

# AIR POWER

WINTER 2009 - Volume 56, Number 4  
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# History





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In this issue, you will find a photo essay on the year's capstone event—the Air Force Historical Foundation's 2009 Symposium and Awards Ceremony. The October 8th day-long event blended presentations, debates, and discussions by airmen and historians on the Balkans Air Campaigns of the 1990s. Air Force Chief of Staff General Norton A. Schwartz headlined the evening's banquet and delivered the keynote address. Foundation President and CEO, Major General Dale W. Meyerrose, successfully completed his "first flight" (See pages 56-59.)

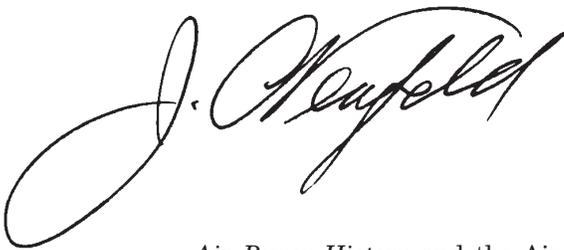
The feature articles for the Winter 2009 issue begin with Cargill Hall's account of President Eisenhower's peacetime policy regarding overflight of "belligerent enemy" territory. What were its ramifications in the 1950s and early 1960s? And what historical insights can we glean from this account?

The second article, by Evelyn Zegenhagen, tells the virtually unknown story of German women pilots in World War II. Based on interviews, unpublished diaries, flight logs, and notebooks, the author details the wartime role of German women and analyzes their motivation. Perhaps most interesting is the fact that these women operated in the context of the Nazi state, which advocated strict gender roles for women as wives and mothers.

Roger Miller, a frequent contributor and internationally acclaimed expert on the Berlin Airlift, reexamines the role of aircraft maintenance in the airlift. Faced with a serious shortage of maintenance personnel, the audacious and resourceful Major General William Tunner, managed to deliver the goods. In part, he did so by employing former members of the *Luftwaffe*.

In the fourth feature, British historian A.D. Harvey, presents an essay by Charles F. Portal, the World War II Chief of Staff of the Royal Air Force. Written in 1922, Portal's essay, about his wartime flying experience *during World War I*, provides some very interesting observations regarding air power in the Great War.

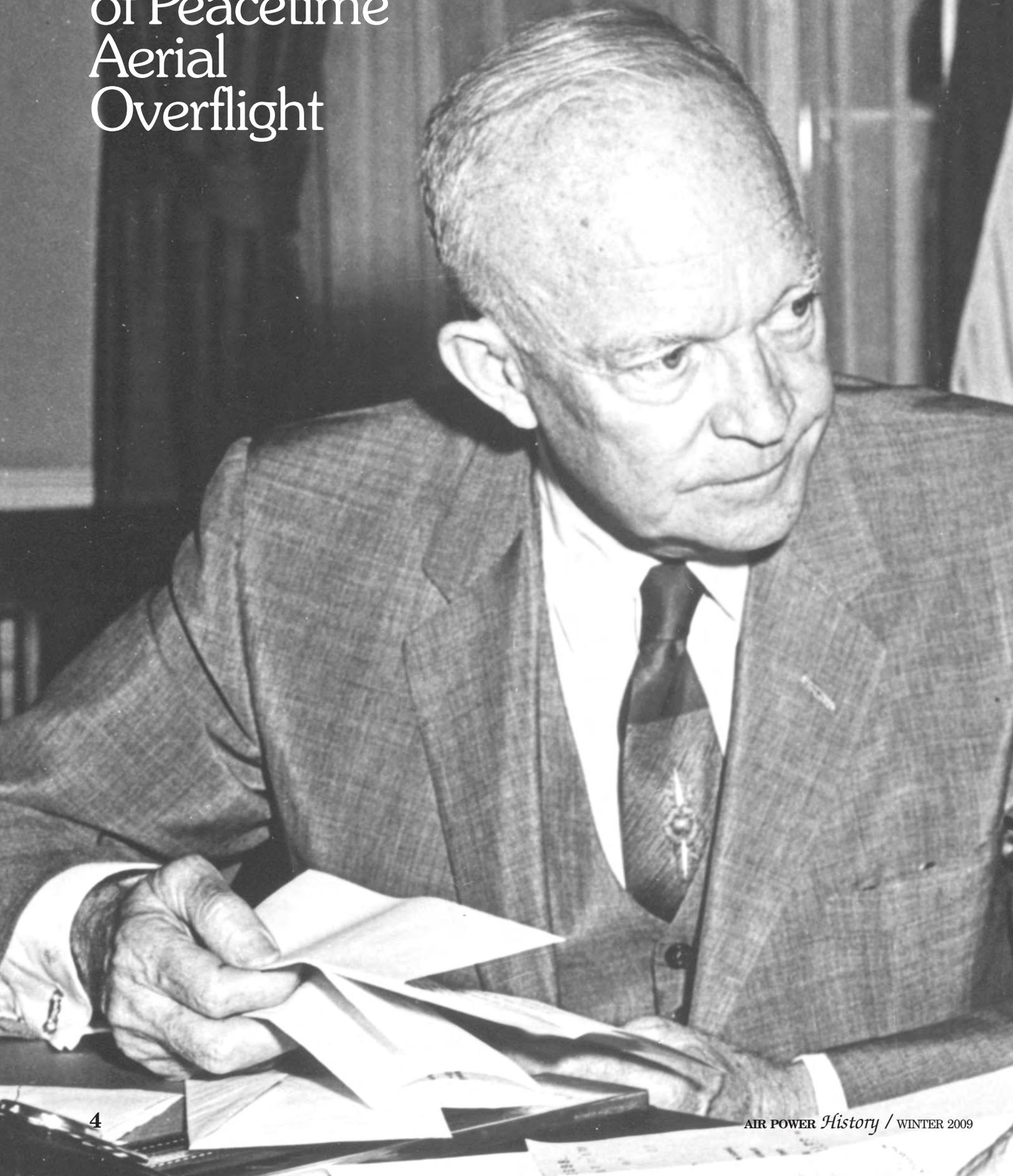
There are twenty book reviews in this issue and an extensive list of new books received. We have moved much of our backlog of book reviews to the Foundation's website: <http://www.afhistorical-foundation.org>. News items, letters to the editor, the History Mystery, and other departments appear in their regular places.



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Cover photo: Maj. Gen. Dale Meyerrose presents Air Force Chief of Staff Gen. Norton A. Schwartz with a copy of the Air Force Historical Foundation's coffee table book *World War II: A Chronology of War* as a token of appreciation for his keynote presentation during the 2009 Symposium's awards banquet.

# Denied Territory: Eisenhower's Policy of Peacetime Aerial Overflight





R. Cargill Hall

(Overleaf) President Eisenhower and Secretary of State John Foster Dulles confer in the Oval Office on August 14, 1956. A telephone call between them a few months later, on December 18, ended the SENSINT military overflight program. (Photo courtesy of the NRO.)

CHAPTER VI  
OF THE  
UNITED  
NATIONS  
CHARTER, ...  
JUSTIFIED  
MISSIONS  
OVER THE  
SOVIET  
UNION  
BECAUSE IT  
WAS AN  
"UNAN-  
NOUNCED  
CO-BEL-  
LIGERENT."

*In the work of intelligence, heroes are undecorated and unsung, often even among their own fraternity. Their inspiration is rooted in patriotism; their reward can be little except the conviction that they are performing a unique and indispensable service for their country and the knowledge that America needs and appreciates their efforts.*<sup>1</sup>

International tensions soared in November 1950, after Communist China's sudden and unexpected entry in the Korean War. Considering a response, U.S. President Harry Truman and British Prime Minister Clement Atlee met in early December and, among other actions, agreed upon clandestine military overflights of the USSR and the Peoples Republic of China. Their purpose: to collect intelligence on the number, location, and disposition of military forces, nuclear facilities, and, especially, long-range air forces. Beginning in 1951, the Strategic Air Command's 91st and 55th Strategic Reconnaissance Wings, and Tactical Air Command's 67th Tactical Reconnaissance Wing, among other U.S. Air Force units, became the first to engage in these Top Secret missions flown over "denied territory." International tensions hardly eased as the war dragged on, or when, in January 1953, Republican Dwight Eisenhower took the oath of office as the thirty-fourth President of the United States. Having served as Supreme Commander of Allied Forces in Europe during World War II, the new President appreciated the crucial role of photographic and signals intelligence to the success of military operations. He and British Prime Minister Winston Churchill fully supported continuing the overflight program that their predecessors had established.<sup>2</sup>

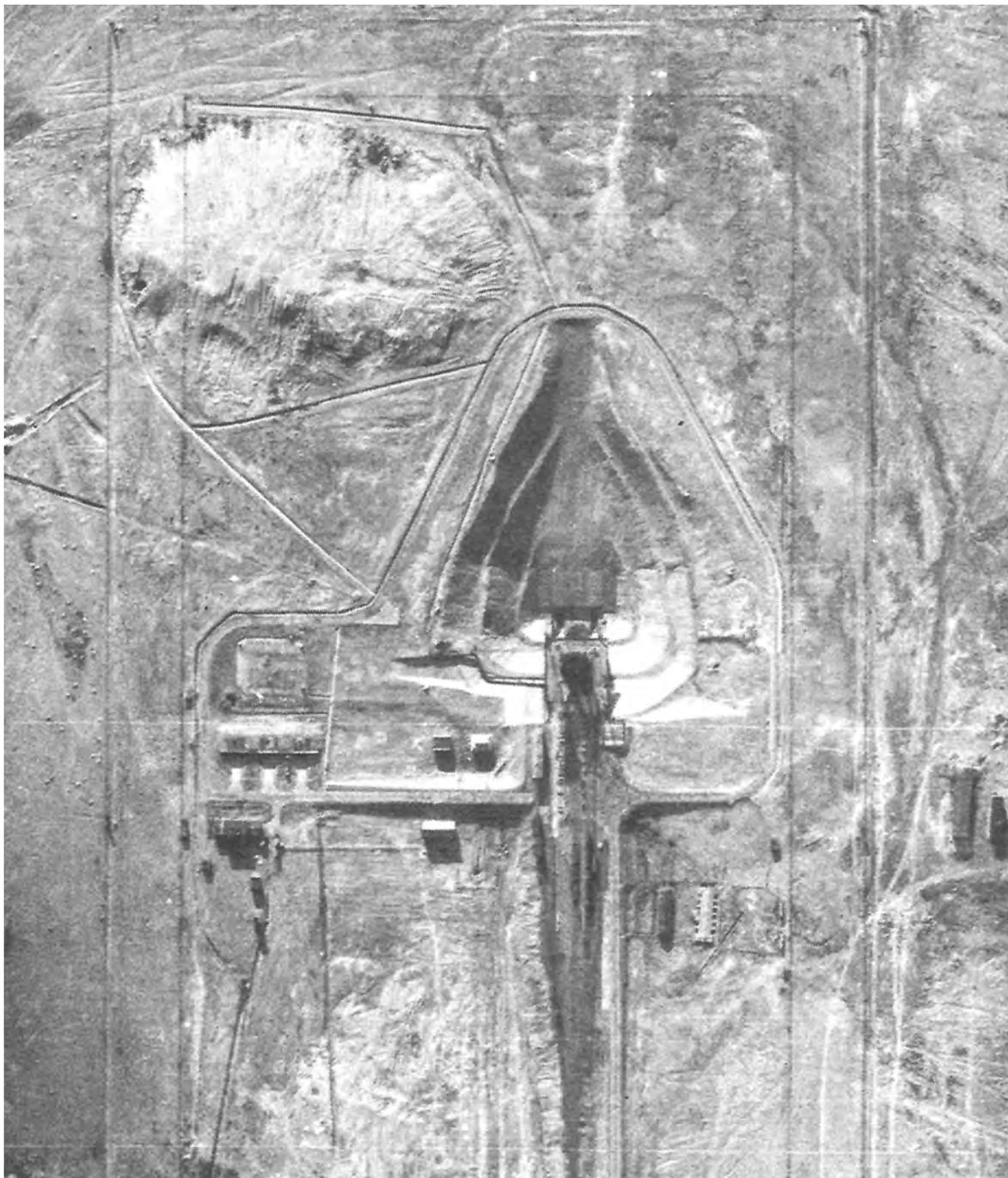
If President Truman and Prime Minister Atlee had set a precedent of military overflights during a Cold War "conflict," they did so under Chapter VI of the United Nations charter, which, their legal experts affirmed, also justified missions over the Soviet Union because it was an "unannounced cobelligerent." And because no American or British aerial intruder was ever shot down, that legal interpretation remained unchallenged on July 27, 1953, when all Allied overflights ended with the Korean War Armistice and formal cessation of hostilities. But one month later, in August, the USSR

detonated a boosted fission weapon that delivered "a yield of four hundred kilotons," and publicly claimed that it had achieved thermonuclear capability.<sup>3</sup> However relieved war-weary publics in America and Europe might have been on the war's end, in Washington and London, leaders "witting" of the wartime overflight effort reevaluated the international situation.

The need for *reliable* intelligence of Soviet economic resources and military preparations had never been greater. Such intelligence could reduce military uncertainty through advance warning of impending atomic attack. Moreover, with it, one also could select a military or diplomatic response and do so economically without having to prepare for every possible contingency. In early 1954, President Eisenhower authorized, and a few trusted advisors established, a clandestine project in compartmented channels to acquire precisely this kind of strategic intelligence. It called for conducting *in peacetime* periodic, high-altitude overflights of potential foreign adversaries. The "Sensitive Intelligence" security access and control system established for this purpose, known as SENSINT, contained within it a separate WINDFALL compartment for photographic products, products shared with the Central Intelligence Agency (CIA). Conducted between early 1954 and the end of 1956, Department of Defense directors of SENSINT missions relied on available military reconnaissance aircraft or specially modified versions of them. Deep penetration overflights employed air-refuelable reconnaissance bombers of the Strategic Air Command, the RB-45C and RB-47E. The U.S. Air Force modified high performance reconnaissance fighter airplanes, the RF-86 and supersonic RF-100 in particular, to mount cameras and extra fuel tanks for shallow penetration missions. Finally, the service contracted for reconnaissance versions of the British Canberra bomber, which were built in America under license. These included a featherweight version, the RB-57A-1, known as "Heart Throb," and a long-winged, air-refuelable modification, the RB-57D-0. The Air Force pilots who flew SENSINT missions and the military and CIA photo-interpreters who analyzed their WINDFALL product would know only that piece of the puzzle with which they were directly associated.<sup>4</sup>

*Cargill Hall is Emeritus Chief Historian of the National Reconnaissance Office. 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 he 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); with Jack Neufeld, The U.S. Air Force in Space (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). Among his most recent contributions in the open literature is "The Evolution of National Security Space Policy and Its Legal Foundations in the 20th Century," Journal of Space Law, Vol. 33, No. 1, 2007. Hall is a member of the International Academy of Astronautics and the International Institute of Space Law.*

One image of the solitary Soviet ICBM complex at Tyuratam taken by a U-2 on August 28, 1957, just thirty eight days before the USSR launched Sputnik I from that same site. These images of the communist test range assured the president that the Soviet Union did not yet pose an intercontinental missile threat to the United States. But his classified certainty would have no affect on the explosion of American angst that followed launch of the first earth satellite. (Photo courtesy of the NRO.)



**EISENHOWER EMPHASIZED ABSOLUTE SECRECY. ONLY A FEW MEMBERS OF CONGRESS AND THE EXECUTIVE BRANCH EVER WERE PRIVY TO THE PROGRAM.**

SENSINT set a postwar precedent for compartmented security access and control procedures that the CIA and National Security Agency (NSA) would refine in the years that followed. Because aerial overflights of denied territory in peacetime clearly violated international conventions to which the United States was a contracting party, President Eisenhower emphasized absolute secrecy. Only a few members of Congress and the Executive Branch ever were privy to the program. And during his tenure no activities associated with SENSINT or other special security compartments ever appeared for discussion in the National Security Council (NSC). Establishing compartmented control procedures, however, did not account for approval of clandestine operations. To

evaluate and recommend for or against these and other intelligence operations, on March 15, 1954, the President approved NSC Directive 5412 "on covert operations." It defined them as "all activities conducted pursuant to this directive which are so planned and executed that any U.S. Government responsibility for them is not evident to unauthorized persons and that if uncovered the U.S. Government can plausibly disclaim any responsibility for them." It also established a committee to vet these operations, composed of representatives of the Secretaries of State and Defense, and the Director of Central Intelligence (DCI). As events transpired, the 5412 Committee would consist of the DCI, the Undersecretary of State, Deputy Secretary of Defense, and be chaired by the



President's Special Assistant for National Security Affairs—an arrangement made formal in 1955, with the issuance of NSC 5412/1 and 5412/2. To the few with knowledge of the committee's existence, it became known as the 5412 Special Group, or simply, "the Special Group." The President approved or denied its recommendations.<sup>5</sup>

A few days after Eisenhower approved NSC 5412, on March 22, 1954, the first SENSINT mis-

sion took place in the Far East. Conducted by three RF-86Fs of the 15th Tactical Reconnaissance Squadron, the airplanes departed South Korea, overflew the Soviet port city of Vladivostok and vicinity to its north, and recovered in Japan. In SENSINT, theater commanders and leaders of the intelligence community witting of the program could request a specific site in the Sino-Soviet Bloc be overflown and imaged, along with ample justifi-

(Left) In a television address to the nation on the evening of May 25, 1960, President Eisenhower discussed some aspects of the U-2 program and displayed an image of the North Island Naval Air Station in San Diego taken by the airplane at its design altitude of "more than 70,000 feet" [13 miles high]. He advised viewers that the white lines on vehicle parking strips were visible, which correctly indicated at camera nadir a resolution at the earth's surface of six inches. (Photo courtesy of the NRO.)

**THE U-2 INCIDENT... PROMPTED MANY IN THE MEDIA TO ASK WHY THE PRESIDENT WOULD "LIE" PUBLICLY IN THE INTEREST OF NATIONAL SECURITY**

cation to support taking such a risk. The request cycled for approval through Headquarters USAF, the Joint Chiefs of Staff, and thence to the Special Group. The President made the final decision. Notification of an approved overflight passed back down the chain in the same fashion. Eisenhower sometime approved SENSINT missions in lots of two or three or more, although he tightened and limited these approvals in the years that followed.

