith Press, 2014. Photographs. Bibliography. Index. Pp. viii, 296. \$30.00 ISBN: 978-0-7603-4590-0

About 2,500 *Luftwaffe* fighter pilots gained ace status in World War II. Of these, 103 had more than 100 credits, thirteen logged 200-300 credits, and two scored more than 300 kills. *The German Aces Speak II* contains four interviews of these top aces: Erich Hartmann (325 credits, the top ace of all time), Gunther Rall (275 credits, the third highest scoring ace), Johannes Steinhoff (176 kills), and Dietrich Hrabak (125 kills). This volume is a sequel to a 2011 book by Heaton and Lewis with a similar title that covered four other German aces, two of which were high scorers: Walter Krupinski (197 kills) and Adolf Galland (102 credits).

A number of criticisms of this book can be made immediately. First, the coverage is uneven, with Hartman's contribution consisting of 116 pages; Steinhoff's just over ninety pages; Rall's forty pages; and Hrabak's twenty-two pages. A second issue is that these interviews were conducted many decades after the war, with all the hazards of hindsight. There is no indication why these four men were selected for this book.

That said, these interviews are of a very high quality; thus, the book is a solid contribution to the literature. Heaton and Lewis reveal much about a number of interesting aspects of the careers of these aces: why and how they got into flying, flying training, the pre-war *Luftwaffe*, and, of course, their wartime service. They discuss various other personalities including a number of aces such as Herman Graf (262 credits) and Hans-Joachim Marseille (158 credits). They also provide critical opinions of Goering, Hitler, and top *Luftwaffe* commanders. They talk of the fighters they flew and those they fought against. The interviews also compare the differences between fighting the Anglo-Americans versus the Soviets. Three of the men also mention Allied fighters shooting at German pilots descending in parachutes. One conclusion that can be drawn from this book is the importance of luck to their success and, most certainly, their survival. Hartman made fourteen or sixteen force landings and escaped Soviet captivity during the war, while Steinhoff was downed a dozen times. While the bulk of the book deals with World War II, there is some interesting coverage of two postwar issues: Soviet captivity (Hartman was held for ten and a half years) and the formation of the German Air Force in the 1950s. The latter is especially valuable as it includes, brief as it is, the difficult service of the F-104 in German colors and the recruitment of former *Luftwaffe* aces into the renewed air arm.

This is an easy and informative read. Those interested in aces, fighter combat, and the *Luftwaffe* in triumph and defeat,

as well as its reemergence, will profit from reading this book. While only a slice of the story, these men give a vivid and intimate view of World War II fighter combat.

Kenneth P. Werrell, Christiansburg, Virginia



Mikoyan Gurevich MiG-15, Second Edition. By Dariusz Karnas. Petersfield UK: Mushroom Model Publications, 2014. Tables. Diagrams. Illustrations. Photographs. Pp. 152. \$30.00 paperback ISBN: 978-83-63678-15-9

Whether you're just interested in the heavily used MiG-15 or you're a modeler—especially the latter—this is the book to have. Karnas' work is part of a series of books primarily designed for the model builder. If one can't build a great model from the information contained in this book, it is not the fault of the information!

One thing needs to be pointed out up front. The author's name is Polish. In fact, the book was printed in Poland; and, except for a couple of people, the staff appears to be all Polish. So, your first thought is that this is one of those great paperbacks, like to Japanese *Koku-Fan* series, that is printed entirely in the native language. Great pictures—not much communication! Or, at best, there is one column in Polish and another in English. This is not the case. All of the text and captions are in English—and very good English at that.

From the start, everything is high-quality. The first illustration is a family tree of the design from the prototype to the last production models. The text runs through only the first forty-four pages, but even those are filled with pictures and such. Although this is hardly *War and Peace* in scope, the text gives a fine history of the development of the aircraft, the many different models and producers, and a limited amount on operations. For those looking for "there I was" stories about the MiG-15 in combat, look elsewhere.

The book's primary delivery is pictures, drawings, and tables depicting the aircraft, its capabilities, and characteristics. Because the MiG-15 is a relatively small aircraft, all of the line and colors-and-markings drawings can be presented in 1/72 scale (1/48 and 1/32 drawings are available separately). The section on detailed photos (all in color) is divided into the major areas of the aircraft and runs seventy-one pages. There are thirty-six pages of color side-views, generally with two aircraft per page. One page is an excellent four-view drawing showing the differences between the MiG-15 and -15bis.

I've seen a lot of aircraft modelling books, and the quality of the drawings, resolution of the photographs, and sheer quantity of material in this book puts it right at the top of the genre.

From my position as a docent at a museum that displays a MiG-15, several pages dealing with Soviets in Korea were very helpful. I think many people, including most of the docents, still believe the old saw about the 10:1 kill ratio between the F-86 and MiG-15. Since the fall of the Soviet Union and the opening of vast archival collections, we now know that number is way off. One page of this book lists Soviet aces flying the MiG in Korea, and another discusses the MiG-15 and the contemporary aircraft in the theater. I know I have to go out and find what the latest scholarship says about the air-to-air tally in Korea.

In any event, if you want one book on this remarkable fighter aircraft, this is probably the one to get.

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



A Higher Call: An Incredible True Story of Combat and Chivalry in the War-Torn Skies of World War II. By Adam Makos with Larry Alexander. New York: The Berkley Publishing Group, 2012. Photographs. Notes. Bibliography. Pp. viii, 392. \$26.95 ISBN: 978-0-425-25286-4

German squadron leader Gustav Roedel said to Franz Stigler before his first mission in North Africa, *Every single time you go up, you will be outnumbered. Those odds may make a man want to fight dirty to survive . . . Honor is everything here . . . If I ever see or hear of you shooting a man in a parachute, I will shoot you down myself.*

A Higher Call is an essential read for anyone interested in examining the ethics of the "kill or be killed" environment of World War II aerial combat. Stigler's squadron leader delivered the above warning about ethical standards as a guidepost for Stigler. This warrior ethos is evident in numerous stories that provide the reader with an opportunity to view this complex survival experience from a unique perspective—that of a *Luftwaffe* fighter pilot fighting for a lost cause. Although this book shows both sides (Franz Stigler in the *Luftwaffe* as well as Charlie Brown in the Army Air Corps), Makos and Alexander spend most of their time describing Stigler's experience leading up to the unlikely encounter in December 1943. They do an excellent job of allowing the reader to ask

the question: how should warriors navigate the complex decision-making terrain of combat, doing their duty while keeping their honor and humanity intact?

A Higher Call artfully depicts life within Germany during World War II and the desperate fight its professional military waged given impossible circumstances. The reader will find rich descriptions of life within the *Luftwaffe*, and how this force defined professionalism while engaged in the day-by-day grind of constant fighting over numerous years. This book is an excellent source for readers seeking understanding of what it was like to fight on the German side with limited resources while overwhelmingly outnumbered. It does for fighter pilots in the *Luftwaffe* what *Das Boot* did for members of the German submarine force. Makos and Alexander articulately describe professionals grappling with being resilient while engaged in a long war—something that will resonate with military readers of today.

The descriptions of aerial combat make the book hard to put down. The odds faced by pilots on both sides are brilliantly depicted, making readers wonder how anyone survived. There were many instances on all sides during World War II, when warriors had to decide whether to shoot a defenseless opponent—preventing him from fighting another day—or to answer a higher call. The book describes one man's interpretation of whether to shoot or not and how much assistance to defenseless injured opponents is appropriate. Such descriptions set the context for meaningful discussion of ethical decision-making. In this kind of environment, many would seek first to survive rather than do the right thing. Given the current discussion of ethics within our military, Makos and Alexander offer much compelling material for thought and discussion.

For military and civilian alike, *A Higher Call* compellingly guides the reader through the application of ethics in combat and it shows warriors attempting to gain empathy with their opponents. It would be difficult to find of a better book for leader development programs at battalion and brigade or squadron and wing levels for the discussion of the practical application of ethics in combat. This book is an excellent addition to any library. An important read that has the potential to help leaders inculcate into their leader development programs the understanding of the importance of doing the right thing—especially when no one is watching.

Richard A. McConnell, Tactics Professor, U.S. Army Command and General Staff College, Fort Leavenworth Kansas



Hangar Flying. By General Merrill A. McPeak. Lake Oswego, Ore.: Lost Wingman Press, 2012. Photographs. Tables. Notes. Appendix. Index. Pp. 364. \$24.95 ISBN: 978-0-9833160-1-5

With the first book of an intended autobiographical trilogy, McPeak becomes the first Air Force Chief of Staff since Curtis LeMay to author or co-author a book regarding his career in the Air Force. This is fitting because Tony McPeak may be the most controversial Air Force Chief of Staff since LeMay. This first book covers his early life and career focusing on his motivations to enter the Air Force, training experiences, flying F-104s, performing with the Thunderbirds, and his combat experiences in Vietnam.