The President and his scientific advisors knew that SENSINT military airplanes could not fly high enough to avoid improved Soviet anti-air defenses. Thus, in November 1954, he authorized CIA development of a complementary reconnaissance airplane, eventually known as the U-2. It would be capable of operating at altitudes in excess of 70,000 feet (over thirteen miles high). Identified by the cryptonym AQUATONE, this Top Secret effort was subsumed in another security access and control system called TALENT. Its imagery products also would be separated, this time into two sub-compartments called CHESS (European Theater), and CHURCHDOOR (Asian Theater). The President approved each CIA-planned U-2 mission, and the first two of them occurred on July 4 and 5, 1956, when U-2s flew over the Soviet cities of Leningrad and Moscow, respectively, among other regions of European Russia. Soviet leaders protested these flights, just as they had prior SENSINT missions, in private communications to the U.S. State Department. But a subsequent SENSINT mission over Vladivostok on December 11, conducted by three high-altitude RB-57Ds, provoked a strong, public Soviet protest. On December 18, four days after the Soviet note was delivered, President Eisenhower consulted with Secretary of State John Foster Dulles and, after considering the situation and its international ramifications, instructed his staff secretary to relay an order to Secretary of Defense Charles Wilson, USAF Chief of Staff General Nathan Twining, and the Director of Central Intelligence Allen Dulles, terminating immediately all American overflights of "Iron Curtain countries."<sup>6</sup>

The President's December 18 order ended the SENSINT program without the loss of a single air-

plane. Its AQUATONE counterpart, however, ended rather more dramatically a few years later. Reported progress and first tests of Soviet Intercontinental Ballistic Missiles (ICBMs), missiles that could strike the United States with nuclear warheads, moved President Eisenhower, in mid-1957, to authorize resumption of U-2 overflights. On May 1, 1960, the Soviet Union shot down one of these airplanes deep inside its territory. The resulting international furor mightily embarrassed the administration. The President, at first, offered a "plausible denial" (a weather research airplane over Turkey had strayed off course)—a cover story that collapsed after the Soviets produced the pilot and charged him with espionage. The U-2 shoot down also ended a Summit Conference almost before it began, with Soviet leaders demanding a personal apology from Eisenhower, one that would not be forthcoming. Nevertheless, Eisenhower announced publicly that the United States would not, in the future, conduct clandestine aerial overflights of the Soviet Union, a pledge that he and his successors would keep.<sup>7</sup>

If the U-2 incident closed a chapter on aerial overflights, it also prompted many in the media to ask why the President would "lie" publicly in the interest of national security. And it reverberated in the presidential election in November, when the Democratic Party challenger, John F. Kennedy, narrowly won the contest. On assuming office in January 1961, however, Kennedy did *not* release classified records involving peacetime aerial overflights, and he did *not* authorize the Attorney General to determine whether his Republican predecessor and other administration officials responsible for the U.S.-sponsored aerial overflight policy should be officially sanctioned or possibly even prosecuted for *clearly* violating the terms of international conventions. Nor did leaders of a Democratic Congress clamor for a "truth commission," in which former officials could be commanded to reveal just how and when this national policy had been forged. It was, after all, 1960-1961—a different world, a different international threat, and, most assuredly, a different caliber of American political leaders. ■

NOTES

1. Excerpt from Eisenhower's remarks at the cornerstone laying ceremonies for the Central Intelligence Agency Headquarters in Langley, Virginia, 3 November 1959.
2. For an account of the actions taken by President Harry Truman and Prime Minister Clement Atlee, see the "Early Cold War Overflight Programs: An Introduction," in R. Cargill and Clayton D. Laurie, eds., *Early Cold War Overflights, Symposium Proceedings, Vol. I: Memoirs* (Washington, D.C.: National Reconnaissance Office, U.S. GPO, 2003), pp. 2-3
3. Thomas C. Reed and Danny B. Stillman, *The Nuclear Express: A Political History of the Bomb and Its Proliferation* (Minneapolis, Minn.: Zenith Press, 2009), p. 36.
4. R. Cargill Hall, "Clandestine Victory: Eisenhower

- and Overhead Reconnaissance in the Cold War," in Dennis E. Showalter, ed., *Forging the Shield: Eisenhower and National Security for the 21st Century* (Chicago: Imprint Publication, 2005), pp. 126-27. Accounts of all known SENSINT missions appear in *Early Cold War Overflights, Symposium Proceedings, Vol. I: Memoirs, op. cit.*
5. "Clandestine Victory," *Ibid.*
  6. "Clandestine Victory," pp. 128-33.
  7. Actions and events in the aftermath of the U-2 shoot down and Eisenhower's dealings with a Democratic Congress about it are perhaps best told in Michael R. Beschloss, *MAYDAY: The U-2 Affair: The Untold Story of the Greatest US-USSR Spy Scandal* (New York: Harper & Row Publishers, 1987), see especially Chapters 12 and 13.

# GERMAN WOMEN PILOTS



# US AT WAR, 1939 TO 1945



Evelyn Zegenhagen

(Overleaf) A group of female gliding instructors in uniforms of the NS Flying Corps, April 1945, at Schäferstuhl, Germany. (Marga Hempel photo.)

Today it is almost unknown that women pilots actively contributed to Germany's war effort during World War II, other than perhaps Hanna Reitsch (1912-1979), the exceptional test pilot of the 1930s and 1940s. But she was not the only German woman pilot flying between 1939 and 1945. At the onset of the war, women pilots had trained alongside men to become ferry pilots for the paramilitary NS Flying Corps (*Nationalsozialistisches Fliegerkorps*, NSFK). The Flying Corps also employed women pilots as managers of its aircraft repair yards, and in other auxiliary functions. Towards the end of the war, at least five women worked as ferry pilots within the *Luftwaffe*, holding a captain's rank and wearing uniforms. Women also worked as company test pilots, and two of them were experimental test pilots, receiving their assignments from the *Luftwaffe*. They performed stunning flights to test novel dive brakes, cut the cables of barrage balloons, test pilot visibility, and improve bombing accuracy. In 1944, after the *Luftwaffe* had lost the air superiority contest, at least sixty women were recruited by the NS Flying Corps and were employed as glider instructors to advance training for *Luftwaffe* recruits. By war's end, in May 1945, many more women were still in instructor training, waiting for their chance not only to be employed, but also to regain access to flying — a privilege they had been denied since the war had started in September 1939.

The number of German women involved in aerial warfare seem meager when compared to their American counterparts. But in the context of the National Socialist state which had long tried to cement traditional gender role assignments, and to relegate women strictly to the functions of wives and mothers, these numbers are significant.<sup>1</sup> The story of the German women's readiness, their employment and motivation sheds an interesting light not only on the military history of World War II, but also on the workings of gender issues, in Nazi Germany as well as in traditionally "male" fields of technology, aviation, and the military.

Reconstructing the history of German women pilots in World War II presents some difficulties. The most significant one, of course, is the dearth of sources. German women sport pilots had made many headlines in the years around 1930. But by the mid-1930s, most of them faded out of public awareness and sank into obscurity, as a direct result of gender role pressure by the Nazi regime. Also,

they were replaced in media headlines by the newly founded *Luftwaffe*, which better represented Germany's eager militaristic agenda than did smiling women pilots.<sup>2</sup> For war purposes, the potential of female pilots was mostly ignored; no serious effort was made to utilize it until very late in the war. Few records regarding concepts and practices of the deployment of women pilots survived. Most of these records were lost due to Allied bombing and their destruction by *Luftwaffe* at the end of the war. The *Deutsche Dienststelle/Wehrmachtsauskunftsstelle* in Berlin, in charge of maintaining the documents of all former members of the German Armed Forces until 1945, and the German Federal Military Archive (*Bundesarchiv-Militärarchiv*) in Freiburg, contain almost no information on women's activities with or for the *Luftwaffe*. Also lost is all documentation of the NS Flying Corps in the framework of which women had worked as ferry pilots and glider instructors. After the war, the exceptional position of wartime women pilots, so contrary to their traditional gender stereotypes, was quickly forgotten: The professional claims and accomplishments of women pilots were outdated in an era that was dedicated to the restoration of traditional gender roles. But while women pilots were afraid to be stigmatized as "Nazi aviatrixes," male pilots found new employment in the re-founded *Luftwaffe* of 1957, where their talents were needed to restore Germany's military power within the framework of the Western alliance: the "Cold War" was on the rise. Like their counterparts in the U.S., Great Britain, and the USSR, German women pilots fell victim to a "cultural amnesia" that quickly obscured their involvement in the air war during World War II. While the women remained behind in the age of propeller planes, men took off into the jet era.

This is a first attempt to tell the story of German women pilots during World War II, based mostly upon interviews with the few surviving women pilots, as well as upon rediscovered and unpublished diaries, notebooks, and the only five still extant flight logs of women pilots.

### Preparation for War

By 1935, the Reich Labor Service Law (*Reichsarbeitsdienst-Gesetz*) had prepared the voluntary mobilization of German women in case of war, assigning them to inferior, civilian administrative tasks that did not require any special knowledge or

HANNA REITSCH WAS NOT THE ONLY GERMAN WOMAN PILOT FLYING BETWEEN 1939 AND 1945

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Woman pilot Vera von Bissing (right) as head of the repair yard/ferrying site of the NS Flying Corps in Eschwege, Germany, during World War II. (Karl Koessler photo.)

abilities.<sup>3</sup> In 1936, with a foreword by Generaloberst Werner von Blomberg, Reich war minister and Commander-in-Chief of the Wehrmacht, Marie Elisabeth Lüders (1878-1966) published her study *Das unbekannte Heer* (*The Secret Army*), an analysis of women's war service based on experiences with the employment of women in World War I.<sup>4</sup>

Lüders, who was very active in the German "bourgeois women's movement" and a popular author, concluded that as modern wars became increasingly more technological, the inclusion of women into the war effort was unavoidable. To organize and train women in peacetime would be the most efficient way to use them during the war - as "comrades" beside the men, but still in specifically assigned "female" fields of employment. Accordingly, the secret "Guidelines for the Employment of Women in War," developed in fall 1938, by the Reich Economic Ministry, stated that in wartime women should not be employed in areas that required technical understanding.<sup>5</sup> Instead, they should be employed in areas deemed appropriate to their "female virtues"—welfare, nursing, civil air defense, undemanding administrative tasks, and the armament industry.

Throughout the 1930s young German women had been prepared for their forthcoming roles as housewives and mothers, which ultimately meant their exclusion from the battlefield. Yet at the same time, within the framework of the *Bund Deutscher Mädel* (League of German Girls, BDM), they underwent a rigid paramilitary training that often included training with hand weapons. Similar ambivalence applied in the case of women pilots. The NS Flying Corps, founded in 1937, did not accept women as full members. Even when they were actively flying, they were only allowed to be "supporting members" (*fördernde Mitglieder*), in accordance with the roles ascribed to them—to support their flying husbands and sons. Yet, the League of German Girls planned to have 500 female BDM-leaders trained in gliding. This would have created the cornerstone of a female glider movement, which was to bring the physical and emotional virtues of gliding to an even larger number than the thousands who were already active in gliding clubs all over Germany. It would also have formed a distinctive, National Socialist branch of the German

A group of female gliding instructors in uniforms of the NS Flying Corps, during training with a *Zögling* glider at the Wasserkuppe in fall of 1944. (Marga Hempel photo.)





Woman gliding instructor at the Wasserkuppe, fall 1944. (Marga Hempel photo.)

**“THERE ARE NO FEMALE WAR PILOTS IN GERMANY, ...THIS... IS INCOMPATIBLE WITH THE ETHOS OF THE NEW GERMAN.”**

women’s gliding movement. Due to the war, however, these plans were not realized and the contradictions continued. While women were seriously discouraged from taking up flying careers, and directed towards only menial positions in aviation, the *Luftwaffe* utilized the talents of two of them, Hanna Reitsch and Melitta Schiller-von Stauffenberg (1903-1945), for highly specific research tasks, and the Nazi state made Reitsch a poster child of its propaganda efforts.

Therefore, it might also not come as a surprise that, although German efforts to utilize the female labor force for war purposes obviously had begun early, until the end of the war female employment to a large degree took place in an improvised, uncoordinated manner far below the women’s actual level of professional training and capabilities. The mobilization of German women for the war remained far below its potential, last but not least because Adolf Hitler himself refused to order their mobilization. One exception was the *Luftwaffe*. Even before the outbreak of World War II, in spring 1939, the Reich Air Ministry began to organize the employment of women in the *Luftwaffe*’s air space surveillance (*Luftwaffen- und Flugmeldedienst*). Thus, over the course of the war, the *Luftwaffe* became the largest employer of female auxiliary forces among all three branches of the military—about 130,000 women were employed in non-flying positions as employees,

workers, and female *Luftwaffe* assistance specialists (*Luftwaffehelferinnen*).<sup>6</sup>

At the outbreak of the war in September 1939, there were no plans to tap into the considerable potential of women pilots. At the time, in Germany, about eighty women held sport pilots’ (or A2-) licenses and some 1,000 women were glider pilots with different degrees of skill. The *Luftwaffe* did not bother to consider this potential, mainly for three reasons. First, at the onset of World War II, the *Luftwaffe* saw no need to request the services of women. Contrary to the Allies, Germany had a large number of young, well trained pilots eager to fight—although the official numbers claimed by Germany in 1938-39 should be read with care. Therefore, the *Luftwaffe*’s general staff had never considered the actual employment of women pilots, or, as a well-informed German journalist put it in much glossier terms in 1940, “There are no female war pilots in Germany, and there will never be because this ... is incompatible with the ethos of the new German.”<sup>7</sup> Later on in the war, when *Luftwaffe* sustained increasing losses, it was too late to register and recruit women pilots efficiently. Secondly, there were too many rival institutions—*Luftwaffe*, NS Flying Corps, Reich Youth Leadership, League of German Girls, to only mention a few—competing for their share in recruiting additional pilots, and also blocking each other’s efforts. And thirdly, there was—as compared to the U.S., USSR, and Great Britain—no women pilots’ organization and no prominent aviatrix (such as the Americans Jackie Cochran or Nancy Harkness Love) who might have been instrumental in suggesting and implementing the employment of female pilots for war-related purposes. None of the available German women pilots had the professional expertise, the political significance, and the personal ambitions necessary to create an organized employment of German women pilots during wartime.

### German Women Motor Pilots

In early 1940, women sport pilots were questioned for the very first time about their possible utilization “in ferrying planes from aviation companies to assembly locations near the frontline.”<sup>8</sup> In close cooperation with the Reich Air Ministry, the NS Flying Corps had sent out a “strictly confidential” circular that inquired about their piloting skills and “readiness for action.” The women were offered opportunities to ferry planes—provided that they had logged at least thirty flight hours as A2- (sport) pilots. “I don’t think I need to describe the cheering which began among us demoted women pilots,” Germany’s most famous woman sport pilot, Elly Beinhorn (1907-2007), declared, describing the feelings of her comrades at that time. “Of course, they couldn’t do it without us, we realized with satisfaction when we received our draft notices.”<sup>9</sup>

Since before the war, women pilots had only been allowed to obtain sports pilots’ licenses, and were only prepared to fly a very limited range of aircraft. Therefore Beinhorn, like a number of other



Female gliding instructors of the NS Flying Corps, at the end of the war, April/May 1945. (Marga Hempel photo.)

women pilots, voluntarily attended one of the transition training courses that took place at Berlin-Rangsdorf and other airfields all over Germany. Here, women pilots, but also male pilots who had not yet been drafted into the *Luftwaffe*, obtained B1/B2 licenses which enabled them to fly, respectively, one- to four-seater planes of 1,000 to 2,500 kilogram weight (B1), or one- to eight-seated airplanes with a weight from 2,500 to 5,000 kilograms (B2).<sup>10</sup> Woman pilot Eva-Essa von Dewitz's (1907-1989) flight log survived to document the training program schedule. The future ferry pilots were trained to fly smaller planes such as Bücker Bü 131 Jungmann, Heinkel He 72 Kadett, Siebel Si 202 Hummel and Focke-Wulf Fw 44.<sup>11</sup>

The "Instructions for the Takeover of Aircraft Owned by the Reich from Industry for Ferrying to *Luftwaffe* Supply Bases by Pilots of the NS Flying Corps," dated March 29, 1940,<sup>12</sup> regulated the organizational linkage as well as the duties and tasks of the retrained pilots. The ferry pilots of the Flying Corps remained civilians flying in a paramilitary environment. They were allowed to fly only during "appropriate" weather conditions and only before dark—clearly an indication that the Flying Corps did not expect too much with regards to the abilities of its pilots. Consequently, very quickly disillusionment set in among the women who had applied, as Elly Beinhorn described: "Not much emerged from the examination. Some of us were found worthy to ferry repaired trainers from the companies to the supply bases where they were taken over by the

*Luftwaffe*. . . . But nothing really came out of that. Except for a few girls who didn't have anything better to do, all the others disappeared back into their private lives."<sup>13</sup>

Some of the women who had completed transition classes found positions as company pilots where they were hired to replace male pilots. One of them was Charlotte Hogeweg (1898-1986) who, from 1940 to early 1942, was employed as a ferry pilot with the Reich Air Ministry's Supply Office (*Nachschubamt*), probably in a military or quasi-military function.<sup>14</sup> Lisl Schwab (1900-1967) attended a transition class in Rangdorf in 1939, and then worked as a company pilot with the Letov Company in Olmütz, Moravia and the Bohemian-Moravian Machine Company in Prague, where she also ferried planes as large as the Junkers W 34. In 1943, she was awarded the War Merit Cross, Second Class (*Kriegsverdienstkreuz Zweiter Klasse*). Until summer 1944, Schwab then worked as chief pilot for the Leichtbau Inc. in Budweis, mainly test-flying the company's Fieseler Fi 156. For the next several months, Schwab served with the ferrying wing at the Commander's Office at the Berlin-Tempelhof air base, and from September 1944 to May 1945, with the *Luftwaffe's* Ferrying Wing 1, Group South-East, at air bases in Prag-Gbell, Bad Vöslau, Linz-Pöstlingberg, Hörsching, and Klagenfurt.<sup>15</sup> In May 1945, Schwab was arrested by U.S. troops, but escaped from captivity in June.<sup>16</sup>

Pilots Beate Uhse (1919-2001) and Thea Knorr (dates unknown) also started out as company test

**THEY WERE ALLOWED TO FLY ONLY DURING "APPROPRIATE" WEATHER CONDITIONS AND ONLY BEFORE DARK**



Woman pilot Anneliese Lieben, in 1943, head of aircraft maintenance at Luftdienstkommando 1/6 at Münster-Lodderneide, was a well-known aerobatics pilot in the mid-1930s. (Helga Adam photo.)

and ferry pilots. Both women ferried various types of light airplanes, mainly Klemm and Bücker aircraft and the Fieseler Storch, from production sites and repair yards to and from airbases near the front line. As the surviving flight logs of Uhse and Knorr prove, the employment of women pilots was irregular and inefficient. Both women worked only a few days per month, completing test flights that lasted between five and less than twenty minutes. Sometimes both women, at least according to their records, did not fly for months. Knorr's flight log (whose entries are most likely incomplete) shows 214 flights between June 11, 1940 and October 8, 1944, including test flights as well as ferry flights. Obviously, female pilots were not needed to a degree that would have required their daily services. Persistent rumors that large aviation companies such as Junkers and Messerschmitt employed dozens of female company and ferry pilots, seem rather unlikely in light of these research results.

Women pilots who had been retrained to fly B1/B2 planes also found other niches open to them, mainly within the NS Flying Corps. In most cases, they worked at or headed repair yards that provided aircraft supply for the *Luftwaffe*. In all of these positions, they replaced male pilots who had been drafted. In 1939 renowned aerobatic pilot Vera von Bissing (1906-2002), employed by the NS Flying Corps since 1937, became the head of a regional repair yard of the NSFK Group 6, Eschwege, with approximately 100 planes. After the war, she described her job as follows: "I test-flew all planes which were due for repair or overhaul, was in charge of arranging the materiel supply for the yard, of keeping the records of aircraft cabins and engines, of distributing and checking parachutes, and headed a so-called ferrying center the task of which was to ferry smaller air craft (A2 and B1 planes) from the production sites to the *Luftwaffe* supply parks. Mainly, we ferried Kl 32, He 72, Fw 52, and Fieseler Storch."<sup>17</sup> Von Bissing fulfilled her job eagerly and dutifully, commanding about 100 male ferry pilots.<sup>18</sup> For ferrying 1,000 planes without a single accident, von Bissing was decorated in 1944 with the War Merit Cross. Like Schwab, she was arrested in 1945 by Allied troops, but released within a few days.

Woman pilot and flight mechanic Anneliese Lieben-Höppner (1910-1989) held a similar position as a civilian employee at the *Luftwaffe's* air service unit (*Luftdienstkommando*) 1/6 at Münster-Lodderneide, where starting in 1943 she worked as a pilot and head of aircraft maintenance. Her field of activity consisted of the "execution of technical matters affairs, concerning aircraft maintenance, test flights and anti-aircraft target shooting practice," and her superior stated, "Reich Employee (*Reichsangestellte*) Höppner has many years of experience in flying and can put all her experiences to use as the head of maintenance (*Wartungsleitung*)."<sup>19</sup> The fleet of Lieben's *Luftdienstkommando* consisted of at least thirty-five planes: four Heinkel He 111, one Junkers Ju 86, twelve Dornier Do 17, one Focke-Wulf Fw 58, one Focke-Wulf Fw 190, one Messerschmitt Bf 108, eleven Klemm Kl 35, one Junkers W 34 and three Avia B 71.<sup>20</sup> As the head of maintenance flight mechanic Lieben was in charge of maintaining that complex stock of airplane types. However, Lieben's case proves that there was no imperative need for female services even in the middle of the war. In August 1943, the *Luftwaffe* reduced Lieben's working hours to six five-hour days per week; and shortly thereafter accepted her request to quit her job because she was getting married.

In winter 1943, German losses mounted, especially after the battle of Stalingrad, and led to the proclamation of "total warfare," which among other things resulted in a compulsory registration of women between the ages of 17 and 45 (later 50) for labor. (The measure was restricted to registration and was never fully put into practice.) In the context of this measure, for the first time the potential of women motor and glider pilots was seriously con-

German soaring champion and experimental test pilot Hanna Reitsch in 1938, after winning the Reman out-and-about soaring competition in gliding. Next to her (in white coverall) is famous glider pilot Otto Bräutigam. On the very right is one of her mentors, *Generalluftzeugmeister* Ernst Udet. (Photo from *Deutsche Luftwacht - Luftwelt*, vol. 5, no. 6, June 1938, p. 190.)



## FERRYING FLIGHTS TO AREAS OUTSIDE THE 1939 BORDERS OF THE REICH WERE EXTREMELY RARE

sidered. The women were asked whether they were qualified and interested in serving as auxiliary pilots.<sup>21</sup> But, as a result of different entities and agencies competing for the employment of women pilots, no clear plan existed, suggesting whether to use the women in a civilian or military capacity, or what kinds of tasks they would have to perform. Most likely, women were planned to be utilized as ferry pilots, and as pilots of cargo gliders that delivered supplies, but also troops to the frontlines. In spring and summer of 1944, those women who had taken the initiative to apply, were “drafted” and enlisted as members of the ferrying units of the *Luftwaffe*. The names of eight women ferry pilots are confirmed by records. Five of them - Liesel Bach (1905-1992), Lieselotte Georgi (1920-1982), Thea Knorr, Lisl Schwab and Beate Uhse - served among the forty pilots of the Ferrying Wing 1 of Central Ferrying Group (*Überführungsgruppe Mitte*) which was stationed in Berlin-Tempelhof.<sup>22</sup> Wearing uniforms and holding the rank of captain, they worked under the same conditions as male *Luftwaffe* pilots.<sup>23</sup>

As Uhse describes in her memoirs, the women were originally assigned to the third squadron of the ferrying wing which ferried trainers, but—like their American counterparts, the WASPs—quickly moved to more challenging tasks. Within five months, Uhse switched to the second squadron

which ferried fighter planes. However, Beate Uhse’s and Thea Knorr’s flight logs—the only surviving logs of women ferry pilots in the *Luftwaffe*—show that the overwhelming majority of their ferry flights were short-distance, with daily flight times of only a few hours. Ferrying flights to areas outside the 1939 borders of the Reich were extremely rare. Uhse ferried about sixteen different types of planes, including the Klemm Kl 31, Kl 32, Kl 35 and Kl 36, Bücker Bü 131, Bü 133, Bü 180 and Bü 181, Siebel Si 104 and Si 202, Heinkel He 72, Focke-Wulf Fw 44 and Fw 190, Messerschmitt Me /Bf 108 and 109 as well as Junkers Ju 87. She had at last one training lesson on the new fighter jet Me 262—on April 30, 1945, one week before the end of the war. Knorr ferried Kl 25, Kl 35 und Bü 181. In all, she flew significantly fewer missions than Uhse.

Although the women were only supposed to ferry planes, and were not trained for combat, often their flights were performed under wartime conditions, in the midst of enemy air supremacy. Liesel Bach recalls: “Our flights towards the end of the war, mainly in western Germany, were almost always suicide missions. [...] It is true that my plane was armed for cases of emergency. But it wasn’t our task to shoot and to get into air battles. We had to deliver the airplanes safe and sound and to avoid any contact with the enemy. Most of the time, I accomplished this by flying my plane at low altitude



Melitta Schiller, “quarter-Jewish” physicist, flight engineer, and test pilot at the *Luftwaffe* Test Center in Rechlin and the *Luftwaffe*’s Technical Academy in Berlin-Gatow, in 1943. (Photo from *Deutsche Luftwacht - Luftwelt*, vol. 10, no. 6, March 1943, p. 138.)

## TOWARDS THE END OF THE WAR, SHE WAS INSTRUMENTAL IN TRYING TO FORM A UNIT OF GERMAN KAMIKAZE PILOTS

above the trees. And when I saw an enemy plane, I disappeared in the next tree line.”<sup>24</sup> Beate Uhse adds:

*ferrying flights had become dangerous missions. We were chased by enemy fighters. My airplane was fully armed. But I was well aware that, without any fighter training, I could only lose in an air battle with a ‘Spitfire.’ Therefore, it was better to disappear. I flew as low as possible, below the tree lines. At this low altitude it was hard to see me. But one danger remained: Instead of being shot down, I could crash into a hill, a pole, or a building.*<sup>25</sup>

Two women had crossed deeper into male territory: Hanna Reitsch and Melitta Schiller-von Stauffenberg became experimental test pilots.<sup>26</sup> While they remained civilians, their work was performed in close cooperation with the *Luftwaffe*. Despite their marked personal differences, Reitsch and Schiller shared some similarities: Both women moved seamlessly from civilian to military research, both were awarded high military decorations, and both were honored with the prestigious title “Flight Captain.”

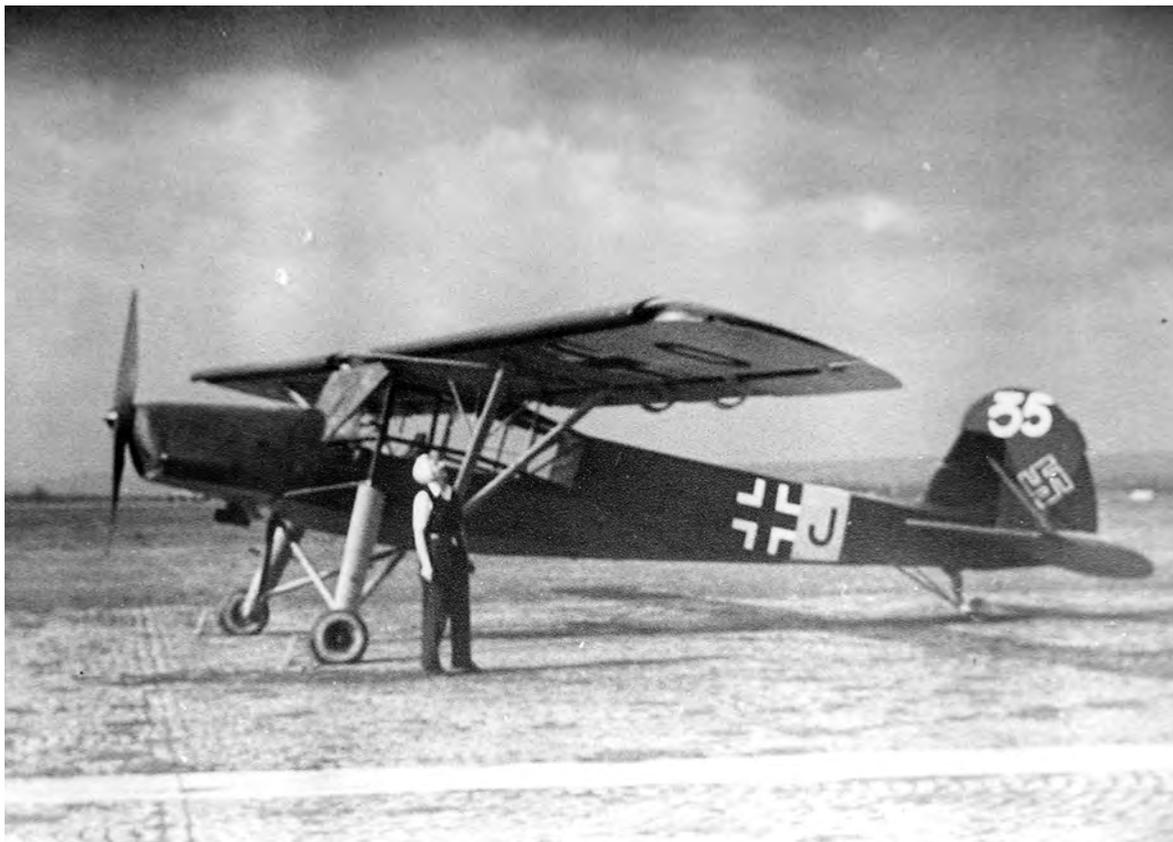
Although Hanna Reitsch did not possess the requisite professional qualification—an engineering degree or training in aeronautics—as did most of her male colleagues, she became a military experimental test pilot in 1937, when she was sent to the *Luftwaffe*’s Flight Test Center in Rechlin. Here she tested a variety of aircraft. Among her tasks were test flights in the cargo glider DSF 230. Reitsch not only proved the full potential of this plane, but also

became instrumental in developing guidelines for the training of cargo glider pilots—an achievement which significantly contributed to the battlefield success of this plane, especially during the battle for the Belgian fortress Eben Emael in 1940, where the cargo gliders and their pilots succeeded spectacularly. Reitsch also performed dangerous tests in cutting the cables of barrage balloons with tools attached to the wingtips of planes, such as the Dornier Do 17 and Heinkel He 111. In 1942, she test-flew the Messerschmitt Me 163B, a version of the world’s first rocket-powered interceptor, and one year later the other version, the Me 163A.<sup>27</sup> While Reitsch was not one of the originally designated experimental test pilots for the Me 163 [these were Heini Dittmar (1911-1960) and “Rudy” (also: Rudi) Opitz (born in 1909), she flew the Me 163 at least eight times during transition training flights and company test flights. At least one of these flights was a powered flight.<sup>28</sup> Both Opitz and Dittmar had suffered severe injuries flying the Me 163, and Reitsch did not fare better: After a severe crash, she spent the next five months in a hospital, and her future as a pilot looked grim. After her recovery, in 1943, Reitsch successfully tested a manned version of the V-1 robot bomb (a cruise missile). Reitsch received prestigious military decorations, among them the Iron Cross Second and First Class and the Golden Military Flying Medal with Diamonds in a Special Setting. Towards the end of the war, she was instrumental in trying to form a unit of German *Kamikaze* pilots, a project which was never fully realized. In 1945, Reitsch was arrested by U.S. troops and interrogated.<sup>29</sup>

Melitta Schiller’s talents as a physicist, flight engineer and pilot, were also put to full use. As a pilot at the Rechlin Test Center, and, from 1942 on, at the *Luftwaffe*’s Technical Academy in Berlin-Gatow, Schiller’s research focused on the continuous improvement of the efficiency of German bombing methods. For that purpose, Schiller performed more than 2,500 dangerous dives, mainly with Junkers Ju 87 and Ju 88, sometimes up to fifteen per day, starting at about 4,000 meters and diving down to less than 1,000. Quite often she was attacked by Allied planes entering the air space over Berlin. In 1944, Melitta Schiller became the head of the newly-founded Experimental Center for Aircraft Special Devices (*Versuchsstelle für Flugzeug-Sondergerät e.V.*) in Berlin-Adlershof. Her tasks now included the research on automated triggers for dropping bombs on tanks, on dive-bombing and level-bombing aiming devices, on blind bomb release, night fighter and visual night landing procedures, and on aiming devices for attacking massive bomber formations. For her work, Schiller was awarded the Iron Cross Second Class and the Military Flying Medal in Gold with Diamonds and Rubies. She was also recommended for the Iron Cross First Class, but was shot down by Allied planes during a ferrying flight in April 1945, and died before she was able to receive this prestigious medal.

Very late in the war, in November 1944 and January 1945, the High Command of the *Luftwaffe*

Lisl Schwab, chief pilot for Leichtbau Inc., Budweis, in front of one of the Fieseler Fi 156 Storch airplanes she test-flew for the company until summer 1944. (Karl Koessler photo.)



**BY MARCH 1945, FIFTY PERCENT OF THE AIRPLANE MECHANICS AND THIRTY PERCENT OF THE AIR ENGINE MECHANICS WERE TO BE REPLACED BY WOMEN**

established guidelines for the selection and employment of women as aircraft technical personnel—no doubt in response to the enormous loss of male pilots and other personnel at that time.<sup>30</sup> Again, no plans were made to utilize the potential of female pilots more efficiently. The guidelines included among others the recruitment of fifty women for the Chief of Supply (*Chef Nachschub*), where they probably were to be trained among others as ferry pilots, most likely to follow the footsteps of above-mentioned Charlotte Hogeweg. An even greater number of women were to be trained as “assistant chemical technicians” (*Hilfs-Chemo-Technikerinnen*), a term which most likely included training as aircraft mechanics as well as aircraft technical and operational personnel. At that stage of the war, the *Luftwaffe* also made plans to recruit about 150,000 suitable women to replace 112,000 of *Luftwaffe*’s regular enlisted men. By March 1945, fifty percent of the airplane mechanics and thirty percent of the air engine mechanics (*Flugmotorenschlosser*) were to be replaced by women. This way, younger soldiers could be released for battle. At the same time, soldiers less fit for war, who had not stood the test as “aircraft technical personnel” were to be replaced by the women “most suited for this employment... who voluntarily had decided to do this job.” However, the High Command’s plans stretched much further, as was announced early in 1945: “For the long term it is planned to train the best of the female employees as special personnel. For that purpose, special courses will be established at the technical flight schools (*fliegertechnische Schulen*).”<sup>31</sup> Although the wording of the decree indicates that these plans

might also have regarded the training as ferry pilots, the final collapse of the Reich meant that none of the ideas were pursued further.

### German Women Glider Pilots

Gliding had had a longstanding tradition among German women, with the first women’s glider clubs established around 1930. Over time, an extensive infrastructure developed, with women’s gliding clubs founded in many German cities, and probably training thousands of women. After 1933, all support, and all material supply were gradually transferred to men’s gliding as it provided future *Luftwaffe* pilots. Although women such as Hanna Reitsch, Liesel Zangemeister (died 1935), Inge Wetzel (1912-?) and Feodora “Dolly” Schmidt (1914-1997) had established European and world records, women’s gliding in Germany became enormously restricted, and ceased to exist with the outbreak of the war in September 1939. After that time, the women’s clubs were reduced to social functions only.<sup>32</sup>

In 1943, women glider pilots, like women motor pilots were asked about their interest in supporting the *Luftwaffe* in an auxiliary function. The women’s employment was intended to help solve the *Luftwaffe*’s recruiting problems, by aiding in the efforts to pre-train new recruits in gliding. This substantially shortened the general training time for pilots, a measure meant to counterweigh the losses of *Luftwaffe* pilots which increased monthly.

The demand to train more pilots was accompanied by attempts to increase aircraft production. In response to the emergency created by the Allied

Luftwaffe ferry pilot Lisl Schwab in front of a Junkers W 34, the largest airplane she was allowed to fly during World War II. (Karl Koessler photo.)



**ONLY  
UNMARRIED  
WOMEN  
SHOULD BE  
ASSIGNED TO  
WAR SER-  
VICES, AND  
MARRIED  
WOMEN  
ONLY ON A  
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Combined Bomber Offensive, on March 1, 1944, the Armaments and Air Ministries created the Fighter Staff (*Jägerstab*) program,<sup>33</sup> which was to produce between 1,000 and 4,000 fighters per month; in early 1945 production was to be increased to almost 10,000 planes a month. In this context, desperate plans like the “People’s Air Militia” (*Volkssturm der Lüfte*) were born. Young male pilots, all of them members of the Flying Hitler Youth (*Flieger-HJ*), were to be pre-trained to fly simple, but often very difficult to maneuver planes against the enemy. Among these planes were the Me 163 B, the Me 328, the manned version of the Fieseler Fi 103 (V1 Reichenberg), and the Heinkel He 162 People’s Hunter (*Volksjäger*), a jet plane with a plywood fuselage. All these planes presented enormous technological and piloting difficulties, such as erratic performance at takeoffs and landings, extremely high speeds, and difficult maneuverability. Many utilized enormously volatile fuels, and were tremendously hard to fly even for experienced pilots. Experts such as the Chief of Fighter Forces, General Adolf Galland (1912-1996), and the Chief of Bomber Forces, General Werner Baumbach (1916-1953), therefore steadfastly protested the idea of training members of the Flying Hitler Youth as “fighter recruits for special purposes.”<sup>34</sup> However, in the quarrel of competencies among the NSDAP, the Reich Youth Leadership, the Fighter Staff, the *Luftwaffe*, competing ministries, and other institutions, the NS Flying Corps saw the pre-training of *Luftwaffe* recruits in gliding as an opportunity to prove its *raison d’être*, and to gain significance within the framework of the German war effort. Therefore, it ruthlessly continued its efforts which were halted only by the end of the war.