Unlike most pilot memoirs, this book is not about the culture of flying, drinking, driving, and chasing skirts. This is a thinking man's account of what it was like to be a fighter pilot in the early jet age. McPeak often tries to relate his career to larger social, political, and cultural currents swirling around him but largely fails to connect these events in more than a superficial way to what he is actually doing as a junior officer. As a chronicle of Air Force culture during the Cold War, it is valuable. However, the real strength of the book is the insight it provides into the mindset and thinking of McPeak as a senior Air Force leader. As he recounts his early experiences, one can see direct correlations to the many changes he engineered as Chief of Staff in the 1990s.

It is telling that his time with the Thunderbirds takes more pages than his time in combat. This experience, more than any other, served as the touchstone for his career. Unlike many other pilots who pen memoirs, McPeak was not as motivated to fly early in life. He came from extreme circumstances as a child, literally earned every break he got in life, became an accomplished collegiate debater, and entered the Air Force for what he believed would be a brief sojourn. However, his desire to master the craft of flying (as he describes it) set him on the professional fighter pilot path. His descriptions of how flying training worked and how it influenced him set him apart once more from the standard stereotypical accounts and elevate his analysis. These early chapters, through his presentation of life in the Cold War Air Force, discussion of the strengths and weaknesses of different aircraft, and elucidation of training and operations set the tone for the heart of his story—flying with the Thunderbirds.

His Thunderbird coverage highlights the value of small, dedicated teams of professionals at work in a demanding envi-

ronment. Moreover, McPeak, unlike many in his chosen profession, explores both his strengths and weaknesses as a pilot and discusses his mental, physical, and emotional efforts to overcome his foibles in a meaningful way. His account of how metal fatigue led to a spectacular aircraft accident during an air show in 1967 is a prime example of his ability to tell a story and, more importantly, the background that makes the incident useful to a reader interested in aviation history. Finally, the book ends with a riveting account of his time in Vietnam flying close air support and interdiction missions as a regular line pilot, ops officer, and elite Misty forward air controllers. He also offers some exceptional insight on the value of airpower and how his experiences in Vietnam shaped his thinking as leader of the Air Force more than twenty years later.

Overall, the book is unique. It is artfully packaged with each chapter beginning with an interesting epigraph and graphic illustration of the dominant aircraft he flew at the time. The appendix, logbooks, and footnotes are useful for all levels of readers; and the prose itself is excellent. There are some minor misspellings and historical flaws (claiming he was listening to the Beatles in England in 1961, when their earliest recordings were not released until 1962). These are probably a product of his publishing process more than anything else. Those minor issues aside, I heartily endorse this work and find myself anxiously awaiting the future volumes. As controversial as McPeak remains for many Air Force veterans, this book is a great read that explains a lot about both him and the service itself.

John G. Terino, Jr., Associate Professor, Air Command and Staff College



Churchill's Most Secret Airfield, RAF Tempford. By Bernard O'Connor. Stroud UK: Amberly Publishing, 2013. Maps. Photographs. Bibliography. Pp. 255. \$24.95 Paperback. ISBN 978-1-4456-0690-3

Winston Churchill's well known dictum to "set Europe ablaze" depended to a large extent on insertion and recovery of agents and rescue of downed flight crew and escaping soldiers and airmen by aircraft; use of surface craft or crossing from neutral territories was even more risky. In this book, Bernard O'Connor continues his work documenting the story of the men and women of the Special Operations Executive (SOE) and the airmen who flew the missions.

O'Connor's major works have been on

the social and economic impact of the phosphate industry in England and other countries, but he has made frequent forays into operations of the SOE into Europe from airfields in Bedford. In this book, he traces the development of the primary airfield and supporting annexes tasked with the mission to transport the high priority passengers into and out of denied enemy territory. He shows how the land for the field was obtained and how the field was designed and built in such way as to make it appear as if it was a little used, out-of-the-way outpost.

RAF Tempsford was located at one point of the triangle that Martin Bowman titled "the Bedford Triangle" in his 1988 book on U.S. undercover operations from England during World War II. From here, 138 and 161 Special Duties Squadrons flew nightly missions into Europe ranging from Northern France, The Netherlands, and Belgium to as far away as Poland and Czechoslovakia during the few days on either side of the full moon.

Churchill's Most Secret Airfield is divided into seven chapters with a comprehensive section on abbreviations right at the outset (where it belongs), the early history of the airfield, the squadrons, ground crew and aircrews, secret operations, everyday life at the base, and disposition after the war. O'Connor has packed a tremendous amount of material into the slim volume. All of the chapters are thorough in their treatment of the subjects. Of particular interest is the attention to the final training of the agents—or Joes as they were called by the aircrews—and their dispatching on missions. Each chapter contains several examples of the subject such as discussion of squadron commanders and individual missions. One great example is the raid on the Gestapo prison at Amiens that was staged from RAF Tempsford. In the chapter on secret operations, O'Connor demonstrates a particular gift for describing the women of the SOE and their *sang-froid* prior to dispatch.

The book makes excellent use of maps and pictures (most of which are new to me) to illustrate points. Perhaps a few more maps to illustrate the layout of the field and its annexes would have helped; however, this is a minor nit. The discussion of harrowing missions, both successful and less so, adds an element of richness to the story. The final chapter, *After the War*, nicely brings to a close the story of one of the more important, but lesser known, RAF fields of the war.

Overall, this is a good read. O'Connor has done an excellent job of documenting a vital portion of the war in Europe. This book is an excellent companion to Martin

Bowman's *The Bedford Triangle, U.S. Undercover Operations from England in World War II*.

MSgt. Al Mongeon, USAF (Ret.)



Project 9: The Birth Of The Air Commandos In World War II. By Dennis R. Okerstrom. Columbia: University of Missouri Press, 2014. Photographs. Bibliography. Index. Pp. 300. \$29.95 ISBN 978-0-8262-2027-1

This a splendid book about a little-reported-on corner of World War II geography and forces engaged in a do-or-die situation in Burma and India in 1943-1944. The book deals with some unforgettable figures. General "Hap" Arnold and Admiral Lord Louis Mountbatten lead the list, with brilliant, if eccentric, British Brigadier Orde Wingate close behind. Wingate's scheme for taking the fight to the Japanese in Burma was the catalyst for the formation of the U.S. Army Air Forces "Air Commandos."

Wingate won the Distinguished Service Order in Palestine, leading Special Night Squads against Arab insurrectionists who were assassinating British officials and Jewish settlers during the period 1936-1938. He won another DSO in 1941 leading Gideon Force, a roving column of men, camels and supplies to assist in the recapture of Ethiopia. In early 1942, he was sent to the Far East to raise and train guerrilla forces to help retake Burma from the Japanese Army.

In February 1943, he led some 3,000 British and Empire troops (including Gurkhas, West Africans, and Indian units) across the Chindwin River. He called them *Chindits*, based upon the term for mythical guardians of Burmese temples. They formed Long Range Penetration Groups, to be supported only by air, with the task of interrupting Japanese Army communications. While doing some damage, they finally had to be ordered back. Only 2,120 of the original 3,000 returned. The wounded were left behind to the tender mercies of the Japanese.

Wingate and his men were received as heroes in a theater where successes were rare. He received his third DSO and his forces' exploits made front-page news in England. A copy of his report of the first Chindit operation went to a friend of Churchill, who brought it to the great man's attention. Churchill was impressed and ordered Wingate back to England to accompany him to Quebec and the Quadrant Conference with President Roosevelt and the combined chiefs of staff.

There, in a series of briefings, Wingate laid out a plan for helping retake northern Burma, a move designed to keep China in the war—a matter of great interest and concern to Roosevelt. Both Roosevelt and Churchill endorsed his scheme.

General Hap Arnold saw an opportunity to use air power in a novel way. He summoned two lieutenant colonels, Philip Cochran and John Alison, both fighter pilots, to his office in the Pentagon and put them in charge of designing, organizing, training, and taking into combat a small and very special organization to provide Wingate's requirement for air support.

They were unhappy and appalled. Wingate wanted small liaison aircraft to perform medevac, while they both wanted to command fighter squadrons in England. However, they had their orders from Arnold and an essentially blank check and top priority for men and material. They set up shop in the Hay-Adams hotel and started planning. Deciding that they needed to talk to Wingate in person, Cochran flew to England and met with him several times. Wingate sketched out his concept of ground operations and the air support it required.

Cochran returned to Washington, and the two light colonels put together a concept of air support operations and an appropriate table of organization and equipment. It went far beyond the idea of resupply drops and medevac of wounded. It called for air insertion of the Chindits and their equipment (including mules) by glider. Resupply would be by C-47s that doubled as glider-tow aircraft. A small force of fighter aircraft and medium bombers would provide conventional air support when needed. Liaison aircraft would perform medevac duty.

They presented their plan to General Arnold; he told them to carry it out. The rest of the story, and the most interesting part, is what happened next. As in the weekly movie serials in the 1930s and 1940s when the episode ends with the stagecoach going off a cliff—you had to come back next week to find out if the cowboy hero jumped in time—you will have to read the book to find out what happened. Believe me, it's worth it. But have an atlas handy. Okerstrom, who did an outstanding job otherwise, neglected to include any maps of the operational area in Burma.