The Flying Corps’ immense demand in flight instructors was to be met by the inclusion and training of women, mostly women glider pilots, as gliding flight instructors and flight instructor assistants. But, as in the case of the women motor pilots, it took more than a year to develop any concrete plans. In summer 1944, all eligible women who had expressed interest were contacted, and in July 1944 were “drafted” by the Flying Corps at their own initiative.<sup>35</sup> The training of the first class of women gliding instructors started in August 1944 at the gliding school in Grunau, Silesia. The class consisted of fifty German (and formerly Austrian) women glider pilots. Up to the end of the war, more classes followed. At least one more unit with 120 women is known for fall 1944 in Grunau,<sup>36</sup> and a class with twenty to twenty-five female participants in the fall at the Wasserkuppe/Rhön. Most likely, additional classes were formed at other locations. Not all participants were experienced glider pilots, although the latter seem to have formed the majority in the first classes. Other participants were motor pilots or had been instructors of the NS Flying Corps already before the war, such as Elisabeth Hartmann (1897-?), mother of renowned fighter pilot Erich Hartmann (1922-1993).<sup>37</sup> Largely following a Reich Air Ministry guideline stating that only unmarried women should be assigned to war services, and married women only on a voluntary basis, and if they had no children, the NS Flying Corps drafted women who were unmarried, or widowed, and usually childless.<sup>38</sup>

The women wore the blue uniform of the NS Flying Corps and were trained for two months in close cooperation with the *Luftwaffe*. The training was conducted almost exclusively by men, and

The first page of Thea Knorr's flight log, showing test flights at the Klemm factory in Böblingen in July, 1940. (Author's copy.)

**IN NO BRANCH OF THE GERMAN ARMED FORCES WERE WOMEN ABLE TO RISE PROFESSIONALLY AS THEY DID WITH THE LUFTWAFFE**

included lessons in aviation, aerodynamics, navigation, instruments, reading and handling of instruments, meteorology, air traffic law, splicing, welding, and wood and metal processing. The women also had gliding lessons at three different levels: beginners, advanced and experts, in one- and two-seated gliders.<sup>39</sup>

The graduates were sent to various schools in Germany, to each “teach flying to two or three dozens of ‘rascals,’” as Margaret Schmidt (dates unknown), one of the instructors, described it.<sup>40</sup> None of the women felt as if they were discriminated against by their male superiors, colleagues, or flight students. All insisted that instead they were treated with respect and appreciation. “We were fully accepted, and nobody tried to stop us in any way,” reports glider pilot Marga H. (born 1914), who in 1945 attended one of the last training classes for female gliding instructors.<sup>41</sup> However, at their duty stations, women instructors always had to work in close cooperation with male instructors, and were never on their own. Marie-Luise Müller-Maar (1911-2001), a graduate of the first women’s class at Wasserkuppe, described her duties at the gliding school as follows:

*there was one principal, one flight instructor, two of us from the Wasserkuppe group, and furthermore two girls in the kitchen and about forty-five flight students between the ages of 14 and 47. The boys were all nice and enthusiastic about flying. We rose early, early morning exercise, breakfast, and then up the hill. The planes were pushed out of the hangar and the starts began. Singing, we marched down the hill for lunch, one hour of rest, and then up the hill again until dinner. Each had a group of about fifteen boys, and the comradeship was excellent. After dinner, we had an hour of theory, and then there was*

*some written homework to do, until we went to bed early ...<sup>42</sup>*

Due to the approaching end of the war, the female instructors were not employed efficiently anymore; neither were the overwhelming majority of their students. Evacuated away from the approaching enemy and sent from flight school to flight school, the women’s final job became releasing the students and destroying the gliders—but they did not always follow the latter order. By the end of April 1945, the last women instructors were dismissed, and often arrested by the Allied troops since their uniforms seemed to indicate an affiliation with the *Luftwaffe*. However, members of the NS Flying Corps—as long as they were not simultaneously members of the *Luftwaffe*—were legally considered members of a corporation under public law, and thus were non-combatants. Thus, women gliding instructors were usually released within days. Their contributions to the war effort, no doubt, were considered insignificant by the Allies.

**Women Pilots’ Motivation and Gains**

It is obvious that while their number was insignificant, the quality of the employment of German women pilots in World War II was substantial. In no branch of the German armed forces were women able to rise professionally as they did with the *Luftwaffe*. They became company and experimental test pilots, ferry pilots, heads of repair yards or gliding instructors in para-military services. As the youngest and most innovative branch of the Armed Forces, the *Luftwaffe* had experimented early on in the war with the employment of women for specific tasks and had gradually increased its demands. As more and more male pilots were drafted or were killed, more and more



Liesel Bach, European aerobatics champion of the 1930s, and ferry pilot with the *Luftwaffe* in 1944/45. (Photo from *Deutsche Flug-Illustrierte*, nr. 4, January 28, 1938, p. 6.)

**FOR MOST OF THE WOMEN PILOTS, PATRIOTISM—OR RATHER, MISGUIDED NATIONALISM—WAS AN IMPORTANT SOURCE OF MOTIVATION**

niches opened up for women. And while the need for innovative approaches to fill war-created gaps was the *Luftwaffe's* motivation to open up to women, women pilots had their own reasons to involve themselves. Their reasons were threefold: the opportunities offered to them by an affiliation with the *Luftwaffe's* needs, the women's patriotic feelings, and their attempt to prove equality with men—not only in the air, but in society in general. I will analyze each in turn.

First, an affiliation with Germany's air war needs proved fruitful for those women who took advantage of it. Flying for the *Luftwaffe* or the NS Flying Corps allowed women pilots access to aircraft that otherwise would have been completely out of reach, and increased their number of flight hours tremendously. Ferry pilot Beate Uhse declared after the war: "My sport flying had become impossible due to the war.... Therefore, I gratefully seized the opportunity offered to me by *Luftwaffe*, to be deployed in a ferrying wing. To fly all the aircraft types there which one never could have accessed otherwise.... With this variety of experience, and all these hours logged, I thought back then, one would have great chances in professional and sport aviation after the war."<sup>43</sup> Pragmatically, Liesel Bach argued: "The most important thing was that we were able to fly, and [that] we were allowed to continue flying during the war. As far as flights to the frontlines were concerned, we were allowed to make our own decisions. All opportunities were opened up to us."<sup>44</sup>

The gains in flight experience are documented in the women's flight logs: Before the war, between 1937 and 1939, Lisl Schwab had logged in 166 flight hours, including the 1939 transition training in Rangsdorf where she—in addition to Klemm light planes (Kl 25 and Kl 31) she had flown before—learned to fly the Me/Bf 108. During the war, Lisl Schwab participated in more than 3,000 missions, flying all kinds of planes from Me/Bf 109 and Fw 190 up to transport planes. She not only increased her number of flight hours enormously, but also gained considerable experience flying a broad variety of aircraft. Pilot Beate Uhse's flight log shows 686 flights during her career as company and test pilot between August 1937, and the outbreak of the war on September 1, 1939. For the wartime era, until April 30, 1945, the flight log registers 1,072 entries, comprising of test flights as a company pilot, transition flights and ferrying flights with the *Luftwaffe*.<sup>45</sup> Uhse flew a wide diversity of aircraft, including the aforementioned training/conversion flight on the Messerschmitt Me 262. The flight logs also show a wide variety of tasks assigned to the pilot, including ferrying, weather and demanding test and control flights. Uhse's expectation to gain enormous experience in her wartime employment was definitely not disappointed.

Glider pilots were eager to seize the opportunity to take up flying again. "When so many German pilots had died that even the last available gliding instructor had been drafted," glider pilot Margret Schmidt wrote in her memoirs, "then, suddenly, the higher-ups remembered us demoted flying girls.... And, unfortunately, they hadn't been wrong."<sup>46</sup> As instructors, the women gained enormous knowledge in the theoretical and practical aspects of soaring, and had access to many advanced gliders which otherwise they would never have been able to fly. Furthermore, the women—according to their own statements—had not only been longing to soar, but also cherished the company of their old friends and instructors. They had known each other from training courses and competitions before the war, and had cultivated an intense social life that had stretched far beyond soaring. By applying for instructor classes and being drafted, they saw a chance to renew their personal relationships, to escape from the rather harsh wartime reality that kept them in mediocre and boring jobs far away from their interests and friends.<sup>47</sup> Consequently, women sometimes even signed up in groups for instructor training. Experiencing once more the long-missed sense of community that is so common among glider pilots, and engaged in a rigid schedule, most women glider pilots lived in a world of illusion towards the end of the war: They enjoyed flying, the comradeship, and the sense of being needed even as their world fell into ruins. True to their patriotic mission, not one of them seemed to have questioned their mission.

Secondly, patriotism: For most of the women pilots, patriotism—or rather, misguided nationalism—was an important source of motivation. Patriotic and nationalistic feelings had been central

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to German aviation since the end of World War I, when the Treaty of Versailles had placed heavy restrictions on Germany in general, and on aviation in particular. With the outbreak of World War II, patriotic feelings peaked in many Germans, male and female. In 1940, woman glider pilot Karin Mannesmann (1908-1942) wrote into her diary, unaware that she was referring to a completely false rumor: "It is so very disappointing that I can experience this time only as a spectator. Today, somebody spoke about a Canadian woman pilot who was shot down over Berlin and who had lost both her legs. Allegedly, she asked if she had hit [the] Siemens [factory] because then she could die in peace. What a pity that among us there are no opportunities for such employment."<sup>48</sup>

When offered the chance to show their patriotism, women were more than eager to do so. For some of them, their actions were just a continuation of pre-war activities that went along with their political beliefs, an outlet for their nationalist and/or National Socialist beliefs. Liesel Bach, who had been an ardent follower of Adolf Hitler since 1932, stated that she would rather work dangerous missions as a ferry pilot than suffer passively the air raids on German cities.<sup>49</sup> And pilot Lisl Schwab, who had pursued all her flying career in close connection with Nazi state leaders and institutions, and who had ferried wounded Wehrmacht soldiers from Hungary to Germany towards the end of the war, after the war expressed great satisfaction about this humanitarian mission which she considered a matter-of-course action for every true German.<sup>50</sup>

But political statements that confirm the women pilots' patriotic intentions and efforts are rare. The overwhelming majority of women—glider and motor pilots alike—kept silent after the war with regard to their contributions and the details of their employment: They were afraid of being stigmatized as "Nazi aviatrixes" and feared to be held responsible for their involvement with the regime. Rather, they claimed that their intentions had been completely apolitical. The attempt to disconnect one's biography from the political context can also be found in the memoirs of ferry pilot Beate Uhse, who wrote, "I let myself be deceived - like millions of others, too. .... As a German, one did his duty in this horrible war. Depending where one had been put, as a mother, a farmer, a soldier, a pilot. That's the way I thought, like millions of others."<sup>51</sup> Vera von Bissing used the same strategy of exculpation when summarizing her wartime activities as head of a ferrying yard during her denazification trial in 1947: "This was, in short, my area of activities, obviously completely focused only on aviation. I have never been politically active.... Except for a few newspaper articles which I had read about the relationship between Adolf Hitler and Leni Riefenstahl, and which were not taken seriously, I have never heard anything."<sup>52</sup>

This strategy of depoliticizing one's actions was common among Germans after World War II: In self-explication, one's individual actions became the result of external influences for which one was not

responsible, and which one could not have changed. Conditions and consequences of one's actions therefore can be separated from one's responsibility. Such escape from reality camouflages, diminishes, and blurs the women's role in the war effort. But it also camouflages, diminishes, and blurs the third factor: the functioning of gender in the role of women pilots during the war.

The influence of the gender aspect on German women pilots at war cannot be underestimated. German wartime women pilots found themselves at the heart of areas considered almost or exclusively male domains: technology, aviation, and the military/warfare. Living in a patriarchal dictatorship that assigned rather strict gender roles to men and women, women pilots' intrusion only became possible due to the demands of war. Yet working side by side with men, they still did not experience gender equality; traditional—and even more so, Nazi - gender role assignments remained powerful. This is shown by attempts to regulate the exclusion—at least in theory - of women from combat and combat-like conditions according to the non-combatant status the Nazis had reserved for their female auxiliary forces. In practice, women ferry and experimental test pilots' worked under combat-like conditions, in planes that often were fully equipped with weapons and ammunition and flown in a sky in which the enemy held air supremacy. But even then women were strictly forbidden to engage in combat. To kill in combat, remained a strictly male privilege. There is no doubt that the official emphasis on the "non-combatant" deployment of women and the orders not to shoot at the enemy, indeed to avoid any direct enemy contact, was a farce that revealed the regime's paternalist character: The state proved its allegedly protective intentions towards women, while at the same time manifesting the exclusively male privilege to kill.<sup>53</sup>

German women pilots accepted their exclusion from combat, as well as they had always accepted any condescending attitude of male colleagues. In fact, German women pilots flying before World War II had acknowledged their inferior status in aviation to a much larger degree than their American and British counterparts. Most women pilots declared that issues of the "Fatherland" were more important than attempts to achieve emancipation in the air, especially since emancipation was seen as a very unpatriotic attitude.<sup>54</sup> During the war, the women continued and intensified this approach. Thus, all their attempts were directed towards assimilating into their male military environment. They wanted to prove their values as worthy comrades who could take the male environment, including the exposure to air battle, "like a man."

Germany's female experimental test pilots are a case in point for this assimilationist behavior. Hanna Reitsch always presented herself as a comrade of the flying man who was on equal terms with him. She left no doubt that she was willing to do her duty—like all the (male) soldiers fighting on the front lines. Whether she was test-flying, visiting troops at the Eastern Front, or fulfilling propa-

Lieselotte Georgi (left), ferry pilot with the *Luftwaffe* in 1944/45, during aerobatics training with her flight instructor, Hans-Jürgen Uhse, in summer 1939. (*Deutsche Luftwacht - Luftwelt*, vol. 6, no. 5, May 1939, p. 161.)



**HERE, FOR THE FIRST TIME, I WAS GIVEN A TASK WHICH HAD BEEN AN EXCLUSIVELY MALE PRIVILEGE**

ganda assignments, Hanna Reitsch stressed her equality with men, and her belonging to the chosen group of—male-citizens fighting for the fatherland—an aspect which became an important part of her identity. Referring to her tasks as an experimental test pilot, she stated for instance: “These test flights fulfilled me and thrilled me spiritually like almost no other task before, because I knew that I flew every test for the lives of my comrades who did their duty.”<sup>55</sup> On another occasion, she said about her test-flying assignments: “Here, for the first time, I was given a task which had been an exclusively male privilege. Even when this task only temporarily had the character of soldiership, it seemed to me a patriotic obligation the weight and responsibility of which meant more to me than any honor or rank could have.”<sup>56</sup>

The effort not to be judged by gender, but by merit, is even more obvious in the case of Reitsch’s competitor, Melitta Schiller. Brought up as a Protestant and German nationalist, but considered a “quarter Jew” by the Third Reich’s racial standards, Schiller found herself in a precarious position. The more the persecution of Jews in Germany increased, especially during the war, the riskier Schiller’s test flight projects became. Officially, the racial background of Germany’s most professional

female experimental test pilot was never discussed, and in 1944 Schiller was rewarded her “equalization with Aryan people”, a legal document which “expunged” her “Jewish” heritage and awarded her the rights and privileges of “Aryans.” Schiller herself never mentioned her background, instead focusing on the contributions she made to the German war effort. In a lecture in 1943, she stated: “I believe that I am able to say this in the name of all German women pilots, that in us the hierarchy of the values of all womanhood in no way has been altered and that aviation never [was] a thing of making a sensation or even of emancipation: We women pilots are no suffragettes.”<sup>57</sup> And she distanced herself even more from her gender by declaring herself to be a “messenger of my ‘people in arms,’” whose work was only possible because she was willing to give “the final—one might say, soldierly—effort, even if it were sacrificing my life.”<sup>58</sup> Schiller’s 1936 marriage into the Stauffenberg family whose members for centuries had held high-ranking positions in the German military and public service, had served two purposes: to show her devotion to the Fatherland, and to stabilize her racial status in society. The Stauffenberg family turned out not to be the best protection either, when her brother-in-law Claus Graf Schenk von Stauffenberg, organized the 1944

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conspiracy to kill Adolf Hitler—a plan Melitta intimately was involved with. After the assassination attempt failed, the conspirators were killed, and their families arrested. Melitta Schiller was arrested, too, but six weeks later, with almost all of her relatives still in prison, she returned to her dive bombing job which she continued until her death in April 1945.

The attempt of the women to blend into their male environment took the edge off their intrusion into the male sphere. Since the women acted “like men” (and were expected to act “like men”), their achievements took on a male connotation. By way of meritocracy, the women were integrated into the male world—not as representatives of their gender, but as rare exceptions who willingly subordinated themselves into their role as female tokens in a male world. This way, the contribution of women to aviation in general and to military aviation in particular, was even more marginalized, and this seemed to confirm the traditional gender role ascriptions: men fly, women don’t; men fight, women don’t. Instead of helping to lift traditional hierarchical attributions of gender and authority, women pilots’ accomplishments during the war cemented them even more.

The question of whether the patriotism of Germany’s women pilots served as a camouflage for their attempts to achieve emancipation cannot be fully answered yet. However, Germany’s women pilots and their actions cannot be interpreted as emancipated or feminist in the way we understand it today—a conscious decision to achieve the equality of both genders, for all men and all women. By integrating themselves into the male world they secured exceptional positions for themselves, but surrendered any progress they—perhaps—might have made for their gender.

But there was also a second aspect in the women’s attempt to act “like men.” When Hanna Reitsch presented herself as a pilot equal to the men fighting on the front, and Melitta Schiller declared herself to be a “messenger of her ‘people in arms’”, and when women pilots felt proud to have been “drafted,” all of them, despite their disregard for emancipation, laid claim to a privilege that women had been denied for centuries. For many female pilots, service to the state was a way to prove their value as citizens in a society that considered them second-class citizens. Since the rise of bourgeois society, constitutions had partly based men’s citizenship on the right and duty to serve in the military. Women had been excluded from this privilege of citizenship, and had thus been excluded from being actively involved in many aspects of their nation’s development and politics. For them, questions of gender and nation had become closely intertwined. Both are artificially constructed in a process of inclusion and exclusion, by the promise of participation and the threat of omission—all these factors shaping the existence of the individual. For men, gender identity and national identity had been intertwined in their identities as citizens, and soldiers. For women, this connection was not as obvi-

ous. Since they did not have citizenship rights or acquired them only gradually over time, they had to prove their identity as citizens much more than men. Again, I would argue, this was more a political than emancipatory approach. Serving their state at a time of need seemed to be an opportune way for women pilots to show their loyalty, and to lay claims on being respected as fully responsible citizens who wanted to contribute their share to their nation’s needs—no matter what their actual gender was. Although this motivation has emancipatory undertones, it has to be seen primarily in the light of the political events that shaped Germany during the first half of the twentieth century.

Unfortunately, the experiment of German women pilots at war failed to have a lasting influence. With the end of World War II, the women’s efforts and accomplishments were ignored and quickly forgotten when Germany wanted to do away with its Nazi past. In a rather brief and cursory process of denazification, dictated by the needs to integrate both German states into the frontlines of the “Cold War,” the political and military past of the women pilots was declared insignificant. Only Hanna Reitsch, who had been especially prominent during the Hitler era, was singled out as a “Nazi criminal” in the public process of dealing with the past (*Vergangenheitsbewältigung*): Biographical elements, dynamic power structures, the ideological mechanisms of manipulation, not to mention the complex individual and societal entanglements of guilt that defined the Nazi regime, were completely neglected. The other women pilots simply disappeared into oblivion. The question of whether they were (co-)perpetrators in the crimes of the Third Reich, and if so, to what extent, still remains largely unanswered. Although there is no doubt today that the Nazi regime was an ensemble of men and women, and a “broad spectrum of multiple amalgamated activities, which together made the National Socialist dictatorship happen,”<sup>59</sup> the exemplary role of women pilots during the Nazi era, and their contribution to our understanding of gender roles, is still completely understudied.

Yet, the fact that women pilots had been able to master military aircraft as well as men—that they had performed their missions under combat-like conditions—was quickly forgotten because of the gender aspects involved. The threatening knowledge that women could master military aircraft and risk their lives in war and combat as well as men was not welcome in the late 1940s and 1950s, when both German societies returned to more conservative family and gender values. Male pilots, even those with a compromising Nazi era career, were needed in the newly founded *Luftwaffe* of 1956; women were not. And while the men took off into the jet age, society defined a new “dream job in the air” for young German women—that of a stewardess, a “housewife in the air.”<sup>60</sup> Only at the end of the twentieth century, more than fifty years after the end of World War II and the accomplishments of their predecessors, two women were accepted into training as military pilots with the *Luftwaffe*. ■

1. For a detailed comparison on the development of women's aviation in the U.S., Great Britain and the USSR between 1918 and 1945, see the author's *"Schneidige deutsche Mädel." Fliegerinnen zwischen 1918 und 1945*, Göttingen: Wallstein-Verlag 2007, chapter 2 (in German).
2. For more information on the pre-war activities of German women pilots, see author's article "The Holy Desire to Serve the Poor and Tortured Fatherland: German Women Motor Pilots of the Inter-War Era and Their Political Mission," in: *German Studies Review*, vol. XXX, no. 3, October 2007, pp. 579-596. For a more detailed study covering the years 1918 to 1945, see author's publication [footnote 1].
3. See here especially Jeff M. Tuten, Germany and the World Wars, in: Nancy Loring Goldman (ed.), *Female Soldiers - Combatants or Noncombatants. Historical and Contemporary Perspectives*, Westport London: Greenwood Press 1982, pp. 47-60.
4. Marie Elisabeth Lüders, *Das unbekannte Heer. Frauen kämpfen für Deutschland 1914-1918*, Berlin: Verlag von E.S. Mittler und Sohn 1936, and Marie Elisabeth Lüders, *Volksdienst der Frau*, Berlin: Hans-Bott-Verlag 1937.
5. Runderlaß no. 426/38 ASt. of the Reich Economic Ministry, Richtlinien für die Beschäftigung von Frauen im Mobfall (Guidelines for the Employment of Women in War), October 10, 1938, in: BA Koblenz, R 13/I/1016. For more information, see Ursula von Gersdorff, *Frauen im Kriegsdienst, 1914 bis 1945*, Stuttgart: Deutsche Verlags-Anstalt 1969, p. 47, and p. 285ff (reprint of the document).
6. In 1943/44, about 8,000 female communication aides and about 12,500 female staff assistant specialists (*Stabshelferinnen*) served in the Field Army and in the occupied areas; and in the Navy including the female Navy aides (*Marinehelferinnen*) about 20,000 women. The *Luftwaffe* during the war mobilized approximately 130,000 women. See Ursula von Gersdorff, *Frauen im Kriegsdienst, 1914 bis 1945*, p. 74 f. In the same source, see also the following documents relevant for the employment of women with the *Luftwaffe*: "Schreiben des Reichsbevollmächtigten für den totalen Kriegseinsatz. Wehrmattersatzprogramm und Wehrhilfsdienstgesetz", Oct. 19, 1944, p. 455 ff.; and "Entwurf einer Anordnung Hitlers. Einsatz von Luftwaffenhelferinnen (Luftwaffenhelferinnen-Einsatzordnung)," Nov. 1944, p. 460 f.
7. Rolf Italiaander, *Drei deutsche Fliegerinnen*, Berlin: Gustav-Weise-Verlag 1940, p. 9.
8. See letter of Theo Croneiß, *Führer* of NS Flying Corps, Group 13, to woman pilot Lisl Schwab, Feb. 19, 1940; copy in author's possession.
9. Elly Beinhorn, *Ich fliege um die Welt*, Berlin: Ullstein-Verlag 1952, p. 204.
10. A B1 license enabled pilots to fly one- to four-seated airplanes of 1,000 to 2,500 kilogram weight; B2 licenses allowed access to one- to eight-seated airplanes with a weight range from 2,500 to 5,000 kilogram. A-licenses (Sport pilots licenses) comprised of A1 (one- and two-seated planes up to 500 kilogram weight) and A2 (one- to three-seated planes up to 1,000 kilogram weight).
11. See flight log of Eva-Essa von Dewitz, copy in author's possession. Von Dewitz's flight log confirms 78 transition training flights in April and May 1940 on four different types of aircraft, but does not indicate if von Dewitz finished her training.
12. "Merkblatt für die Übernahme von reichseigenen Flugzeugen aus der Industrie zur Überführung zu den Nachschubdienststellen der Luftwaffe durch Flugzeugführer des NS-Fliegerkorps," copy in author's possession.
13. Elly Beinhorn, *Ich fliege um die Welt*, p. 204.
14. Hogeweg's service at the *Nachschubamt* is registered with the Deutsche Dienststelle/Wehrmachtsauskunftsstelle in Berlin which indicates that her work was of military character. See letter by Deutsche Dienststelle to author, July 29, 2003.
15. According to affidavit by Maria Elisabeth [Lisl] Schwab, Oct. 19, 1966, copy in author's possession, confirmed by various other Schwab documents including salary slips and tax documents. For further information, the author thanks Karl Koessler, Cremlingen, and Stadtmuseum Ingolstadt.
16. Affidavit Lisl Schwab, Oct. 19, 1966.
17. Spruchkammerakte Vera von Bissing, Hessisches Hauptstaatsarchiv, call-no Abt. 529 Eg, Nr. 3159, p. 6 (biography).
18. For a rare example of the public presentation of a female pilot's contribution to the war effort, see the article about von Bissing in the Archive of the Deutsche Museum in Munich, Germany, collection Luftfahrt – Persönlichkeiten – Frauen, letter B (no source for article noted in the collection).
19. Luftdienstkommando 1/6, Münster, Major und Kommandoführer Wenig, Bitte um Höhergruppierung für Reichsangestellte/Flugzeugf. [ührerin] Anneliese Höppner, Aug. 3, 1943. Interestingly, no official document ever named Lieben as the head of maintenance; the quoted evaluation by her supervisor is the only proof that she was not only one among all flight mechanics, but actually in charge of all maintenance work.
20. Startklarmeldung Luftdienstkommando 1/6 Münster-Loddenheide (undated, probably from 1943), copy in author's possession.
21. The existence of this questionnaire – and the attempts to employ women pilots, whether in a civilian or military capacity – is confirmed by the statements of women pilots Elly Beinhorn, Eva Gustafson-Mahlkuch-Heise, Marga H., and Rose-Marie S.
22. Due to an extremely scarce record situation, the structure and history of the Ferrying Wing 1 of the Ferrying Group Mitte can not be reconstructed. It is not known when exactly this wing was founded and stationed in Berlin-Tempelhof. Neither Bundesarchiv-Militärarchiv Freiburg, record group RL 10, Fliegende Verbände, nor *Gemeinschaft der Jagdflieger; Vereinigung der Flieger deutscher Streitkräfte e.V.* (according to Colonel [ret.] Wilhelm Göbel, consultant on history, tradition and search services) have any information on record regarding Ferrying Wing 1.
23. Based on statements of woman pilot and Luftwaffe captain Beate Uhse in *Mit Lust und Liebe. Mein Leben*, Frankfurt/Main: Ullstein-Verlag 1992, p. 78.
24. Liesel Bach, *Den alten Göttern zu*, Köln: Greven-Verlag 1954, p. 18.
25. Beate Uhse (with Ulrich Pramann), *Mit Lust und Liebe*, p. 78.
26. No substantial academic research has ever been done on Hanna Reitsch. The most comprehensive sources are still her memoirs: *Fliegen – Mein Leben* (covering the era until 1945) and *Höhen und Tiefen. 1945 bis zur Gegenwart* (covering the period after 1945). Both books were published multiple times by different publishers after the war, and are republished in 2009. Schiller's piloting accomplishments have been studied, mainly under technical and technological aspects, in Gerhard Bracke, *Melitta Gräfin Stauffenberg Das Leben einer Fliegerin. Höhen und Tiefen eines außergewöhnlichen Frauenlebens*, Frankfurt/Main – Berlin: Ullstein 1993.
27. See Reitsch's memoirs, *Fliegen – Mein Leben*, p. 272-283, as well as the introduction to her report by Wolfgang Späte, from 1942 head of Test Command 16, as such in

charge of the practical evaluation of the Me 163 interceptor [*Führer des Erprobungs-Kommandos 16 und Typenbeauftragter für die Entwicklung des Raketenjägers Me 163*], in: Wolfgang Späte (ed.), *Testpiloten*, Planegg: Aviatic Verlag, 1993, pp. 45 – 47.

28. Opitz remembers that Reitsch flew the Me 163B in four transition training flights in Regensburg (the location of the Messerschmitt company) in summer 1942, and the Me 163A four times probably in November/December 1943 in Bad Zwischenahn, the base of Test Command 16; the last flight was a powered flight. (Letter of Mike Opitz, son of Rudy Opitz, to author, January 10, 2009. His recollections can also be found in Jeffrey L. Ethell, *Komet. The Messerschmitt 163*, New York: Sky Book Press, 1978.) Hanna Reitsch herself claims to have flown both versions “multiple” times, and the Me 163A fully fuelled four to five times. (Hanna Reitsch, letter to “Herr Winter”, February 15, 1977, NASM Archive, collection Hanna Reitsch.)

29. For a published version of these interrogations see Office of the United States Chief of Counsel for Prosecution of Axis Criminality, *Nazi Conspiracy and Aggression*, vol. VI, Washington, DC: U.S. Government Printing Office, 1946: Document 3734-PS, October 8, 1945. Summary of interrogation: The Last Days in Hitler’s Air Raid Shelter, source: Flugkapitän Hanna Reitsch, pp. 551-569; as well as Robert E. Work, “Hitler’s Dilemma: His last days in his bunker,” in: *Public Opinion Quarterly*, Winter 1946/47, pp. 565-581.

30. See “Richtlinien des Oberkommandos der Luftwaffe. Auswahl und Verteilung der für den Einsatz als fliegertechnisches Personal vorgesehenen Frauen,” Nov. 1, 1944, p. 461 ff. See also attachment “Richtlinien für die Auswahl und Verteilung der für den fliegertechnischen und Werfteinsatz vorgesehenen Frauen,” and “Erlass des Oberkommandos der Luftwaffe. Ausbildung von Frauen als fliegertechnisches und Funktionspersonal. Erfahrungen im Bereich des Generals der Fliegerausbildung,” Jan. 9, 1945, all in: Ursula von Gersdorff, *Frauen im Kriegsdienst, 1914 bis 1945*, p. 487 ff.

31. *Ibid.*, p. 488.

32. Members of the Berlin women’s gliding club report an interesting story: In Winter 1941/42, due to private contacts of one of their members, the women had the chance to join pilots of the Flying Hitler-Youth during flights in two-seated gliders at the Saarmund training center near Berlin. These planes were usually restricted to the training of military pilots. Quickly, the women and the flight instructor, Mr. Zicke, were denounced: The women were banned from the Saarmund training center, and the flight instructor was told that he would lose his license would he ever allow women access to glider planes again. Based on the recollections of Ruth D. Margot Will, and Charlotte Wittig. For a more detailed version, and photographs of the event, see author’s book “*Schneidige deutsche Mädels*,” p. 419-421.

33. The *Jägerstab* was founded on March 1, 1944, by agreement between Reich Armament Ministry and Reich Air Ministry. Its task was the creation of all conditions for a significant increase of the production numbers of fighter planes. Beside direct interference with production at the manufacturers’ sites, this meant among others the construction of bombproof underground production and assembly facilities, and the utilization of new labor forces, like tens of thousands of concentration camp inmates.

34. (*Jagdflieger-Nachwuchs für Sonderzwecke*), as the unit was called by Fritz Saur, head of “*Jägerstab*”, according to Georg Cordts, *Junge Adler*, p. 214.

35. The voluntary character of these “drafts” is confirmed in the author’s interviews with women pilots Gerda B. and Marga H., and the diary of Marie-Luise Müller-Maar, as well as in Margret Schmidt, *Mädchen am Steuerknüppel*, Stuttgart: Kreuz-Verlag 1953, p. 84.

36. Margret Schmidt, *Mädchen am Steuerknüppel*, p. 86.

37. Erich Hartmann, with 352 aerial kills the most suc-

cessful fighter pilot of World War II, and his brother Alfred had taken their first lessons in flying (gliding) at a flight school opened by their mother in 1939 in Weil/Schönbuch in Southern Germany.

38. See OKW- (*Oberkommando der Wehrmacht, Wehrmacht Supreme Command*) order “Stellung der Frau in der Wehrmacht,” Sep. 5, 1944, and attachment “Der Reichsbevollmächtigte für den totalen Kriegseinsatz, Der Leiter des Planungsausschusses,” in: Ursula von Gersdorff, *Frauen im Kriegseinsatz, 1914 bis 1945*, p. 441 f.

39. Author’s interview with Marga H., Jan. 30, 2005.

40. Margaret Schmidt, *Mädchen am Steuerknüppel*, p. 85.

41. Marga H., “Was hat mich bewogen, fliegen zu lernen?” (unpublished), p. 2. See also the recollections of Margret Schmidt about her time as instructor at the gliding school in Rannay near Brûx, in *Mädchen am Steuerknüppel*, p. 91.

42. Marie-Luise Müller-Maar, “Mein Fliegerleben im Telegrammstil” (unpublished), p. 10 f.

43. Beate Uhse, *Mit Lust und Liebe*, p. 73.

44. Liesel Bach, quoted according to A. Richter, *Frauensport in Köln - Sechs Lebensbilder*, in Gabi Langen (ed.), *Vom Handstand in den Ehestand*, Köln: Emons-Verlag 1999, p. 86.

45. Copy of Uhse’s flight log in possession of the author.

46. Margret Schmidt, *Mädchen am Steuerknüppel*, p. 83 f.

47. See for instance author’s interview with Marga H. in January 2005: Marga H. had been informed about the chance to attend instructor classes by one of her former flight instructors, and attended because she was bored of her job as a hospital nurse and wanted to fly again. Marie-Luise Müller-Maar attended because she missed flying and wanted to work closely with her former female gliding friends. (Marie-Luise Müller-Maar, “Mein Fliegerleben im Telegrammstil,” p. 6.) See also Margaret Schmidt, *Mädchen am Steuerknüppel*, p. 83f.

48. Karin Mannesmann, diary (unpublished), entry for Nov. 13, 1940.

49. Liesel Bach, *Den alten Göttern zu*, p. 18.

50. See Christa Niklas, “Therese und Lisel Schwab. Die Malerin und die Pilotin,” in: *Jahrbuch des Historischen Vereins Ingolstadt*, vol. 113 (2004), Ingolstadt 2005, pp. 289-300, esp. p. 298.

51. Beate Uhse (mit Ulrich Pramann), *Mit Lust und Liebe*, p. 73.

52. Spruchkammerakte Vera von Bissing, biography, pp. 6r, and 41.

53. For a general analysis of the gender factor in World War II, see the study by D’Ann Campbell: “Women in Combat: The World War II Experience in the United States, Great Britain, Germany, and the Soviet Union,” in: *The Journal of Military History*, no. 57 (April 1993), pp. 301-323, which pays special attention to mixed-gender anti aircraft units.

54. For more detailed information, see author’s article [footnote 2].

55. Hanna Reitsch, *Fliegen - mein Leben*, Frankfurt/Main– Berlin: Ullstein-Buch 1996, p. 263.

56. *Ibid.* p. 192.

57. Quoted after Gerhard Bracke, *Melitta Gräfin Stauffenberg*, p. 40.

58. *Ibid.* p. 150.

59. Heinsohn, Kirsten, and others (eds.), *Zwischen Karriere und Verfolgung. Handlungsräume von Frauen im nationalsozialistischen Deutschland*, Frankfurt/Main and New York: Campus-Verlag 1997, p. 11.

60. See Elly Beinhorn’s book *Madlen wird Stewardess. Ausbildung und Abenteuer einer Flugbegleiterin auf internationalen Luftlinien [Madlen becomes a stewardess. Training and adventures of a stewardess on international flights]*, Berlin: Ullstein AG 1954, and media campaigns after the foundation of Germany’s Lufthansa airline in 1952.

# Tunner and the Luftwaffe Connection with the Berlin Airlift





Roger G. Miller

(Overleaf) Douglas C-54 Skymasters begin 200-hour inspections at Oberpfaffenhofen Air Force Depot with a thorough cleaning at the wash dock area during the Berlin Airlift.

On July 28, 1948, a Douglas C-54 "Skymaster" landed at Wiesbaden Air Base and forty-two year old Maj. Gen. William H. Tunner stepped out.<sup>1</sup> Tunner was handsome, brilliant, and arrogant; an exceptional and inspiring leader; an efficiency expert, who understood how to make organizations work; and an innovative, original thinker. A workaholic, he labored long hours and drove his staff relentlessly. And he was one thing more. Tunner was the U.S. Air Force's preeminent authority on air transport.<sup>2</sup> During World War II, he had helped found Air Transport Command, the U.S. Army Air Forces's (USAAF's) global military airline, and he had commanded the "Hump," the legendary airlift from India to China over the Himalayan Mountains. Gen. Curtis E. LeMay, commander of the United States Air Forces in Europe (USAFE) in 1948, called him "the transportation expert to end transportation experts" and wrote that Tunner's assignment to the Berlin Airlift was "rather like appointing John Ringling to get the circus on the road."<sup>3</sup>

Tunner came to Germany convinced that the Berlin Crisis was "the first conflict between the free and slave world"; a belief that led him to conclude: "The forces of freedom could not afford to lose . . .,"<sup>4</sup> and this conviction drove him for the next fifteen months. Tunner quickly realized that the greatest challenge of the Airlift was to fly every minute of every hour of every day regardless of weather, while the second greatest challenge was "proper servicing and maintenance of the airlift planes."<sup>5</sup> The story of the air corridors has been told over and over. How the streams of aircraft flying in and out of Berlin were organized and regulated; how ground controlled approach (GCA) radar allowed around-the-clock operations in the worst of weather; and how tons of cargo were loaded, unloaded, and distributed mostly by hand has been dissected and celebrated.<sup>6</sup> Much less well known is the equally important story of maintenance.