Capt. John F. O'Connell, USN (Ret.),
Docent, National Air and Space Museum



The Bombers and the Bombed: Allied Air War over Europe, 1940-1945. By Richard Overy. New York: Viking Penguin,

2013. Maps. Tables. Photographs. Notes. Bibliography. Index. Pp. xxviii, 562. \$36.00. ISBN: 978-0-670-02515-2

With this book, Dr. Overy has guaranteed his standing as one of the top historians of the Second World War. A huge array of books has been written on the Allied bombing campaign over Europe during that conflict, but if I were forced to name only one book to go to for the story, *The Bombers and the Bombed* would probably have to be it.

Overy's research effort was immense. While the book contains 590 pages, the text stops on page 437. There are seventy-seven pages of notes followed by twenty-five pages of bibliography and sources and an excellent index. The text is filled with tables and figures. At times, the sheer volume of numbers seems overwhelming and a bit much. But, as I thought about that, I'm not sure how one can tell the story of the campaign without using bomb tonnages, CEPs, deaths, casualties, and destruction areas. These are how one measures results—both economic and human.

I have been a big fan of Davis' *Carl A. Spaatz and the Air War in Europe* for years. For an understanding of the organization of the strategic air forces in Europe and the Mediterranean areas during the war, and the bureaucratic maneuverings that took place within those organizations, that book is still tops. Overy covers the same operations, obviously, but goes further by getting into more detail on some of the lesser operations in the Balkans and the Low Countries. Where he really plows new ground is in integrating the story of bombing operations with what was happening on the receiving end of that bombing. The book jacket claims, "This is a unique history of the bombing war from below as well as from above." That, for a change, is a 100-percent-accurate assessment. This book is unique.

Of the bombing campaign itself, I don't believe there is anything terribly new to a reader who has studied it at some length. In the years between the world wars—and even during the second war—the claims that an enemy's economy would be quickly shut down and that the civilian populace would become demoralized, perhaps to the point of overthrowing its government, just didn't pan out. There was nothing quick about the destruction of Germany's war industry. And the people of Germany never revolted. In fact, as Overy shows, there was perhaps the reverse effect: the people subjected to the bombing became more irate against the bombing nations than against their own governments or occupiers. It was the eventual weight of the campaign and reduction of

defenses that allowed the bombing campaign to achieve its aims, but it took a few years to get there.

What was new to me was the exceptional coverage of morale, effects on the local economies and lifestyles, and the government actions to provide civil defense and care for the populace. Most readers probably won't have looked at those aspects. Throughout the narrative, Overly does a great job of comparing and contrasting events in Germany, France, Belgium, Bulgaria, Italy, and elsewhere to the Blitz of the UK. With some sense of what the people of England went through, it is easier to visualize what was going on in continental cities and villages. If for no other reason, the coverage of German and Italian government and ruling party activities to protect, shelter, and feed their citizens makes the price of this book worth every cent.

There are a few books that have to be on the shelves of any serious student of World War II and its strategic bombing efforts: Davis' *Spaatz* and Freeman's *Eighth Air Force* volumes are among them. Overly has provided another in the indispensable category.

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



60 Years of Combat Aircraft: From World War One to Vietnam War One. By Bruno Pautigny. Paris: Histoire and Collections, 2010. Illustrations. Pp. 160. \$38.00 (Amazon) ISBN: 978-2-35250-117-2

A self-taught illustrator, Bruno Pautigny began his career in a small advertising agency. As his career progressed, other agencies followed with assignments varying from advertising copy to medical textbooks. As a general illustrator, he enjoyed illustrating automobiles and other mechanical devices. Growing tired of the pressure within the print industry, he switched to working for several book publishers. Later Revell Inc., maker of plastic models, approached him about illustrating box art for their upcoming aviation releases. He also has illustrated articles in France's *Wing Master*, a plastic-modeler magazine. While creating for Revell and *Wing Master*, Pautigny created over 400 aircraft illustrations used in French aviation profiles. The majority of the book's illustrations are from these profiles.

60 Years of Combat Aircraft is a thin "coffee table book" with slick pages. Having no dust jacket, Bruno's skills of

illustration leap off the cover as you hold the book—from a Fokker Dr. I Triplane in one corner to a McDonnell-Douglas F-4 Phantom II in the other. The book's five chapters are titled "World War I," "World War II," "The Fifties," "The Sixties," and "Concerning Illustrations"; within each, a sub-chapter of aircraft of individual nations of the period is shown. Interestingly, a sub-chapter of the "The Fifties" is Operation Musketeer, the Anglo-French-Israeli plan for the invasion of Egypt to capture the Suez Canal. Concerning Illustrations has a discussion about how German aircraft of a different era are illustrated legally today. Each chapter's first pages give a brief introduction of Pautigny's opinion of the aircraft and his experiences illustrating them. Many aircraft have many illustrations (there are twelve North American P-51 Mustangs alone). Not surprisingly, "World War II" contains 60 percent of the illustrations.

Most pages have three eight-inch-wide illustrations above a short paragraph describing the aircraft's paint scheme, markings, and history. Most of these illustrations show the standard left profile of the aircraft with the propeller blades omitted. There are no factory-fresh aircraft here; each of them is shown as if it had seen action for a long time. With the book's slick pages and the colors of the illustrations, the aircraft seem to float above the page!

Don't do what I did and thumb through the book looking for what famous Boeing B-29 Pautigny illustrated. You won't find one. As he states in his introduction, he included in the book only what he has illustrated in his career. So any of you Boeing B-29 crewman out there who want a superior illustration of your aircraft, I know a guy . . .

Summing up, this large format book with slick pages and superior illustrations is deserving of the price. If money is no object, this is a fine book to add to your coffee table. If, however, you are looking for a true reference book with all the principal aircraft of an era, there are other books available for far less.

Scott Marquiss, Docent, National Air and Space Museum, Mall and Udvar-Hazy Center



Two Flights to Victory: From the Doolittle Raid to the Enola Gay. By David G. Styles. Stroud, UK: Spellmount, 2011. Tables. Diagrams. Photographs. Appendices. Bibliography. Index. Pp. 286. \$35.00 ISBN: 978-0-7524-6206-6

I'm going to cut to the chase right up front: this is the worst book I have read in over a decade as APH's Book Review Editor. It is poorly researched, marginally written and edited, and lacks scholastic qualities one would expect from a Ph.D. holder. About the only good thing I can say about the book is that it contains a great assortment of photos—some of which I have not seen before—although a number of them are captioned incorrectly.

The jacket states that Dr. Styles has earned many international awards for his nineteen books, most of which deal with cars. A former member of the RAF who later worked in the auto industry, he got into higher education and attended the 2002 and 2003 Doolittle reunions as a correspondent. From those events, he came up with the idea to write this book.

In his preface, Styles says that this "is the story of two great men [Doolittle and Tibbets] and two great missions." These missions are "the only two air attacks on Japan during the Second World War to have been organized outside any wider battle plan." That, in itself, is a pretty dubious statement. But the central assertion is "how Tibbets [sic] and Doolittle's paths had crossed [in North Africa] and how Doolittle had deliberately placed Tibbets in the position to be the obvious choice to lead the 509th Composite Group." Since Styles includes not a single footnote in the entire book, where this absolutely silly assertion comes from is unknown. On page 93, Styles talks about Tibbets' well-known problems with Lauris Norstad in North Africa in 1943 and says, "Doolittle . . . was also aware of the Manhattan Project, to the extent that the B-29 was intended to play a role in ending the war in the Pacific by delivering a new weapon to a Japanese target." In his autobiography, Doolittle states on page 452, *I was not privy to the secret before we received word on Okinawa that an atomic bomb had been dropped. Since the Eighth Air Force wasn't involved, I had no need to know what it was all about.* So much for the book's central theme.

As I read the book, I dog-eared each page where I found "facts" that were skewed or just plain wrong. I gave up eventually because the book was getting too thick! Here are just a few samples: Caption on a picture of North Field, Tinian, "This was the huge airfield built by the Japanese." On a 3-view drawing of the B-29, "The standard specification had four 4-gun barbettes." Almost everything he says about *Little Boy* is wrong, and he includes a cartoon cross-section that could have come right out of the 1950's popular press. There's a picture showing the tunnel in a B-29 that is captioned, "Captain

Parsons had to go through this tube to reach the bomb . . .” Difficult, since he would have gone right by it! There are several pictures claiming to be of “*Little Boy*” that are actually photos of test weapons. The Nagasaki attack airplane, *Bockscar*, is constantly referred to as *Bock’s Car*. And the final gem after correctly noting these were fission weapons, a picture of *Fat Man*, “a fusion type of weapon”!

Of the book’s 286 pages, 101 are appendices that contain material that is often quite irrelevant to the story—much of it appears to be “filler” material. In the bibliography, one of the 21 books is Ted Lawson’s classic *Thirty Seconds over Tokyo*. Unfortunately, the author is identified as Lewis, Ted W.

For readers who want to understand Doolittle and the April 1942 raid, read Doolittle and Glines, *I Could Never Be So Lucky Again*. For Tibbets’ story, his book *The Tibbets Story* is good. But for the best scholarship on the bomb and the atomic missions, get John Coster-Mullen’s *Atom Bombs: The Top Secret Inside Story of Little Boy and Fat Man* and Richard Campbell’s *The Silverplate Bombers: A History and Registry of the Enola Gay and Other B-29s Configured to Carry Atomic Bombs*.

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



The Red Baron: The Graphic History of Richthofen’s Flying Circus and the Air War in WWI. By Wayne Vansant. Minneapolis, Minn.: Zenith Press, 2014. Maps. Illustrations. Appendices. Bibliography. Pp. 101. \$19.99 paperback ISBN: 978-0-7603-4602-0

In last winter’s issue of *Air Power History*, I reviewed Vansant’s book on the bombing of Nazi Germany. With this latest book, Vansant has continued a strong string of illustrated histories. He is both the writer and illustrator of these and used a similar format when he illustrated Marvel’s *The ‘Nam* series. He then wrote and illustrated *Normandy*, *Gettysburg*, and *Bombing Nazi Germany* for Zenith. He drew almost 400 high-quality illustrations for this latest venture.

The Red Baron, Manfred Freiherr von Richthofen, has been the subject of many books, several of which are quite good. However, for a reader who wants a quick brush-up on this noted ace or on air warfare in the First World War in general, this is an excellent little book to go

through. Some may not think a book done in the style of the old *Classics Illustrated* series would be worth the time, but for the purpose this book serves, it serves well.

Vansant has done an excellent job of presenting a number of the principal characters of the first major air war. It is inevitable if one is to tell von Richthofen’s story. Oswald Boelcke and Max Immelman—two of the immortal German aces—certainly heavily influenced the young von Richthofen. Lanoe Hawker, one of the early British aces, became one of the Red Baron’s early victories. Others such as Germans Verner Voss, Kurt Wolff, Lothar von Richthofen, and Hermann Goering; Frenchmen René Fonck, Georges Guynemer, and Charles Nungesser; and Americans Raoul Lufbery and Eddie Rickenbacker enter the story as well. Although von Richthofen never fought American fliers, his unit did after his death.

Von Richthofen’s death has been the subject of endless controversy for years. Canadian Roy Brown, an RAF captain, was formally credited with bringing down the Red Baron on April 21, 1918. Later research has shown that it was probably an Australian ground machine gun crew that fired the single bullet that ended the career of the 80-kill ace. Who fired the bullet is really not that important. What was important was that one of the deadliest killing machines of the German air force was no longer a threat to Allied fliers. Von Richthofen’s death, just short of his 26th birthday, at least spared him the sad experience of watching the defeat of his country’s military during the next half year.

Vansant has included an appendix that includes brief biographies of some of the players in the story as well as pictures and basic data on the most important French, British, and German aircraft. No one should consider this a comprehensive book on the war in the air over western Europe. However, it is a book that I’d recommend to any of the docents of the Air and Space Museum or anyone else interested in a good little primer to better understand aerial combat and the life of one of its greatest practitioners.

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



Hidden Warbirds II: More Epic Stories of Finding, Recovering, and Rebuilding WWII’s Lost Aircraft. By Nicholas A. Veronico. Minneapolis, Minn.: Zenith, 2014. Tables. Photographs. Bibliography. Index. Pp. 256. \$30.00 ISBN: 978-0-7603-4601-3

Hidden Warbirds II relates what it takes to find, finance, recover, and restore World War II planes: time, money, a willingness to bargain with landowners and authorities, the perseverance to freeze, bake, wade through hip-deep mud and fend off crocodiles, and the occasional lawsuit. A refinement and development of Volume I (reviewed in APH summer 2014), the book is packed with full-color, original photos of warbirds submerged underwater; mired in a swamp; dangling perilously from a helicopter; more reassuringly in the shop under restoration; and, finally, gleaming on the ramp alongside a proud owner. Veronico has extensively documented this field, and his website Wreckchasing.com is a nexus for warbird news. Here the aspiring warbird owner will learn, through accounts of actual recoveries, which information sources to research, who to contact, how to raise funds, and what resources are needed to restore a warbird.

The warbird field is not as easy as it looks. Would-be wreck rebuilders often shy off when they realize that aircraft retrieval and restoration—especially bombers—can be a major undertaking. Although driveway projects are possible, the warbird enthusiast often is an organizer of specialists with the industrial capability—cranes, barges, machine shops, and heavy transportation via land, sea, and air—to locate, acquire the rights to, reach, extract, haul, rebuild and restore, and maintain a warbird. The emphasis is on networking for funds, parts, skills, and facilities. Patience and persistence are prime characteristics of the successful warbird hunter. This is an active industry whose raw material is wrecks.

In the volume, Veronico sharpens and emphasizes the definitions of the World War II warbird field introduced in Volume 1. Although “hidden” warbirds can be those that are physically inaccessible due to their remote location, they also can be planes that may be visible but that people and circumstances prevent from being made publicly available as part of the aviation heritage community. A Hawker Fury in Iraq, pole-mounted gate guards that we pass every day, or even private collections an owner does not display count as “hidden.”

“Finding” warbirds is a deliberate and systematic process. Searchers research a desired plane’s supposed location in accident reports, logbooks, or flight records, then confirm that theory through site visits, diving in lakes and the ocean, aerial reconnaissance, or even Google Earth. Searchers depended on boat-mounted sonar and local rumors to finally

find a B-17 that belied in on frozen Dyke Lake, Labrador, Canada, in December 1947, 12 miles from where the spring thaw should have deposited it on the bottom. Shade from the B-17 had formed an ice raft, which drifted downstream.

Once located, title and ownership, as well as official permits required to remove a plane from public or private property, must first be obtained. The warbird searcher must navigate governments, militaries, landowners, and such organizations with vested interests as nature conservancies. Sometimes spur-of-the-moment inspiration does the trick; after years of fruitless engagement with hesitant local officials, would-be searchers of the Dyke Lake B-17 flew in another B-17, gave tours, and put on an air show. The recovery permit was promptly issued.

Once acquired, the main challenge is getting to the planes and then extracting them. Geography separates the merely curious from the truly determined: the restorer who finally recovered a rare P-47B wreck from a remote North Carolina swamp via helicopter had many ambitious, but not quite as energetic, predecessors.

Restoration is similarly described. Aircraft are taken apart down to the individual rib and stringer and reassembled using as many original parts as possible. Special facilities often are needed: the Battle of Britain Do 17 was placed in a custom-built, environmentally-controlled room to prevent deterioration. Seventy years on, some wrecks are little more than a component—restorers constructed from original blueprints all but the fuselage aft of the engine firewall of a P-40N recovered from the Australian Outback. Authenticity is key: original factory-applied technical instructions and even assembly line worker signatures are carefully preserved. Those aircraft that actually saw combat—notably, the Flying Heritage Collection's eastern front Fw 190A, now a rare flying example—are held in special esteem. Especially scrupulous restorations are honored by such signature warbird organizations as the Experimental Aircraft Association.

Volume I's thorough bibliography, including annotated lists of internet resources, has been updated for this volume. As before, the thoroughly categorized index is intended for quick and repeated reference.

As a prime point of this book is the relative remoteness of some of these wrecks, some maps would have been welcome. It appears as though a deadline loomed as the volume was finished; I found a few typos and a chapter or two that seemed hastily put together. The only thing that did not check out in this otherwise thoroughly researched book was a B-17E for which the serial given, 42-5088, appears in sources as a B-17F.

Steve Agoratus, Hamilton, N.J.



Billy Mitchell's War with the Navy: The Interwar Rivalry Over Air Power. By Thomas Wildenberg. Annapolis Md.: Naval Institute Press, 2013. Illustrations. Photographs. Notes. Appendices. Bibliography. Index. Pp. 271. \$34.95. ISBN: 978-0-87021-038-9.

Thomas Wildenberg, a former Ramsey Fellow in naval aviation history at the National Air and Space Museum, has written a well-researched account of one of America's most controversial military figures—William “Billy” Mitchell. A stated objective was to “document the interservice rivalry over air power,” primarily during the interwar period. Such an inquiry is a difficult challenge and, while Wildenberg's interpretation is clearly delivered from the Navy's perspective, his work turns out to be as biased as others about Mitchell. Let's face it: Billy Mitchell was abrasive, bombastic and cocky—a figure almost impossible to hold in a neutral light.

Wildenberg labels Mitchell as an unethical evangelist for air power holding sway over an unlisted group of “disciples” who touted the “benefits of strategic bombing for years after the end of World War II.” Later in the work, he uses the pejorative

“minions” to describe this same group of subordinate officers that were often assigned under Mitchell's command and, by association, part of the “Mitchell cabal” that resulted in his eventual court martial in 1926. These “minions” are never clearly revealed in this book but can be assumed to be Hap Arnold, Jimmy Doolittle, Frank Andrews, Curtis LeMay and other Army Air Forces giants that transformed a cloth-and-wire air arm into the single largest assemblage of combat aircraft in history—without help from the Navy.

The root of interservice rivalry, as Wildenberg accurately states, was (and still is) an issue of funding—money pure and simple. The debate over dollars began in the early 1900s, prior to Billy Mitchell's arrival on the aviation scene, and continues full force today. Even Mitchell understood that America's premier service was the Navy. The Navy received the lion's share of the military budget and had since the early 1800s—and rightfully so. Protecting U.S. interests was becoming more critical as the nation stepped onto the world stage during World War I. Building a global naval force took time; was extremely expensive; and required special technologies, training, and doctrine.