Massive quantities of parts, tools, and equipment and a force of experienced maintenance personnel were required to keep the airplanes flying, and one of the chief obstacles Tunner faced was a desperate shortage of veteran mechanics. This was a worldwide problem for the U.S. Air Force, which had lost thousands of experienced men to civilian life following World War II. The units that began the

Airlift were short of people, and a lot of the mechanics on hand were recent recruits. An official USAFE history reported: "Many of the airmen . . . had experience in such trades as plumbing and brick laying; few had worked in aircraft maintenance."<sup>7</sup> And another official history added: "Many valuable flying hours were lost because personnel were not sufficiently familiar with equipment to locate sources of trouble and to take corrective action."<sup>8</sup> Inexperienced mechanics doubled even tripled, the time required for maintenance, or could not perform the job at all.

Once before, Tunner had faced a similar problem. As commander of Ferrying Division at the beginning of World War II, he had faced a severe shortage of experienced pilots. Then a famous pre-war pilot, Nancy Harkness Love, made him aware of an ignored resource: female pilots. Intrigued and receptive, Tunner helped establish the Women Airforce Service Pilots (WASPs). The WASPs ultimately delivered thousands of military aircraft to bases across the nation while compiling an exceptional record for safety and reliability.<sup>9</sup> Desperate for experienced mechanics in 1948, Tunner displayed similar open-mindedness.

His autobiography, *Over the Hump*, tells a dramatic story: "For years the world had heard about the great *Luftwaffe*; surely the German air force had mechanics," the book has Tunner saying. "[The] idea of augmenting our maintenance forces with German mechanics followed naturally."<sup>10</sup> Tunner faced two hurdles, according to this story. The first was a non-fraternization policy that limited German nationals to mostly menial jobs. Only Gen. Lucius Clay, the U.S. Military Governor, could override this policy, according to the story, and here Tunner ran into the second hurdle. The military chain of command made it impossible to approach Clay directly. Tunner, however, was brash and aggressive and not above creating his own opportunities. According to *Over the Hump*, he just happened to be at Tempelhof Airport on a routine inspection when Clay just happened to be present on one of his frequent trips:

*"He saw me, came over, and asked, 'Any problems, Tunner?' 'I told him I certainly did have a problem—there weren't enough good maintenance men to go around. 'But I think I can whip it,' I said, 'if*

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AND SLAVE  
WORLD"**

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Using a model, Maj. Gen. William C. Tunner, Commander, Combined Airlift Task Force, (left) explains the landing pattern in Berlin to a visitor.



HANS-DETLEF HERHUDT VON ROHDEN ... ACCORDING TO THE TUNNER ACCOUNT, NOT ONLY SPOKE ENGLISH BUT HAD SERVED IN AIR TRANSPORT DURING THE WAR

*you will allow me to hire some skilled German mechanics.” “Go ahead and do it, he said. Tell Curt [LeMay] I said it is O.K.”<sup>11</sup>*

To help Tunner, HQ USAFE located a Maj. Gen. Hans-Detlef Herhudt von Rohden who, according to the Tunner account, not only spoke English but had served in air transport during the war, and the general delivered: “Almost overnight excellent German mechanics started flowing in.” According to *Over the Hump*, the former *Luftwaffe* mechanics were an instant success!<sup>12</sup>

*Over the Hump* is a well written, exciting book that rapidly became an air power classic and a standard source for writers dealing with the Berlin Airlift. But Tunner did not actually write *Over the Hump*. Booton Herndon, a journalist who wrote autobiographies for prominent men such as World War I fighter ace Eddie Rickenbacker, wrote the book for him. Herndon built his narratives around dramatic stories.<sup>13</sup> Major changes, in his accounts, resulted from spectacular, inspiring incidents, not from commonplace, everyday events, and some of these stories must be questioned.

In the case of the former *Luftwaffe* mechanics: First, the non-fraternization policy was not really the obstacle that *Over the Hump* alleges. Immediately following the war the U.S. military had made a serious effort to forbid its troops associating with German citizens, but the effort had proven futile and had been pretty much abandoned by 1946. By late 1947, the U.S. Army even had German mechanics repairing its own vehicles.<sup>14</sup> During the Airlift, in fact, the 559<sup>th</sup> Ordnance Automotive Maintenance Company which supported Rhein Main and Wiesbaden Air Bases had two officers, forty-four American enlisted men, and fifty German

mechanics!<sup>15</sup> One must conclude that recruiting veteran German aircraft mechanics was not so extraordinary.

Second, the traditional story in *Over the Hump* describes General Herhudt von Rohden as having served in air transport, but the general actually had a much more interesting background. Born in Lower Silesia in 1899, he was an artillery officer who had joined the *Luftwaffe* in 1934, received flight training secretly in the Soviet Union, and served in various training, administrative, and operational posts. He was wounded in July 1940, and, after returning to duty, became chief of staff of *Luftflotte 4* on the Eastern Front, an assignment that had involved him in the unsuccessful airlift operations during the siege at Stalingrad.<sup>16</sup> In mid-1942, Herhudt von Rohden transferred to *Luftflotte 1*, and at the close of the war he was assigned to the *Luftwaffe’s* Historical Division.<sup>17</sup>

Following the war, Herhudt von Rohden was among the senior officers who wrote historical accounts for the USAAF, detailing *Luftwaffe* operations against the Soviet Union. By the end of 1945, these men had produced some 600 pages of what American officers considered first-rate historical material. In early 1946, the USAAF brought some of the men to Wright Field, Ohio, to write the history of the *Luftwaffe’s* fight against the Allied bomber offensive.<sup>18</sup> Ultimately, this project produced “forty-five volumes which laid out, in great detail, the ‘military mistakes made by German Air Force generals, the clash of strong personalities that proved so detrimental to their success, and the thorough plans, drafted but never executed, tactics employed, principles of air power devised and used, adopted methods of communications, supply and training . . . all lucidly and scholarly presented.”<sup>19</sup> General

A Douglas C-54 Skymaster touches down at Tempelhof Airport, Berlin.



Herhudt von Rohden had returned to Germany when HQ USAFE sought his aid.

Third, the account in *Over the Hump* concludes that employing experienced *Luftwaffe* mechanics was an immediate success. In fact, Airlift leaders faced many challenges in making the program effective. The language barrier presented a serious obstacle. Indeed, everything hinged upon the ability to communicate. USAFE headquarters organized a translation section, which prepared bilingual training materials, technical orders, maintenance manuals, and inspection check lists, and a USAFE instruction program taught English. A German-speaking U.S. Air Force maintenance officer selected and trained competent supervisory personnel, and bilingual German personnel eventually assumed key positions. Unique U.S. maintenance techniques posed more obstacles, and HQ USAFE established a training program that featured classroom and on-the-job instruction. Two Mobile Training Units proved especially valuable. Local efforts were critical, and each base set up its own school.<sup>20</sup> The propeller shop at Erding Air Force Depot, for example, went further, pairing German mechanics with Air Force enlisted personnel for on-the-job training.<sup>21</sup> In reality, U.S. Air Force military personnel were reluctant to accept German mechanics at first. Reservations only disappeared as the men demonstrated professional competence and as the translated technical materials appeared.<sup>22</sup> The program was far from an instant success. Trust, confidence, and teamwork had to be nurtured and took time to grow.

Other concerns appear to have existed more in the minds of Airlift leaders than in reality. For one, some leaders worried that the presence of former *Luftwaffe* personnel would offend the flight crews,

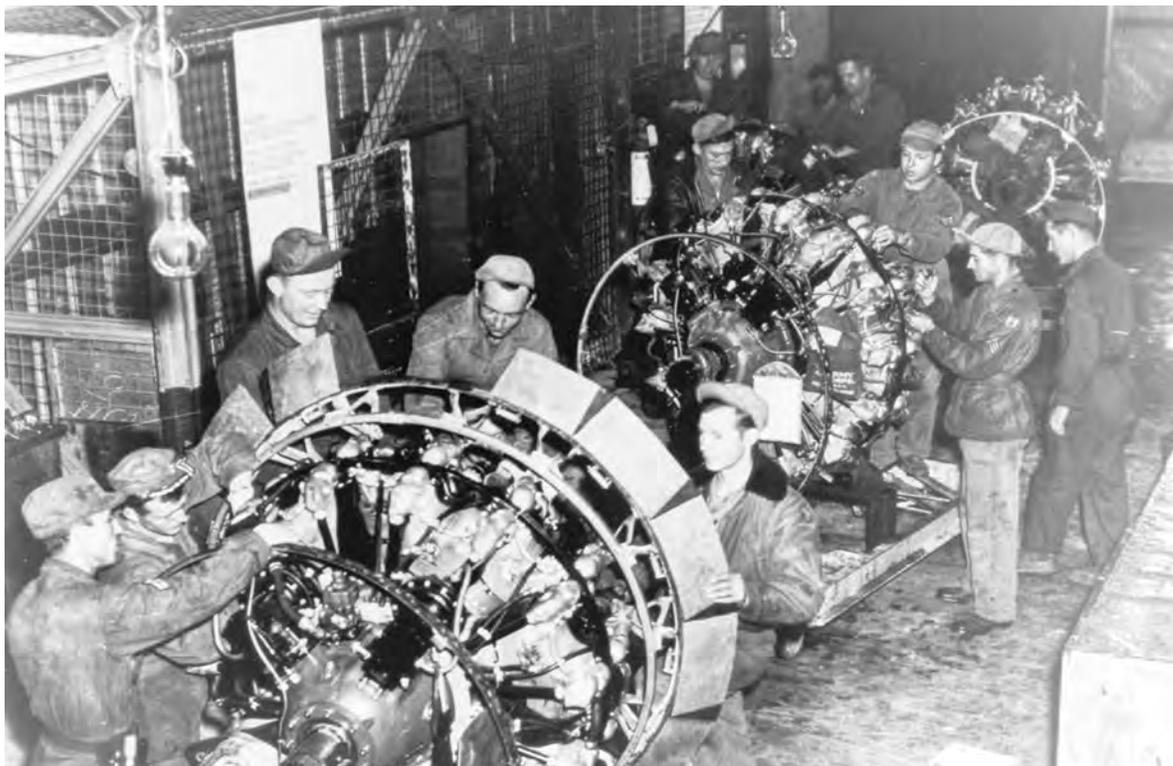
many of whom had flown in combat and had seen their friends and squadron mates die. Thus, initially, Airlift leaders limited German mechanics to “scheduled maintenance,” which was accomplished well away from the flightline. This concern lingered on. As late as April 1949, when some Airlift officers sought to expand the use of German mechanics to “unscheduled,” flight line maintenance, other officers opposed this step because it might bring the mechanics into direct contact with the aircrews.<sup>23</sup> It must be noted that resentment existed on the Berlin Airlift. Some U.S. airmen did find the need to help former enemies at their own inconvenience difficult to accept, but the evidence suggests that the concern described above was unwarranted.

Likewise, Airlift leaders agonized over the possibility of sabotage, and again, available evidence demonstrates that they worried unnecessarily. Airlift units reported only twenty-seven cases of suspected sabotage in fifteen months of operations, and, of these, only four reports proved valid. In other words, sabotage on the Berlin Airlift was virtually nonexistent.<sup>24</sup> An inspection team in early 1949, in fact, concluded that: “Apparently there is more sabotage or what looks like sabotage in Texas and California than in Germany.”<sup>25</sup>

Most histories of the Berlin Airlift treat the problems with maintenance as solved by the late fall of 1948, but in reality the Airlift faced a major crisis in early 1949, when USAFE established a fixed tour of duty for personnel in Germany, replacing the temporary tour of duty which had caused serious morale problems. This change, however, led to another problem: hundreds of experienced men became eligible to return to the U.S. all at once.<sup>26</sup> Airlift leaders feared a catastrophe. Replacements, when and if they arrived, might not equal those lost

**SOME LEADERS WORRIED THAT THE PRESENCE OF FORMER LUFTWAFFE PERSONNEL WOULD OFFEND THE FLIGHT CREWS**

Mechanics working on the engine build-up line at Rhein-Main Air Base, Germany.



## THE NUMBER OF FORMER LUFTWAFFE MECHANICS EMPLOYED ON THE BERLIN AIRLIFT REMAINS UNCERTAIN

“either in the case of numbers or know how.”<sup>27</sup> On April 5, 1949, Col. T. Ross Milton, Chief of Staff of the Airlift, flatly stated: “We are now more concerned with maintenance than with operations.”<sup>28</sup>

Airlift leaders responded by asking those eligible for rotation to volunteer to stay in Germany, but this effort failed. Out of 6,100 enlisted men scheduled to return to the U.S. in early 1949, only 19 agreed to remain.<sup>29</sup> The Airlift then offered special inducements. For example, General Tunner himself promised that those willing to volunteer to remain could return to their original permanent duty station rather than be reassigned arbitrarily to some base anywhere. This offer, too, found few takers.<sup>30</sup> The solution to the problem was at hand, though. Airlift leaders assigned German mechanics to every part of the Airlift.<sup>31</sup> Thus, while the mechanics first appeared in September 1948, the number employed increased dramatically early in 1949, and these men essentially solved the Airlift’s manpower crisis.<sup>32</sup>

At the same time the German mechanics also helped address another concern. In early 1949, flight surgeons began reporting cases of extreme stress among the aircrews. The shortage of parts and uncertainty about qualified maintenance personnel threatened the safety and reliability of the aircraft they flew and this situation worried the airmen. Expanding the presence of experienced German mechanics proved an effective antidote. Col. Luther Harris, Director of Aircraft Maintenance, reported that German civilian technicians gave the flight crews confidence and alleviated worries about their aircraft.<sup>33</sup>

The number of former *Luftwaffe* mechanics employed on the Berlin Airlift remains uncertain. The best figure I have is from an undated chart in

the William Tunner Papers at the Air Force Historical Research Agency, Maxwell AFB, Alabama. According to this chart, 1,114 German mechanics were assigned to the 1<sup>st</sup> Airlift Task Force.<sup>34</sup> This figure presents two problems, however. First, the source is unknown. Second, it might include other German citizens doing maintenance type work. Still, it is the best figure that I have for now.

Other statistics are indicative, but imprecise. One USAFE history, for example, states that each base had a quota of fifty German mechanics, and that number later increased to sixty-five per base. The Airlift used seven bases, thus yielding a possible total of 455 mechanics. This figure seems extremely low, however, especially when compared with the statement in *Over the Hump* that eighty-five German mechanics were assigned to each squadron.<sup>35</sup> The Airlift had twenty-eight aircraft maintenance squadrons of various types, thus yielding a possible total of 2,380 mechanics. Other figures are equally imprecise and subject to interpretation: In October 1948, the 7210<sup>th</sup> Maintenance Group at Erding reported that its workforce of 1,506 included 850 German employees. A significant number of these were mechanics, according to the report, but it fails to provide a number.<sup>36</sup>

As for our Allies, the chart cited above credits the Royal Air Force (RAF) with no German mechanics at all,<sup>37</sup> and a draft “lessons learned” report asserts that the RAF did “not believe in the advisability of using [German] nationals.”<sup>38</sup> However, a photograph caption in a history of the Airlift which reads: “German mechanic” calls this evidence into question. The mechanic in the photo is servicing an in-line aircraft engine and only RAF aircraft had in-line engines. Air Marshal T. M. Williams, Air Officer



Engine maintenance accomplished in the open at Rhein-Main Air Base, Germany.

Commanding, British Air Force of Occupation, offered an explanation when he wrote: "With our own tender regard for the Potsdam Agreement and preference for self-dilution [sic] we refer to them as aircraft cleaners," but, he acknowledged: "They are all ex-Luftwaffe technical personnel . . ." <sup>39</sup> The RAF did employ former *Luftwaffe* mechanics, but apparently would not or could not acknowledge their presence.

The same chart credits the French Air Force with fifty-eight German mechanics. <sup>40</sup> The French Air Force flew the Berlin Airlift for a time, and

among the French aircraft were at least three German-designed, French-built Junkers JU-52 transports. Given these aircraft, the presence of former *Luftwaffe* mechanics is unsurprising. <sup>41</sup>

In summary, it is important to emphasize that aircraft maintenance was absolutely critical to the Berlin Airlift. A famous pilot offers his testimony: "I often state that it wasn't the pilots that were so important," Gail Halvorsen wrote to me recently. "Most of my talks emphasize that there would have been no aircraft over Berlin if it hadn't been for the aircraft mechanics." <sup>42</sup> Based on my own work, I believe that former *Luftwaffe* mechanics comprised a higher percentage of the maintenance force on the Berlin Airlift than has been recognized until now, and they, thus, made a major contribution to the success of the Airlift. We do not have precise figures, but I hope someday, somewhere, in some repository to find a folder labeled "*Luftwaffe* Mechanics" that will answer all my questions. Until then, I conclude that the Berlin Airlift was very much an *Allied* victory: American, British, French, and *German*.

As for General Tunner, his willingness to accept former enemies on an equal basis with his own mechanics reflects credit on his open-mindedness and demonstrates his determination to fulfill his mission. Tunner ultimately became a legend in the history of global air transport. Following the Airlift, he went to Asia to command Combat Cargo Command, which provided unparalleled air logistical support for United Nations troops fighting in Korea. Tunner then returned to Germany to lead USAFE. In 1956, West Germany formed the new *Bundesluftwaffe* actively assisted by the U.S. Air Force. On May 30, 1956, when the first class of German pilots graduated from Primary Training at Landsberg Air Base, Bavaria, Lieutenant General Tunner personally spoke at the ceremony. <sup>43</sup> Subsequently, Tunner took command of the U.S. Air Force's Military Air Transport Service a position he held until his retirement on June 1, 1960. During that time his colorful advocacy of global military air logistics and for development of the giant, jet-powered air transport aircraft whose descendants would serve the U.S. Air Force and the Free World into the Twenty-first Century earned him the nickname "Mr. Airlift," invented by Congressman L. Mendel Rivers. <sup>44</sup> ■

## NOTES

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2. Roger G. Miller, *To Save a City: The Berlin Airlift, 1948-1948* (College Station: Texas A&M University Press, 2000), p. 87.

3. Curtis E. LeMay (with McKinley Kantor), *Mission*

*With LeMay: My Story* (Garden City, New York: Doubleday, 1965), p. 416.

4. William H. Tunner, *Over the Hump: The Story of General William H. Tunner, the Man Who Moved Anything, Anytime, Anywhere*, (New York: Duell, Sloan and Pearce, 1964), p. 160.

5. Hist, "USAFE and the Berlin Airlift, 1948: Supply and Operational Aspects" (HQ USAFE, Apr 1, 1949), p. 90.

6. See, for example, the extensive discussions in Miller, *To Save a City*; Daniel F. Harrington, *"The Air Force Can Deliver Anything!": A History of the Berlin Airlift* (Ramstein AB, Germany: USAFE Office of History, May, 1998); Frank Donovan, *Bridge in the Sky* (New York: David McKay Company, Inc., 1968); Richard Collier, *Bridge Across the Sky: The Berlin Blockade and Airlift, 1948-1949* (New York: McGraw-Hill Book Company, 1978); Thomas Parrish, *Berlin in the Balance: The Blockade, the Airlift, The First Major Battle of the Cold War* (Reading, Mass.: Addison-Wesley, 1998); Michael Haydock, *City Under Siege: The Berlin Blockade and Airlift, 1948-1949* (London: Brassey's, 1999); Ann and John Tusa, *The Berlin Airlift* (New York: Atheneum, 1988).

7. Hist, "USAFE and the Berlin Airlift, 1949: Supply and Operational Aspects" (HQ USAFE, Feb 8, 1950), p. 59.

8. Rpt, "Berlin Airlift: A USAFE Summary, 26 June 1948-30 September 1949" (Ramstein AB: HQ USAFE, 1949), p. 95.

9. Tunner, *Over the Hump*, pp. 34-39.

10. *Ibid.*, p. 182.

11. *Ibid.*, p. 183.

12. *Ibid.*

13. W. David Lewis, *Eddie Rickenbacker: An American Hero in the Twentieth Century* (Baltimore: The Johns Hopkins University Press, 2005), pp. 543-44.

14. A political guide that accompanied Combined Chief of Staff (CCS) 551 directed Gen. Dwight D. Eisenhower to establish a policy of non-fraternization between his troops and German nationals. Supreme Headquarters Allied Expeditionary Force (SHAEF) issued orders implementing this policy and attempted to enforce them with great effort and limited success. The policy of non-fraternization broke down quickly. See Earle F. Ziemke, *The U.S. Army in the Occupation of Germany, 1944-1946*, Army Historical Series (Washington, D.C.: Center of Military History, 1975), pp. 97-98, 321-27.

15. Hist, "USAFE and the Berlin Airlift, 1949," p. 34.

16. Joel S. A. Hayward, *Stopped at Stalingrad: The Luftwaffe and Hitler's Defeat in the West, 1942-1943* (Lawrence: University of Kansas Press, 1998), p. 142; E-Mail, Captain Berger, *Militaergeschichtliches Forschungssamt, Potsdam*, to Dr. Roger G. Miller, AF/HOH, subj: "Your Inquiry, February 12<sup>th</sup>, 2009, ref.-no.: 09-240, dtd: February 17, 2009, 9:28 am (In author's files.); Wolfgang J. Hushke, *The Candy Bombers: The Berlin Airlift 1948/49 The Technical Conditions and Their Successful Transformation*, 2<sup>d</sup> ed. (Berlin: Berliner Wissenschafts-Verlag, 2008), p. 212.

17. Hayward, *Stopped at Stalingrad*, p. 263; Memo, Col. Donald L. Putt, General Intelligence (T-2), to Comd. Gen., USAAF, subj: German Air Force Officers in Operation OVERCAST, 22 Jan 1946, in appendix to Harriet Bayer and Edna Jensen, *History of AAF Participation in Project Paperclip, May 1945-March 1947 (Exploitation of German Scientists)* (Wright-Patterson AFB, Ohio: Air Material Command, August 1948). See also Linda Hunt, *Secret Agenda: The United States Government, Nazi Scientists and Project Paperclip, 1945-1990* (New York: St. Martin's Press, 1991), p. 31. Hunt is incorrect in her comments about Colonel (later General) Putt, however. He supervised the program at Wright Field, but the decision to bring former German officers to Ohio was made at a much higher level. See the letter cited in the following footnote.

18. Ltr, Gen. Carl Spaatz, Cmd., USAAF, to UndSecArmy

Kenneth C. Royall, 18 Dec 1945, in appendix to Bayer and Jensen, "History of AAF Participation in Project Paperclip".

19. *History of Operation Lusty* (HQ USAFE, 8 January 1946), Pt. 1, pp. 15-16, quoted in Wolfgang W.E. Samuel, *American Raiders: The Race to Capture the Luftwaffe's Secrets* (Jackson: The University Press of Mississippi, 2004), pp. 121-22.

20. Rpt, Combined Airlift Task Force, "Preliminary Analysis of Lessons Learned," June 1949, p. 23; Rpt, "Berlin Airlift: A USAFE Summary," p. 95.

21. Hist, "USAFE and the Berlin Airlift, 1948," p. 117.

22. Rpt, "Berlin Airlift: A USAFE Summary," p. 243.

23. Hist, "USAFE and the Berlin Airlift, 1949," pp. 95-96.

24. Rpt, "Preliminary Analysis of Lessons Learned," p. 22.

The belief is that disgruntled U.S. airmen involuntarily assigned to Germany were the perpetrators of any sabotage that took place.

25. Rpt, "A Bobwhite [sic] Study of Aircraft Maintenance & Maintenance Management, Combined Airlift Task Forces," 13 Feb-6 Mar 1949, Frame 895, Microfilm Roll 34921, Gen. William H. Tunner Papers, Air Force Historical Research Agency (AFHRA), Maxwell AFB, Ala.

26. Harrington, *"The Air Force Can Deliver Anything!"*, p. 81.

27. Hist, "USAFE and the Berlin Airlift, 1949," p. 92.

28. *Ibid.*, p. 95.

29. Harrington, *The Air Force Can Deliver Anything!*, pp. 81-82. Germany had been devastated during the war and almost every necessity including housing and food was in short supply. In contrast to conditions in the 1950s and 1960s, there were few comforts to attract or keep American personnel who just wanted to get home.

30. Hist, "USAFE and the Berlin Airlift, 1949," pp. 242-43.

31. *Ibid.*, p. 92.

32. Hist, "USAFE and the Berlin Airlift, 1948," p. 243.

33. Memo, Col. Luther Harris to Chief of Staff, subj: Comments on Aeromedical Survey Performed by USAF Surgeons, n.d., Frame 906, Microfilm Roll 34921, Gen. William H. Tunner Papers, AFHRA.

34. Table: "Personnel," Frame 494, *ibid.*

35. Rpt, "Berlin Airlift: A USAFE Summary," p. 134; Tunner, *Over the Hump*, p. 183.

36. Hist, "USAFE and the Berlin Airlift, 1948," p. 113fn. Erding performed depot-level maintenance on engine accessories, propellers, instruments, electronic components, and similar items. Memo, "Supply and Maintenance Procedures for Airlift Task Force (Prov.), 13 August 1938, attach to Hist, "USAFE and the Berlin Airlift, 1948," Appendix V.

37. Table: "Personnel," Frame 494, Microfilm Roll 34921, Gen. William H. Tunner Papers, AFHRA.

38. Memo, subj: "Points of Disagreement on Preliminary Analysis of Lessons Learned," 26 July 1949, Frame 265, *ibid.*

39. Rpt, "Use of German Nationals," Frame 259, *ibid.* This page may be part of the document by Air Marshall T. M. Williams at frames 257-258.

40. Table, "Personnel," Frame 494, *ibid.*

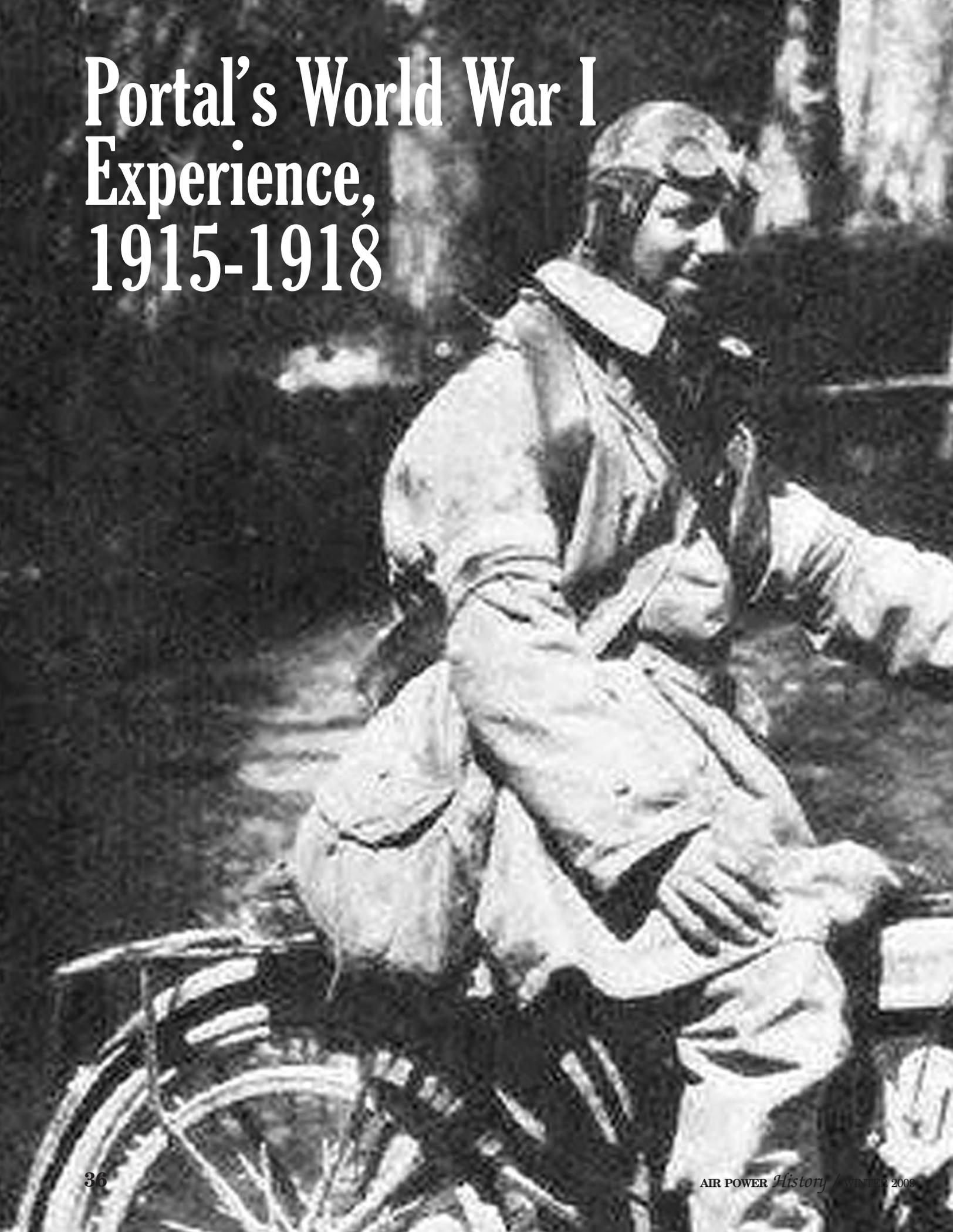
41. *Ibid.*; Miller, *To Save a City*, pp. 75-76.

42. E-Mail, Col. Gail Halvorsen, USAF Ret., to Dr. Roger G. Miller, HQ USAF/HOH, subj: "On to Tempelhof!!", 11:34 a.m., March 17, 2009 (In author's files).

43. Hist, 7351st Flying Training Wing (MDAP), January 1-June 30, 1956, pp. 11-12, Frames 1492-1526, Microfilm Roll P0268, AFHRA; See also James S. Corum, "Starting from Scratch: Establishing the *Bundesluftwaffe* as a Modern Air Force, 1955-1960," *Air Power History* (Summer 2003), pp. 16-29; Col. Clarke Newlon, "Luftwaffe Flies Again," *Pegasus* (December 1957), pp. 1-9.

44. Obituary, "William H. Tunner, Berlin Airlift Chief," *The Washington Times*, April 8, 1983; Miller, *To Save a City*, p. 93.

# Portal's World War I Experience, 1915-1918





Introduction by **Arnold D. Harvey**

(Overleaf) Lord Portal spent his World War I years as a dispatch rider, such as this one.

HAVING REPRESENTED OXFORD UNIVERSITY AGAINST CAMBRIDGE IN A MOTORCYCLING CONTEST IN MAY 1914, HE ENLISTED IN THE ROYAL ENGINEERS AS A DISPATCH RIDER, WAS COMMISSIONED A FEW WEEKS LATER, AND TRANSFERRED TO THE ROYAL FLYING CORPS IN 1915

Charles Frederick Portal, later 1st Viscount of Hungerford (1893 -1971), had just completed his second year at Christ Church, Oxford, when World War I began. A keen motorcyclist, having represented Oxford University against Cambridge in a motorcycling contest in May 1914, he enlisted in the Royal Engineers as a dispatch rider, was commissioned a few weeks later, and transferred to the Royal Flying Corps in 1915. He went on to fly hundreds of missions and was awarded the Distinguished Flying Cross and the Military Cross. A lieutenant colonel commanding a training wing at the end of the war, he opted to remain in the Royal Air Force. From 1940 to 1945, Portal was Chief of Air Staff, that is, professional head of the Royal Air Force, and a key member of the Chiefs of Staff Committee advising Prime Minister Winston Churchill.

The following account of his World War I flying experiences was written as an essay while he was attending the first staff course at the Royal Air Force's new Staff College at Andover in 1922-1923; it is preserved in The National Archives at Kew, London (AIR 1/2386/228/11/1).

*On joining the Royal Flying Corps in July 1915 I was posted to No. 3 Squadron, (Morane Parasol) then stationed at Auchel and working with the 1<sup>st</sup> Corps. My military experience was confined to Dispatch Riding and the simpler side of the work of Corps Signals. I had never been in an aeroplane nor had I seen a Lewis Gun. I knew the Morse Code well, and was fairly competent to read a map and find my way about on the ground.*

*I had only the vaguest idea what my new duties would be. I had seen aeroplanes signalling with coloured lights and lamps in the artillery and I had seen a Morane blown up on the ground by the bombs which it was going to drop on the lines. I had a vague idea of the uses of reconnaissance.*

*I knew nothing whatever of squadron organisation.*

*On joining the squadron I was posted to A Flight, where I met Captain Hubbard, who had just come out to command the flight. He told me –*

*That I was to be his observer.*

*That he had never flown over the lines.*

*That I must find out how to work a Lewis Gun.*

*That we would do the early Tactical Reconnaissance the day after tomorrow.*

*After I had spent several hours on the Lewis Gun I was told that the Morane could not carry it and me and in consequence I always went up with a stripped rifle and 100 rounds of .303.*

*During the next day I was taught the Artillery Code by another observer, and on the third morning*

*Hubbard and I set out for the early Tactical Reconnaissance. Not having been up before, I soon lost my way, but he showed me the Foret de Nieppe and after that I managed to keep my bearings all right. I tried to count the trucks in the various stations over which we flew, but I was interrupted a good deal by the engine missing and by A.A. fire of which I was very much afraid. After losing our way and coming down to 3,000 feet over Lille, we returned home.*

*At the time it did not appear strange that a reconnaissance should be performed by a pilot who had only once before flown the type of aeroplane used (and wrecked it) and had never been over the objective on any other part of the enemy's lines, accompanied by an observer who had never been in the air at all. It now seems that there must have been a considerable shortage of personnel.*

*All the pilots in No. 3 Squadron treated the Morane Parasol with very great respect. One gathered that the chances of death by misadventure on the aerodrome were infinitely greater than by enemy action. Hubbard was an excellent pilot and never gave his observer any cause for anxiety.*

*There was absolutely no attempt to instruct the newly joined officers in squadron duties. Except that I had to sleep in the office about once in three weeks I don't remember doing any other work besides flying. Everything else was called "hot-air" and was left to the Sergt. Major and the Orderly Room clerk. So far as one could see, the Flight Commander's administrative work consisted of an "orderly room" about every three days and an inspection of Flight Stores about every week. Everything seemed to run perfectly.*

*After I had done a few reconnaissances I was told that I must learn to do artillery work as Gower, the flight artillery pilot was going on leave and Hubbard said he didn't think he could do the "buzzing" as well as fly the Morane.*

*I was therefore given half an hour's lecture by Gower and one "demonstration" shoot with 6? Howitzers and was then made to do a shoot with 9.2? Howitzers while Gower flew the machine. One shoot was moderately successful, and I was then put on artillery work with Hubbard as pilot.*

*At this time there was no squadron artillery officer, but there was a Brigade Liaison officer who occasionally came round to talk over the shoots. The observers visited the batteries fairly frequently, but most of the shoots went off without a hitch (owing to the small number of aeroplanes working at one time and to the efficiency of the operators), and the "conference" was generally confined to mutual congratulations.*

*The "Counter-Battery" organisation had not*

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Charles Portal, Commander-in-Chief, Bomber Command, 1940, subsequently Chief of the Air Staff into 1945.

**PILOTS AT THAT TIME SEEMED VERY UNWILLING TO FLY ANYWHERE NEAR ANOTHER MACHINE**

*then been perfected, and there was very little attempt at co-ordinated work. The squadron commander, working with the Heavy Artillery Brigade, did most of the work of allocating targets to flights and batteries.*

*Individual pilots often arranged to bombard a target of their own selection with a battery which they regarded and referred to as "their own" without any reference to higher authority. Many pilots had special signals agreed with the battery, and frequently remarks calculated to encourage our gunners or exasperate the enemy were sent down "in clear".*

*The work of a pilot or observer at that time was not very heavy. To make two flights in a day was most unusual, except during "battle periods". Clouds at 4,000 feet or under were considered a bar to all artillery or reconnaissance work.*

*As a rule a pilot did one reconnaissance or one artillery observation flight per day. Flights seldom exceeded 2 hours.*

*An accident while on leave caused me to miss the battle of Loos, but when I returned after it very few changes had taken place. The appearance of the Fokker<sup>1</sup> had somewhat startled the B.E. squadrons in the neighbourhood, but the Morane, with the observer behind, was considered quite able to defend itself. This it should certainly have been able to do, but only provided the observer understood his Lewis Gun. Most observers were very vague about the clearing of stoppages, and in time a Morane was shot down by Immelmann<sup>2</sup> over Valenciennes.*

*After this it was decided to send 3 Moranes together on the Valciennes reconnaissance. I was one of the observers, and prevailed upon my pilot (Harvey-Kelly<sup>3</sup>) to let me take a Lewis Gun instead of my rifle.*

*No arrangements were made for "formation" but it was agreed that if one Morane was attacked the other two would come to its help. We crossed the lines with Mealing at about 10,000 feet, Harvey-Kelly a little behind him at 8,000 feet and Saunders further behind at 6,000 feet (he could get no higher owing to McCudden's<sup>4</sup> load of ammunition).*

*Immelmann duly appeared at 11,000 feet and attacked the top Morane. Both the others were unable to help, but fortunately the observer beat him off.*

*Pilots at that time seemed very unwilling to fly anywhere near another machine. If we had adopted the modern "formation" I am convinced that Immelmann would not have attacked at all, but evidently it was considered unsafe to fly within several hundred yards of anyone else.*

*Shortly after Christmas 1915 I was sent home to England to learn to fly, and reported to Castle Bromwich. Comparing this station with the modern instructional Establishment one is very much struck by the extraordinary ignorance which prevailed among 60% of the instructors. Morale among the pupils was correspondingly low, and although there were very few serious accidents it cannot be said that the instruction was good. Every instructor taught in a different way. Some were very good but others were disgracefully bad. Often their pupils performed better than they did after a few hours' so-called instruction.*

*After taking my 'ticket' I was sent to Netheravon, where 'moral' among the pupils was, on the whole, worse than at Castle Bromwich, though the instructors were very much better. There had been several bad accidents in which people had been killed, and certain senior officers refused to fly certain types of aeroplane. This had a very bad effect on the pupils.*

*I was posted to No. 60 Squadron, Gosport, in May 1916, having applied to fly Moranes. The whole atmosphere of the station was quite different from the other two stations at which I had been. Everyone was keen on flying, and thanks to Smith-Barry<sup>5</sup>, recently joined pilots had a very good chance of learning the real principles of safe flying both from precept and example.*

*I flew out to France on May 26th, and on June 16th the squadron arrived at Vert Galand and was placed in the G.H.Q. Wing.*

*Our duties consisted of long reconnaissance and close offensive patrols, four aeroplanes generally flying together. The formation was not worthy of the name, as no one cared about flying less than 100 yards from another pilot. In this squadron an attempt was made to have one flight of biplanes and two of monoplanes. I do not know the reason for this, but it was not satisfactory from the biplane pilot's point of view. The monoplanes were purely fighters, but were neither so fast nor capable of going so high as the biplanes. When escorts were attempted the uselessness of a single-seater for close escort work was shown. Shortly after I left the squadron it was made homogenous, and a little later was equipped with Nieuport Scouts. In July 1916 I was posted to No. 3 Squadron to command a flight, and found the*

Portal (standing third from left) at the Yalta Conference.



squadron in the middle of the first stage of the Somme battle.