Billy Mitchell's war with the Navy was a predictable result of the advancement of a new military-aviation technology that Mitchell personally commanded with great skill over the trenches of St. Mihiel and the Meuse-Argonne in 1918. Wildenberg's chapters covering Mitchell's early military service are the best I've read. Meticulous and revealing, his clear picture of Mitchell's strengths and remarkable volatility are juxtaposed by his promotion to captain—the youngest of that rank in the Army—in the same year that witnessed the invention of the airplane. Billy Mitchell was what today is termed a “fast burner.” By the end of World War I, Mitchell was America's undisputed air-power expert. Who else was better equipped to wage the budget fight for Army aviation against the Navy after the war had ended?

PROSPECTIVE REVIEWERS

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

Col. Scott A. Willey, USAF (Ret.)
3704 Brices Ford Ct.
Fairfax, VA 22033
Tel. (703) 620-4139
e-mail: scottlin.willey@gmail.com

Books Received

Dougherty, Kerrie, Ed., *History of Rocketry and Astronautics*. San Diego, Calif. Univelt 2013. [AAS History Series, Vol. AIAA History Series, Vol. 41., *Proc. Of the Forty-Fourth History Symposium of the International Academy of Astronautics, Prague, Czech Rep, 2010* Illustrations. Photographs. Notes. Pp. 446. Hard Cover \$110.00 ISBN: 978-0803, Soft Cover TSBM: (\$60.00 ISBN: 978-0-87703-608-1. Both include a DVD.

Meikle, Nick. *Malloch's Spitfire: The Story and Restoration of PK 350*. Philadelphia and Oxford: Casemate. Notes. Photographs. Illustrations. Appendixes. Bibliography. Index. Pp. 343 Paperback \$24.95. ISBN: 978-1-61200-2521.

Mortimer, Gavin. *The First Eagles: The Fearless American Aces Who Flew With the RAF in World War I*. Minneapolis, Minn.: Zenith Press, 2014. Photographs. Appendixes, Bibliography. Index.. Pp. 240. \$30.00 ISBN: 978-0-75034-06399

Rickman, Sarah Byrn. *Nancy Love and the WASP Ferry Pilots of World War II*, Denton.: University of North Texas,, 2008. Photographs. Notes.. Glossary Bibliography. Index. Pp. 332. Hard Cover \$24.95 ISBN: 978-1-57441-241-3

As it turned out, Mitchell's interwar theatrics may have done more for naval aviation than for the Army's air arm. Wildenberg points out that sinking captured ships and holding mock bombing raids over large American cities "renewed emphasis for the need to obtain aircraft carriers for the Navy." Both in the halls of congress and in the popular press, calls went up for construction of aircraft carriers. Unfortunately for the Navy, building an aircraft carrier force within a fixed budget meant that fewer battleships could be built. In reality, the demise of the battleship came from within the Navy itself, distressing the senior, most pedantic of naval staff officers. Ironically, a similar struggle between "Old Army" officers like Charles Menoher, and younger air-minded officers like Mitchell, Arnold, and Doolittle took place within the Army during the establishment of a new combat branch—aviation.

The most interesting section of

Wildenberg's work examines the bombardment tests and sinking of the *Ostfriesland*. Wildenberg makes clear that Mitchell's aircraft violated the Navy's bombardment "rules" during the *Ostfriesland* tests. But his analysis of the importance of these tests falls short. Mitchell's success earned the Army front-page publicity across the country during the interservice struggle to assume the coastal defense mission. Yet, the Navy wanted to sink that battleship just as much as the Army airmen did "depriving Mitchell of his most dramatic claim to fame)."

Yet, during follow-on tests the next year, the Navy had no compunction about impeding the release of test results after the sinking of the *Virginia*. Commanders on the *St. Mihiel*, the observation ship for the test, charged newspaper reporters to transmit their reports back to the mainland (the equivalent of \$2,250 per 1000 words today). Further, official Army

reports were "heavily edited" by a team of naval officers to downplay the impact of the tests in an effort to avoid the media circus of the *Ostfriesland* sinking the year before. Rather than submit their report through official channels, the Navy doctored the Army's report. Gen. Pershing, not wishing to rock the Navy's boat, allowed the edits. Wildenburg does not mention the dubious ethics of such actions taken to keep a lid on Army publicity.

Nonetheless, Wildenberg's book is worth examining. He offers some new perspective on Mitchell, including the accidental shooting of his second wife that had been buried in the police reports at Fort Meyer, but only scratches the surface of the complexities of interservice rivalry.

Lt. Col. Dik Daso, USAF (Ret.), Ph.D., Adjunct History Faculty, Univ. of South Carolina



Books Available—July 2, 2014

Baime: *The Arsenal of Democracy: FDR, Detroit, and an Epic Quest to Arm and American at War*. 364p.
 Barzilai: *102 Days of War: How Osama bin Laden, al Qaeda & the Taliban Survived 2001*. 167p.
 Blackman: *Nimrod: Rise and Fall*. 223p.
 Busha: *The Fight in the Clouds: The Extraordinary Combat Experience of P-51 Mustang Pilots During World War II*. 238p.
 Denton: *Believers in the Battlespace: Religion, Ideology and War*. 231p.
 Grandolini: *Fall of the Flying Dragon: South Vietnamese Air Force 1973-75*. 253p.
 Head: *Night Hunters: The AC-130s and their Role in U.S. Airpower*. 423p.
 Heaton & Lewis: *The German Aces Speak II: WWII Through the Eyes of Four More of the Luftwaffe's Most Important Commanders*. 296p.
 Homan & Reilly: *Black Knights: The Story of the Tuskegee Airmen*. 336p.
 Jackson: *Doctrine, Strategy and Military Culture: Military-Strategic Doctrine Development in Australia, Canada and New Zealand, 1987-2007*. 185p.
 Lambright: *Why Mars: NASA and the Politics of Space Exploration*. 320p.
 McKay: *Shifting Sands: Air Coercion and Iraq, 1991-2003*. 189p.
 Newdick & Cooper: *Modern Military Aircraft: The World's Great Weapons*. 384p.
 Okerstrom: *Project 9: The Birth of the Air Commandos in World War II*. 300p.
 Schubert: *Other than War: The American Military Experience and Operations in the Post-Cold War Decade*. 126p.
 Sine: *Guardian Angel: Life and Death Adventures with Pararescue, the World's Most Powerful Commando Rescue Force*. 239p.

Coming Up



Compiled by
George W. Cully

September 20, 2014

The **National Museum of the Pacific War** will present its 2014 Symposium at the Admiral Nimitz Museum in Fredericksburg, Texas. For more details as they become available, see the Museum's website at www.pacificwarmuseum.org/news-events/the-2014-annual-symposium/.

September 24-26, 2014

The **League of World War I Aviation Historians** will present the first installment of its "Centennial of Aviation Warfare" at the National Museum of the USAF in Dayton, Ohio. For more details, contact the League at OTF-membership@overthefront.com.

September 24-27, 2014

The **Society of Experimental Test Pilots** will hold its 58th annual Symposium and Banquet in Anaheim, California. Details will be announced as they become available at www.setp.org/.

September 26-28, 2014

The **National Museum of the United States Air Force** will host a World War I Dawn Patrol Rendezvous; this event will memorialize the 100th anniversary of the beginning of World War I. For further details, see the Museum's website at www.nationalmuseum.af.mil/wwi.asp.

October 1, 2014

The **U.S. Naval Institute** will present a history conference on the grounds of the U.S. Naval Academy in Annapolis, Maryland. The theme will be "Leaders in Action: Ordinary People Doing the Extraordinary." For further details, see the Institute's website at www.usni.org/events.

October 4, 2014

The **National Aviation Hall of Fame** will enshrine its latest group of honorees during a formal dinner at the Hall, co-located with the National Museum of the United States Air Force in Dayton, Ohio. This year's enshrinees will include Bert Acosta, Alan and Dale Klapmeier, James McDivitt, Emily Howell Warner, and Steve Wittman. For more information, see the Hall of Fame's website at <http://nationalaviation.org/>.

October 7-9, 2014

The **Association of Old Crows** will hold its 51st Annual AOC International Symposium and Convention at the Marriott Wardman Park Hotel in Washington, D.C. For more information, ping a Crow at www.crows.org/conventions/conventions.html.

October 8-12, 2014

The **Oral History Association** will hold its 48th annual meeting at the Madison Concourse Hotel in Madison, Wisconsin. This year's meeting theme will be "Motion: Movements, Transformations, and the Power of Story." For additional details, see the Association's website at www.oralhistory.org/.

October 10-11, 2014

The Southwest Branch of the **World War I Historical Association** in conjunction with Tarleton University at Stephenville, Texas and the Dallas Fort Worth branch of the **League of WWI Aviation Historians**, will sponsor a symposium on October 10-11, 2014 in Stephenville which will look at how Americans engaged in the Great War before the U.S. entered it. For more information, contact M. Kihn-topf at kihnt@swbell.net or Dr. Marcy Tanter, at Tanter@tarleton.edu

October 13-15, 2014

The **Association of the United States Army** will hold its Annual Meeting and Exposition at the Walter E. Washington Convention Center in Washington, D.C. For more information on this event, see the AUSA's website at www.ausa.org/meetings/Pages/NationalMeetings.aspx.

October 27-29, 2014

The **American Astronautical Society** will present its 7th Wernher von Braun Memorial Symposium on the campus of the University of Alabama at Huntsville in Huntsville, Alabama. For further particulars, see the Society's website at astronautical.org/node/260.

November 4-6, 2014

The **Association for Unmanned Vehicle Systems International** will host Program Review 2014 at the Ritz-Carlton, Tysons Corner in McLean, Virginia. For program details, see the Association's website at www.auvsi.org/events/1/.

November 6-9, 2014

The **History of Science Society** will hold its annual meeting in Chicago, Illinois. For more details as they become available, see the Society's website at www.hssonline.org/.

November 6-9, 2014

The **Society for the History of Technology** will hold its annual meeting in Dearborn, Michigan. For more details as they become available, see the Society's website at www.historyoftechnology.org/.

November 14-15, 2014

The **History and Political Science Department at Chestnut Hill College**, located in Philadelphia, Pennsylvania, will host an interdisciplinary conference on "The Legacy of World War I." Keynote speakers will be Jay Winter (Yale University) and Laura Lee Downs (European University Institute, Florence, Italy). To be placed on a mailing list for conference registration, send your name, mailing address, and email address to William Walker at wwalker@chc.edu.

December 4-6, 2014

The **National World War II Museum** will host its 2014 International Conference on WWII, "1944: Beyond all Boundaries," in New Orleans, Louisiana. For more information, see the Museum's website at ww2conference.com or call 877-813-3329, ext. 511.

2015

January 2-5, 2015

The **American Historical Association** will hold its annual meeting in New York City, New York. For details visit the Association's website at www.historians.org.

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

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

1st AACS MOB Squadron Oct 16-19, 2014, Fairborn, OH Contact:

James Mumaw
5748 Mallard Dr,
Huber Heights, OH 45424-4148
937-236-5323
bigmawmu@aol.com

2d Bombardment Assn Oct 22-26, 2014, Albuquerque, NM Contact:

Karen Nelson
1300 Army Navy Drive #107,
Arlington, VA 22202
703-892-5176
karenwnelson@msn.com

4th Fighter Group (WW II) Oct 1-5, 2014, Fairborn, OH Contact:

Keith Hoey
120 Bay Breeze Dr,
Belleville ON Canada K8N 4Z7
613-813-2727
khoey98@yahoo.com

63d AAF-FTD Oct 12-17, 2014, Douglas, GA Contact:

John A. Herrmann
3562 West Fork Rd.,
Cincinnati, OH 45211
513-481-0130
irmaandjohn@yahoo.com

86th Fighter-Bomber Group Assn, WWII Oct 1-5, 2014 Fort Walton Beach, FL Contact:

Dallas Lowe
850-319-0047
fighterbomberpilot@yahoo.com

91st Tactical Fighter Squadron Sep 24-27, 2015, Fairborn, OH Contact:

Dion Makris
7152 Hartcrest Ln,
Centerville, OH 45459
937-938-7767
phantombcde@gmail.com

93d Bombardment Group Oct 16-19, 2014, Dayton, OH Contact:

Jim Root
15359 Red Fox Walk,
West Olive, MI 49460
616-218-0787
jamesdavidroot@aol.com

384th Bomb Group Oct 16-19, 2014, Fairborn, OH Contact:

Frank Alfter
1306 Adams Way,
Beavercreek, OH 45434
937-306-2142
fjalfter@gmail.com

452d Bomb Group Oct 1-5, 2014, Dayton, OH Contact:

Carolyn Goodwin
322 Madison Mews,
Norfolk, VA 23507
757-625-6401
carolyn@afri.com

485th Bomb Group, WW II, Italy 50th & Final Reunion Sep 17-21, 2014, Dallas, TX Contact:

Jim Scheib
5360 N. Calle Bujia,
Tucson, AZ 85718
520-615-0397
jimannscheib@comcast.net

496th Tactical Fighter Squadron Oct 23-26, 2014, Fairborn, OH Contact:

J. Kevin Roll
677 Todd Trail,
Newport News, VA 23602
918-815-2629
rolljk@yahoo.com

496th TFS/50th TFW - Hahn AB, Germany (1970-75) Oct 23-26, 2014, Fairborn, OH Contact:

Bill Flanagan
9233 East Ave T-12,
Little Rock, CA 93543
661-944-3125
flapsflanagan@roadrunner.com

511th AC&W Group Reunion Assn (613th, 847th, 848th AC&W and 39th AD) Oct 2-6, 2014, St. Louis, MO Contact:

Don Simmons
972-231-6518
dona7112@sbcglobal.net
(Central & Southern Japan radar vets too)

554th Recon Squadron Oct 2-5, 2014, Dayton/Fairborn, OH Contact:

Gary Spohn
2600 Alpha E Seltice Way PMB 191,
Post Falls, ID 83854
208-661-7936
garspoid@frontier.com

815th Troop Carrier Squadron Oct 9-12, 2014, Branson, MO Contact:

The Reunion Brat
16817 Mountainside Drive East
Greenwater, WA 98022
306-663-2521
thereunionbrat@hotmail.com

F-16 Alumni Association Sep 25-28, 2014, Fairborn, OH Contact:

Sandy Bunn
4153 Sierra Park Terrace,
Beavercreek, OH 45440
937-426-8577
sbunn@woh.rr.com

3640th Pilot Training Wing Laredo AFB Officer IP & PP Oct 14-17, 2014, San Antonio, TX Contact:

Ron Hunt
1328 Meadow Moor Dr,
Beavercreek, OH 45434
937-426-0867
ron.hunt.oh@gmail.com

Lakenheath POL (Petroleum, Oils, Lubricants) Oct 10-12, 2014, Fairborn, OH Contact:

David Giboo
57 Bristelcone Ct,
Battlement Mesa, CO 81635
402-558-4431
LakenheathPOL@icloud.com

RAF Upper Heyford Sep 18-21, 2014, Dayton, OH Contact:

Sherry Mills
P.O. Box 25806,
Colorado Springs, CO 80936
719-380-1412
sherry@acompletetereunion.com

AC-119 Gunship Reunion Shadows & Stingers; Air & Ground Crew; 71st, 17th & 18th SOS Sep 17-21, 2014, Albuquerque, NM Contact:

Col Steve Mac Isaac, USAF (Ret)
6449 Coventry Hills Dr, NE
Rio Rancho, NM 87144
505-867-3367 or 302-249-1499
colmacmac@mac.com

Looking for anyone assoc. with AC-119 gunships, 1967 to 1972 in SEA: aircrew, ground crew, support personnel, friends, families, anyone whose bacon we saved!

B-26 Marauder Historical Society National Reunion Oct 16-18, 2014, Akron, OH Contact:

Phyllis Hay
B-26 Marauder Historical Society
3900 E. Timrod St,
Tucson, AZ 85711-4170
502-322-6226
admin@B-26MHS.org

USAF Special Projects Prod'n Facility Sep 28-Oct 3, 2014, Fairborn, OH Contact:

Dick Temple
19899 Naples Lakes Terrace,
Ashburn, VA 20147
703-786-4743
commander77dt@aol.com

Wild Weasels Oct 8-11, 2015, Fairborn, OH Contact:

Larry Lemieux
10497 S 475 W
Williamsburg, IN 47393
937-287-9240
larlemieux@aol.com

OCS-58A Oct 9-12, 2014, Fairborn, OH
Contact:

Vincent Haney
6945 Meeker Woods,
Dayton, OH 45414
937-280-4477
frehan@roadrunner.com

PTC-56M Apr 23-26, 2016, Fairborn, OH
Contact:

John Mitchell
11713 Decade Ct,
Reston, VA 20191
703-264-9609
mitchelljf@yahoo.com

PTC-62A Oct 1-4, 2015, Fairborn, OH
Contact:

Dave Tippet
227 Forest Creek Dr,
Bozeman, MT 59718
406-570-8290
dave.tippet@gmail.com

PTC-71-04 (Webb AFB) Oct 1-4, 2015,
Fairborn, OH Contact:

Keith Houk
1805 Creekwood Dr,
Troy, OH 45373
937-335-7000
MLH3232@yahoo.com

UPT-65A Craig AFB, AL Oct 9-11, 2014,
Fairborn, OH Contact:

Rafael Ramos
431 Ashton Ct,
Beavercreek, OH 45434
937-427-9357
DonQ151@woh.rr.com

List provided by:

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

Letters

German Aircraft Design

The article on German aircraft design [vol. 61, No. 2, pp. 28-39] made interesting reading, however, may I make some observations.

Unfortunately no mention is made of the author's empirical basis for assessing an aircraft's superiority. Was one better than the other because of speed, armament, handling etc., or a weighted balance of a number of criteria, or was it that some were worse than others? It would have been useful to know the basis for his conclusions.

Nor is mention is made in the comments on German four-engined designs of the Fw 200 Condor which was certainly feared by the convoys and called by Winston Churchill, 'The Scourge of the Atlantic'. The Spitfire V became out-classed until the Spitfire IX appeared. These are surely the vagaries of war. Consideration surely also needs to be given to the opposition aircraft and the relative quality of the aircrew. Erich Hartmann may well have been in a Bf 109 considered by the author to have had shortcomings, but he still achieved 352 aircraft shot down. Were these victims' aircraft even more inferior or were they just bad pilots in good aircraft?

The Me 262's jet engines may only have lasted 25 hours but was the aircraft itself likely to survive in combat that long? Why invest in designing an engine to last 120 hours if its airframe was only likely to achieve a fraction of that? Its speed and armament alone, according to Eric 'Winkle' Brown, placed it in a different category of its own as the most significant aircraft design of the war as partly evidenced by its score of victories against P-51s. Only

when the RAF sent Hawker Tempests to catch the 262s as they returned to their bases was their weak spot found. The USAAF conceded that it was superior to the P-80 and the RAF likewise conceded it was superior to the Meteor in many respects. And it was not only the Germans that pushed aircraft into service before they were fully developed.

Were not derivative designs of 'Luftwaffe 1946' – particularly the Ta 183 - pitted in combat over the skies of Korea a few years later, far outclassing the first generation Allied jets? It is also possibly still true to say that every post-war missile and space launch vehicle contains in its DNA the vestiges of the research done at Peenemunde.

Every country has its good and bad designs and debate will continue, but the relative success of a warplane along with its aircrew when operated in the furnace of conflict must surely also be taken into account and analysed as well. It was, after all, an outdated biplane that sank the *Bismarck* and a percentage of the Italian fleet but that didn't necessarily make it a good design.

John Boyes

Author Responds

Thank you for your comments. I was writing a short article rather than a book and so did not set out in any formal way my criteria for establishing what constituted one aircraft's superiority over another design. Various features that I regarded as relevant were cited, on several occasions, in the first part of my article but, yes, not in any systematic fashion. That was the way I thought most suitable for putting my ideas across in a short article.

I think the skill and experience of pilots like Erich Hartmann was always

the decisive factor. Combat on the Eastern Front tended to be at lower altitudes and from 1943, he was always up against aircraft more manoeuvrable at lower altitudes than the Bf 109G. Since he realized this, he did not waste time trying to out-maneuvre them in dogfights. He used his skill to go straight in.

The Me 262 was never likely to spend twenty-five hours in combat. Some combat missions would fail to make contact; in others, contact with enemy aircraft would represent a small fraction of flying time.

No idea how they did it but the Gloster Meteor was a strangely sluggish machine. The Me 262 may have been more fun to fly than the F-80 but I doubt if it was a better combat machine other than the much heavier armament required by its bomber-killer role.

It's a myth that the MiG-15 (or the North American Sabre or the Dassault Mystere) owed anything to the Ta 183. This has been investigated by Yefim Gordon & Co. Incidentally the nose intake was a feature of Italy's experimental jet plane, the Caproni Campini, and Britain's Gloster E28/39 early in the war.

The Focke Wulf Fw 200, being a commercial airliner, had a rather small bombload and was relatively fragile, often suffering catastrophic structural failures on landing (see photos on Google). The Luftwaffe never saw it as a heavy bomber for use against land targets.

The Swordfish, which DAMAGED rather than SANK the *Bismarck*, carried out this attack in weather conditions in which no other aircraft could have operated from an aircraft carrier, and it was its ability to take off and land on a flight deck in such conditions that kept it in frontline service throughout the war. I had an article about this in *RUSI Journal* in, I think, 2011.

A.D. Harvey

Panacea Targets

In his article on Sir Arthur Harris and panacea targets in the Summer 2014 issue [Vol. 61, No. 2, pp. 36-41] A.D. Harvey omits a minor point. In late 1940 and early 1941, Middle East Command considered using the two squadrons of Wellington twin-engine heavies to attack Ploesti. But there were several problems:

1. The Wellingtons could not climb above 11,000 feet and therefore could not safely pass over the mountains north of Greece.
2. The alternative was to fly up the Dardanelles and violate Turkish neutrality—and risk being shot down.
3. The two squadrons, with the RAF's then weakness in night navigation, were unlikely to have much success, for the project was dropped as Greece and its refueling grounds fell in April 1941.

Robin Higham, Author of *Diary of a Disaster: British Aid to Greece, 1940-1941* (1986)

News

Best Book Award, 2013

The Hump: America's Strategy for Keeping China in World War II, by Dr. John D. Plating, Colonel, USAF, and teacher of history at the Air Force Academy, has been selected for the Air Force Historical Foundation's Best Airpower Book Award for the year 2013. The award is given annually after a three-judge panel carefully considers and rates all of the books that were reviewed in the Foundation's journal, *Air Power History*, during the year. Criteria for selection call for the book to be of high quality, contribute to an understanding of air power, and for the author or authors to have had a connection to the U.S. Air Force or be a member of the Air Force Historical Foundation.

China's part in World War II has long been little known in America, although the maneuverings of Madame Chiang Kai-shek and her brother T. V. Soong (Chiang's representative in Washington) received considerable publicity during and after the war. But just why China was a critical ally in the eyes of Franklin Roosevelt is obscure to most people and certainly no longer taught in our schools. John Plating's book explores both the importance of China as a counterweight to Japan's army, and the organization of the India-China

airlift that supplied both China and the U.S. Air Force's Fourteenth Air Force commanded by Maj. Gen. Claire Chennault. This dangerous and demanding airlift supply route became necessary with the Japanese seizure of the Burma Road, and Chiang Kai-shek's insistent demands for ever-greater amounts of fuel, munitions, and supplies. Along with his demands, Chiang left the implication that without continued support he might be forced to surrender to Japan with the consequent freeing of thousands of Japanese soldiers to be used against the Allies in the Pacific and Asia. This book is valuable for opening discussion into a part of the Air Force's and America's activity in the war that almost has been forgotten.

The judges' voting for the winner was very close, and we had a virtual tie for second place between Jay Stout's *Fighter Group* and Christopher Rein's *North African Air Campaign*. *Fighter Group* examines the flying training, deployment, and combat preparation of one of the most notable Army Air Forces organizations in the European Theater. An exploration into air combat planning and fighting in a nearby area is found in the book on the North African Air Campaign. It is not possible to pick between the two for second place, nor should we; they are both excellent works of history. We had a number of other fascinating books on this year's nomination list, as well; all of them are worth reading.

This year's judges included Mr. Scott Shaw, a research staff member at the Institute for Defense Analyses in Alexandria, Virginia; Dr. Mark R. Mandeles, President, The J. de Bloch Group, Fairfax, Virginia; and Major Willard Strandberg, Jr., USAF (Ret). These three had a particularly difficult job, as the scoring of the top tier of the nominations was very close.

I am most grateful to the three judges, who spent many hours on this task, and to the several authors and those who supported and advised them during the time they spent researching, writing, contemplating their projects, and revising the texts.

The award will be presented at the annual Air Force Historical Foundation's awards gathering in the fall.

This year was a first for this competition: we had one author with two books nominated, Dr. Robin Higham, the very accomplished air power historian who also has long been associated with the Air Force Historical Foundation. The list of the remainder of the books nominated for this award follows, and the judges and I recommend all, as well as those mentioned above, to anyone who has an interest in air power and the Air Force:

Fahrenwald, Ted. *Bailout over Normandy, A Flyboy's Adventures with the French Resistance and Other Escapades in Occupied France*.

Temple, L. Parker. *Implosion: Lessons from National Security, High Reliability Spacecraft, Electronics, and the Forces Which Changed Them*.

Lipowski, Bruce E. *Birth of a Base: MacDill Field, 1939-1941*.

Higham, Robin. *Unflinching Zeal: Air Battles Over France and Britain, May-October 1940*.

Rein, Christopher M. *The North African Air Campaign, U.S. Army Air Forces from El Alamein to Salerno*.

Dibbs, Hohn M., with Robert Renner. *Viper Force, 56th Fighter Wing—To Fly and Fight the F-16*.

Stout, Jay A. *Fighter Group: The 352nd "Blue-Nosed Bastards in World War II*.

McGill, Earl J. *Jet Age Man: SAC B-47 Operations in the Early Cold War*.

Higham, Robin. *Two Roads to War: The French and British Air Arms from Versailles to Dunkirk*.

John F. Kreis, Chairman, Publications Awards Committee

Best Article, 2013

This year's winner of the Best Article award is Dr. William Head, Chief of the History Office at Robins AFB, Georgia, for his article "The Battles of Al-Fallujah: Urban Warfare and the Growth of Air Power." Dr. Head is a prolific author with numerous books to his credit, with particular expertise in the history of aerial gunship development and employment; this article appeared in the Winter 2013 edition of *Air Power History*. In addition to his many books, Dr. Head has had articles published in the *Journal of Military History*, *Virginia Review of Asian Studies*, and the *Journal of Third World Studies* in addition to The Air Force Historical Foundation's *Air Power History*.

From before the 2003 invasion of Iraq until the United States' forces left the country in 2011, Al-Fallujah was a constant source of trouble for Coalition military assigned to control central Iraq; the city became the center of anti-Coalition violence. Some of the highest American losses came during the fighting for this

city. Dr. Head points out that some analysts believe that the fighting in Al-Fallujah was the most bitter and vicious since the effort to re-take Hue City, Vietnam during the Tet Offensive of 1968. Heretofore, air power had played only a limited role in urban war, mostly to level particularly troublesome areas so that infantry could move through cities clearing out remaining enemy forces. At Al-Fallujah, with the use of high tech weapons and the ability to locate and destroy specific targets, this changed. Air Power acquired a new capability, and Dr. Head describes it admirably.

Although fought to a stalemate by the Iraqi insurgents at Al-Fallujah, Dr. Head concludes that “air power and specifically AC-130s had proven their worth both with their ability search and destroy enemy assets in an urban environment as well as being able to devastate insurgent forces in open and hidden positions.” Before the fighting at Al-Fallujah, few believed that air forces played a substantial role in urban war. This idea was shown to be incorrect, and Dr. Head’s analysis has demonstrated just how much developing technology has altered air warfare capabilities.

Dr. Head’s winning article is one of a number of first-rate pieces that appeared in *Air Power History* during 2013, including another article, this one in two parts, that he wrote. Following closely in the

scoring were his own “The Battle for Ra’s al-Khaffi and the Effects of Air Power,” A.D. Harvey’s “Air Warfare in Perspective,” and Daniel L. Haulman’s “The United States Air Force and Bosnia, 1992-1995.”

This year’s judges for the best article competition were all members of the Air Force Historical Foundation’s Board of Directors: Ken Alnwick; Charles L. Johnson; and Jonna Hoppes.

In Memoriam

Theodore J. VanKirk

Theodore “Dutch” vanKirk, the man who navigated the atomic armed *Enola Gay* to Hiroshima on August 6, 1945, died on July 28, 2014. Reportedly, the last surviving member of the twelve-man crew, he was ninety-three.

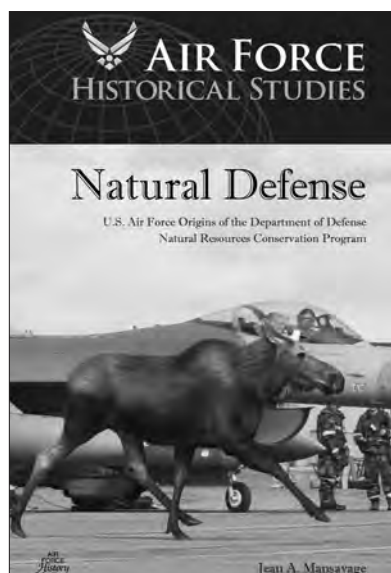
Maj. “Dutch” VanKirk was born in Northumberland, Pennsylvania, served in the Army Air Forces until discharged, and received a bachelor’s degree in 1949 from Bucknell University. He was personally recruited for the *Enola Gay* mission by Col. Paul Tibbetts, mission commander.

Bernard Fischer

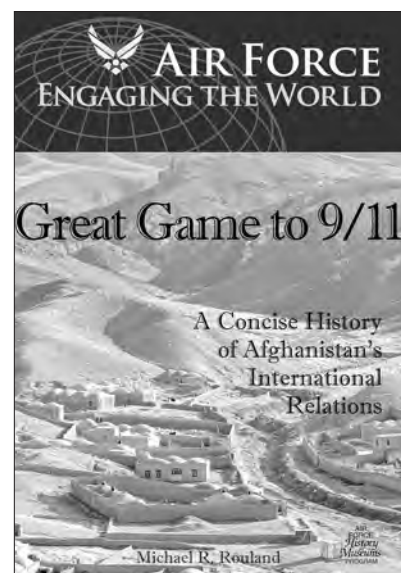
Col. Bernard Fisher, the first person awarded the Air Force-designed Medal of Honor, died Aug. 16 in Idaho at the age of 87. President Lyndon B. Johnson awarded Fisher the Medal of Honor, the nation’s highest honor for valor in combat, on Jan. 19, 1967 for “personal action above and beyond the call of duty” in South Vietnam.

In 1966, then-major Fisher, who was assigned to the 1st Air Commando Squadron at Pleiku, South Vietnam, risked his life to save his wingman after he was shot down during the battle of A Shau Valley, a narrow strip below the demilitarized zone between North and South Vietnam. “Fisher landed his Douglas A-1E Skyraider on an airfield controlled by the enemy under the most intense ground fire, pulled the downed pilot aboard his aircraft, and successfully escaped despite several bullets striking the plane.” Fisher, who started his military career in the Navy, spent time in the Idaho Air National Guard before he received his Air Force commission in June 1951. In addition to the hundreds of close air support missions flown in his A-1E in Vietnam, Fisher also flew the F-80, F-86, and the F-101 throughout his career. He retired from the Air Force in 1974. He also is the recipient of the Silver Star, Distinguished Flying Cross, and the Bronze Star Medal, among others.

New Publications from the Air Force Historical Support Division



Two new works from the Air Force Historical Support Division. First, Dr. Jean A Mansavage has completed a study of the USAF’s contribution to the development of the DoD conservation program. The second work is by Dr. Michael Rouland, a former intern in the Air Force Historical Studies Office now working for the Naval Historical Center. His study focuses on the tangled history of Afghanistan and how it has ended up mired in the current turmoil.



Available for download in PDF format at www.afhso.af.mil

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—a 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 submitted in triplicate, double-spaced throughout, and prepared according to the *Chicago Manual of Style* (University of Chicago Press). Use civilian dates and endnotes. 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. Endnotes should be numbered consecutively through the article with a raised numeral corresponding to the list of notes placed at the end.

Computer-produced articles should be submitted on a CD-R in Microsoft Word or equivalent format, for the PC. Disks should be labelled with the name of the author, title of the article, and the software 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 Jacob Neufeld, Editor, *c/o Air Power History*, 11908 Gainsborough Rd., Potomac, MD 20854, e-mail: jackneufeld@verizon.net.

Technical editor Robert F. Dorr is offering copies of his new World War II book *Mission to Berlin* to APH readers on a not-for-profit basis at half price. Contact Bob at (703) 264-8950 or robert.f.dorr@cox.net





The mystery aircraft in our last issue was the Boeing XB-15. Built as a bomber, it became a transport, renamed the XC-105.

This behemoth resulted from a 1934 Army Air Corps proposal for a bomber capable of flying 5,000 miles. It was briefly known as the XBLR-1 but became the XB-15 before its first flight October 15, 1937—two years after the maiden flight of the same planemaker's smaller but less trouble-prone B-17 Flying Fortress. Even when it first took to the air, experts realized the XB-15 offered no advantage over existing bombers. They saw this big ship as a research vehicle, to enhance aeronautical knowledge.

For its size, the XB-15 was somewhat underpowered with four Pratt & Whitney R-1830-11 radi-

al engines delivering 850 horsepower apiece. Its broad wing, with a 149-foot span, was so big a flight engineer could enter via a crawlway to make minor repairs while in flight.

Assigned to the 2nd Bombardment Group at Langley Field, Virginia, the XB-15 in the hands of Major Caleb V. Haynes flew a humanitarian mission to Chile in following a 1939 earthquake there.

The XB-15 undertook tests hauling heavy cargoes in Fairfield, Ohio, and in 1940 went to Panama for classified testing of the defenses of the Panama Canal. In 1943, fitted with a cargo hoist and cargo doors, the aircraft was given a new mission and designated XC-105. It returned to Panama and spent much of World War II hauling freight in Latin America. It hauled hundreds of young women recruited for war work from Miami to the Canal Zone in what crews called the "Georgia Peach Run."

The XB-15-cum-XC-108 would have made a magnificent museum display. Instead, increasingly costly and impractical, it was retired in December 1944 and scrapped soon after.

A record fifty-one readers entered our latest contest — all with correct entries. "As a kid, I pedaled to the approach end of Patterson Field [in Ohio] and watched Major Stanley Umstead shooting landings in the XB-15," wrote retired Lt. Col. W. C. Hayden of San Antonio, Texas. Chosen at random, Hayden is our History Mystery winner. He'll receive an aviation book as his prize.

And if we do continue, it's time to challenge you to identify our new "History Mystery" aircraft. Remember the rules:

1. Submit your entry via e-mail to robert.f.dorr@cox.net. Entries may also be submitted on a postcard to Robert F. Dorr, 3411 Valewood Drive, Oakton, VA 22124.
2. Remember: we need your address and phone number.
3. A winner will be chosen at random from among correct entries and will receive an aviation book.

And let's get serious about those historical treasures in your attic or basement. Some readers say they just don't remember where their color slides are. That's not a good way to assure the preservation of history. Dig out your slide or

snapshot of a rare aircraft and lend it to *Air Power History* for this contest



This Issue's Mystery Plane



Air Force *Historical* Foundation
P.O. Box 790
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