I felt very keenly my utter ignorance of all administrative and technical matters, but with a great deal of help from my Squadron Commander (Harvey-Kelly) I managed to keep the flight going.

I found that a good many changes in the methods of work had been made during the last nine months.

It was now considered possible to do artillery work at about 2,000 feet. Since the introduction of the "Counter-Battery Office" with its fixed daily programme of work, there was no chance for a pilot to carry out shoot after shoot with his "pet" battery at targets which took his fancy. Pilots could no longer encourage their own artillery or taunt that of their enemy by messages in clear. 'Directional' sending had to be observed, or jamming resulted.

I believe now that too many aeroplanes were using wireless on the Somme for the best results to be obtained. Central wireless stations and artillery liaison officers did not give the service (in setting right a "shoot" which was going wrong) that the pilot of 1918 came to expect. Pilots were generally very careless in their sending, and were apt to take it as a matter of course that a certain number of their shoots would be failures.

Contact patrol was done at very low heights (500 – 1,000 feet) at this time, and two or three Moranes were hit by our own shells.

During the whole of the battle of the Somme the

German pilots were very enterprising. As their aeroplanes were a good deal faster than most of ours it was very difficult to get a chance of fighting them.

Their A.A. fire, on the other hand, was very accurate as a rule. Corps Squadron<sup>6</sup> aeroplanes seemed very often to escape the attentions of A.A. batteries, probably owing to our having directed fire on to them rather often when they were in action.

One battery in the Bastion at Bapaume shot so badly that he was carefully preserved from shell fire lest a better shot might replace him.

By the end of the German retreat to the Hindenburg line it had become the fashion for pilots to do very much more flying than they were thought capable of before. Several pilots in my flight did over six hours per day for more than a week during the fighting round Bullecourt and Queant without feeling any ill effects.

By the spring of 1917 the organisation of counter-battery work was very much improved. The central wireless station had been greatly developed, wireless methods had improved, and the greatest care was taken by Squadron and Wing Commanders to investigate the causes of unsuccessful shoots with the utmost thoroughness. The use of "ringed" photos of targets had been adopted by all pilots as an aide to accurate observation. All pilots and observers were expected to know a great deal about gunnery and to keep in close touch with artillery officers. The increase in efficiency which these developments brought about was astonishing.

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*Between August 20th and October 20th 1916 I attempted 52 shoots with our batteries. Of these 25 were successful and 27 unsuccessful. Between March 16th and May 16th 1917 out of 59 shoots 53 were successful and 6 unsuccessful. It was the same with all our pilots.*

*The chief causes of early failure were –  
Wireless trouble.*

*Unwillingness of batteries to shoot when E.A. were visible.*

*Want of liaison with artillery.*

*Want of perseverance on the part of the pilot and lack of a central wireless station.*

*In May 1917 I was sent to command No. 16 Squadron, which had had a very bad time during the Vimy fighting, losing about fifty officers in two months. The squadron had just been equipped with R.E.8s, and I found them very comfortable and steady after a Morane, but very much less easy to see out of. I still think that the ideal Corps Reconnaissance aeroplane is a parasol monoplane.*

*Up to this time I had no training at all in administrative duties; I knew nothing beyond my flying duties, and I set myself to the task of trying to run the ground work of the squadron as well as its work in the air, and I also tried to maintain touch with the Corps Staff, Heavy Artillery and some of the batteries.*

*I very soon discovered that I was doing none of these things well and saw that either the ground work or the air work must be left to someone else. I had a very good recording officer, but no experienced flight commander so I decided to confine myself entirely to the operational side of the work.*

*I still think that it is impossible for a Corps Squadron Commander in stationary warfare to carry out all his duties properly unless he is a superman. He must know his squadron area better than any of his pilots or observers do, so that he can check their reports and observations. He must observe occasionally for enemy batteries in his area, so as to check their methods and appreciate the difficulties which his officers are sure to encounter with some of*

*them. Besides this he must be constantly in touch with the C.B.S.O. H.A. Group<sup>7</sup> commander and Corps I Staff. Add to this his administrative duties, attending conferences, writing orders, reading intelligence, looking after his officers, men and aeroplanes and you have more than 24 hours' work per day.*

*During the last months of 1917 and for the rest of the period of static warfare, the methods of co-operation were made almost perfect. The last 61 shoots which I observed for, between 1st January 1918 and 27th May 1918 were all successful.*

*About January 1918 the principle of using wireless receiving sets in Bristol Fighters for long-range observation<sup>8</sup> was started, but the system was not really successful until the Bristol's had been withdrawn from the Corps Squadrons (which had each been allotted one) and centralised in the "Army Flights". This confirms the view that good results are not obtained with a squadron having more than one type of aeroplane.*

*During 1918 night bombing by moonlight was ordered. All the pilots enjoyed it, and it was considered a "soft job" compared with work by day, but I doubt whether pilots can be fairly expected to work by night and day for any length of time – or mechanics either for that matter.*

*I made several attempts to range batteries by night, and most of them were successful, but even at the full moon one had to know the country intimately to succeed.*

*I was posted to England in June 1918.*

*Almost all my work with the R.F.C. and R.A.F. has consisted of Army Co-operation, and as this forms the subject of my lecture on December 15th I propose to deal with it more fully then.*

*(Sgd.) C.F.A. Portal  
Squadron Leader.*

*Andover:  
September 1922.*

**NOTES**

1. The Fokker E.1, the first purpose-built interceptor to enter service, made a considerable impact in the summer of 1915. The B.E. 2, the first type to be made standard in the Royal Flying Corps before the war, had the observer's cockpit in front of the pilot's, which made it difficult for the observer to fire at an enemy approaching from the rear.

2. Max Immelmann (1890-1916), the German *Luftstreitkräfte's* first fighter ace.

3. Hubert Dunsterville Harvey-Kelly (1891-1917) gained the first ever British victory in aerial combat when on August 25, 1914 he forced down a German *Taube* by flying at it aggressively in his B.E. 2.

4. James Thomas Byford McCudden (1895-1918) afterwards an outstanding fighter pilot, with 57 aerial victories to his credit by February 2, 1918; recipient of the V.C., D.S.O. and bar, M.C. and bar and M.M.. In 1915 he was still flying as an observer, and was not yet commissioned.

5. Robert Smith-Barry (1886-1949) as a squadron C.O.

on one occasion dealt with accumulated "bumph" by burning down the squadron office. From January 1917 onward flying training in the R.F.C. was revolutionized under his direction.

6. Squadrons allocated to artillery spotting were assigned to individual corps; fighter units were at the disposition of army H.Q.s.

7. Counter Battery Staff Officer – Heavy Artillery Group.

8. It is not quite clear what Portal meant by "long-range observation." If he means the organizational separation of tactical and strategic reconnaissance units that was standard in 1939, it had not really evolved by 1918. If he means artillery spotting more than a dozen miles behind the lines, it is slightly odd that anyone should have ever thought of assigning aircraft for this duty to corps squadrons as the ultra-long-range guns – often naval guns on railway mountings – were under the control of army H.Q.s

**A Military History of Britain: From 1775 to the Present.** By Jeremy Black. Westport, Ct. and London: Praeger Security International, 2006. Notes. Index. Glossary. Pp. ix, 191. \$19.95 Paperback ISBN: 0-275-99039-7

Jeremy Black's title promises a history from 1775, but the first two chapters, totaling forty-six pages, cover from prehistoric time to 1775. Although there is no bibliography other than the brief listing of "selected" additional readings, the author, a professor of history at Exeter University in the United Kingdom, provides an extensive array of notes which constitute a highly useful listing of the available secondary sources, most of them relatively recent publications. These are supplemented with an extensive use of primary sources from archives in the United States as well as Britain. The main body of the book is divided into three parts: Britain as Imperial Parent, 1775; Britain as Imperial Rival, 1775-1904; and Britain as Imperial Partner, 1904-. But these themes, while dominant, do not exclude other themes and roles.

To cover such a long span of history in so few pages, the author is forced to romp rapidly through the centuries offering a bare outline, a skeletal coverage of events without much detail. A graduate student preparing for a final oral exam leading to a PhD or a journalist looking for a background survey for an article in preparation would find this volume an excellent source. Were this all the author had to offer, many readers would find this chronology too brief and too thin to be of interest. But there is more here. The author frequently presents shrewd insights on what led to success or failure. For example, he observes in one passage on the American Revolution that the eastern seaboard—where most of the population lived within seventy-five miles of the coast—was a benign area for military operations lacking the diseases of the tropics. Further, Black observes that the failure of the sugar isles to join the revolution gave the British important economic support, and the continued loyalty of Nova Scotia and other colonial areas gave the Royal Navy bases of strategic significance. Many of the author's most fruitful insights are derived from his mining of the primary sources. An example is his comments on the Home Secretary's 1801 criticism of contractors who provide horses unfit for service.

Although the author does mention air power, his coverage is minimal. He does bring out the RAF's unwarranted confidence in the efficiency of unescorted bombers, which led to a bomber force twice

the number of fighters leading into World War II. Radar, so critical to British success in the Battle of Britain in 1940, is mentioned but not listed in the index. Nor does the author bring out the fact that the remarkable Spitfire fighter was initially developed by private philanthropy, not by Parliamentary appropriations.

This is a curious volume, although not without merit.

*I. B. Holley, Jr., Professor Emeritus, Duke University*



**North Star over My Shoulder: A Flying Life.** By Bob Buck. New York: Simon and Schuster, 2002. Photographs. Index. Pp 446. \$15.00 Paperback ISBN 0-7432-6230-1

From departure from home to reaching cruise altitude, TWA-Captain Buck draws the reader into his book. His feelings and thoughts about his decades in the airline business and flying for the military stir the reader's interest.

For Buck, learning to fly was a dream come true. He earned his pilot's license at sixteen. Starting with a Pitcairn Mailwing, he obtained a ninety-horsepower Monocoupe when he was eighteen. During these first few years of flying, he learned to fly cross country, using the most basic navigation skills. When he heard that TWA was hiring pilots, he joined the company.

Buck's initial TWA training was in the DC-2 and DC-3. He goes into great detail on these aircraft. His vivid descriptions of the planes and their systems are somewhat humorous. The communications and navigations systems were a far cry from what we know today and brought back interesting memories for me, a Link simulator instructor in the mid-1950s.

Buck spent considerable time in his early airline years flying around the western U.S. before making captain and flying the LaGuardia-Pittsburgh route. His descriptions of flying in the prewar days cover the gamut: weather and meteorologists, flying with different pilots and aircrew members, what it was like to check out for captain, having a wife who wasn't too thrilled with flying, early airline accidents, and technical details of the machines and the business.

With the start of World War II, the airlines soon found themselves carrying cargo and troops. Presque Isle, Maine, was a focal point for flight operations. Weather and NavAids proved to be a problem around the North Atlantic. Buck got himself a sextant and became proficient in its use, since he was soon flying TWA's

Boeing 307 Stratoliners over the Atlantic. Operations began with flights to Gander and Prestwick. Before long, he found himself flying the South Atlantic via Miami and Brazil and on to Africa. He faced numerous challenges as an unofficial Air Force pilot and shares stories of some of the many dignitaries he carried, such as Bob Hope and Ira Eaker.

In November 1943, TWA assigned Buck the most interesting, happy and rewarding time of his flying life—weather research flying in a B-17. His assignment to Wright Field, Dayton Ohio, took him and his crew everywhere. It was during this period that the static wicks seen on aircraft today were developed. One of his most interesting trips in the B-17 was from Adak in the Aleutians to Midway Island. Buck navigated and hit Midway almost right on the nose. The legs to Kansas City, via Hawaii and San Francisco, were the last for the B-17 with Buck in command.

Buck returned to TWA and took delivery of the first Constellation. But weather had become one of his primary interests. When the Army Air Forces asked him to fly the B-17 around the world to assess weather, he relinquished his chief pilot slot, rounded up his old B-17 crew, and undertook the special flight research mission. For a short while he flew a P-61 Black Widow doing similar research. Later, back at TWA, he flew a specially equipped DC-3 on a flight around much of the world. One of his famous passengers was Tyrone Power.

In his remaining years with the airline, he flew the DC-4, Constellation, 707 and 747. He beautifully describes TWA's route structure and the international cities to which they flew. One story stands out of what it was like to transition from prop to jet airliners. He flew TWA's 747 inaugural flight on April 13, 1970. Buck even represented TWA on the supersonic transport committee before making his last airline and 747 landing in Paris.

An excellent look at airlines, from the fledgling days of the 1930s to the systems we know today, this is a wonderful book. Having spent twenty years in the airline world, I can honestly say this was my best reading about the industry. Buck's comments about an industry that was and still is "crazy" are on the mark.

*Stu Tobias, Indianapolis, Indiana*



**Jump into the Valley of the Shadow: The War Memories of Dwayne Burns, Communications Sergeant, 508th**

**Parachute Infantry Regiment.** By Dwayne Burns and Leland Burns. Philadelphia: Casemate Publishers, 2006. Maps. Tables. Illustrations. Photographs. Notes. Pp. 233. \$32.95 ISBN: 1-932033-49-1.

Ever since the release of the late Stephen Ambrose's book, *Band of Brothers*, in 1993, there has been a public craving for all things "Airborne." World War II-surplus paratroop gear commands exorbitantly high prices on eBay; Amazon.com lists twenty-four pages of airborne-related publications; and the TV mini-series version of Ambrose's book is still running strong on cable stations and Armed Forces Network channels. This memoir seems to be another attempt to ride the wave of paratrooper popularity. Dwayne Burns is a retired Bell Helicopter draftsman and former senior NCO with the 508th PIR, 82d Airborne Division. He is a decorated veteran of Normandy, Nijmegen, and Ardennes. His co-author son, Leland, is a freelance writer and sports car enthusiast. Burns' insights were also featured in Ambrose's *Citizen Soldiers* and the *Voices of D-Day* television series. This first person narrative of his wartime experiences is both riveting and insightful. He does a good job of walking the reader through his first youthful impressions living in the Fort Worth, Texas, area, his basic training adventures, and his paratrooper training period and immediate assignment to the newly formed 508th PIR. The book provides a very human look at Dwayne Burns' romance with his fiancé, his youthful feelings of invincibility, and his coming to grips with fear and danger, as all combat veterans are forced to do.

The book falls short in retracing the 508th's major battles, but this was not the authors' aim. Keeping with the adage that an infantryman's view of war is limited to a 400-yard circumference around his foxhole, Burns' scope focuses only on accounts of small-unit actions at the company level. These accounts are interesting, riveting, and valuable for the historian who studies small-unit histories, but there is no tie-in to the bigger picture of the battles. The book provides insights into what goes through a paratrooper's mind before and during each combat jump, but there are no new nuggets here that have not appeared previously in print or in oral histories.

Still, there are extremely human recollections and sad re-telling of tales concerning the deaths of many battle buddies and friends who reinforce how brutal the European Theater was. The author has commendably and humbly included personal incidents denoting expressions of

anger that we would characterize today as Post Traumatic Stress Disorder. Such recollections serve to endear Sgt. Burns to the reader. His accounts of the Normandy pre-invasion airdrop, Operation MARKET GARDEN, and the bitter cold fighting along the Werbormont-Trois Ponts northern shoulder of the Battle of the Bulge are all retold from the valuable perspective of a fighting man who has "been there."

Despite the narrative's readability, there are some distractions. The main one is the stream-of-consciousness writing style and continual jumping back and forth in time at inopportune moments to provide background information. This gives the book a disjointed feel. While one assumes the authors' purposely chose this writing style for artistic reasons, it very clearly falls short of achieving what was intended. Such a delivery would be more at home in a novel rather than in a personal memoir. Additionally, I felt Burns' continual anecdotes of insubordination to his superiors who ordered him to carry a backup radio battery became stale after a while. But my annoyance may be due to personal bias formed over three combat deployments where lack of critical "comm" equipment always added to existing difficulties and workloads.

The book contains some of Burns' extremely artistic and impressive field drawings; one can see why his talent was much in demand at Bell for so many years. Only three simple maps are included; additional maps would have enhanced the text. The footnotes are plentiful but are unfathomably and annoyingly annotated in miniscule Roman numerals, in a very hard-to-read font, making rapid acquisition of notes difficult. Also, there is bibliography or source listing, which detracts from the book's integrity. While first person recollections do not require source listings *per se*, the authors expand into assertions attributed to Generals Gavin and Ridgway, but fail to indicate where such information came from. In these instances, a link to the source is highly desirable.

As a first-hand account of one man's airborne experiences, this book may have some interest. But for the historian or researcher, its lack of scholarly presentation leaves much to be desired. Still, it is by no means an insignificant work—every veteran's experience is critical to preserving our history—but it could have been presented much better.

*Lt. Col. Stephen T. Ziadie, 341st Space Wing, Malmstrom AFB, Montana*

**Spacecraft and Satellite Dictionary: 2007 Unabridged Edition.** By Bruce Cranford. Potomac, Md.: H. Bruce Cranford, Jr., 2007. Figures. Tables. Appendices. Bibliography. Pp. 399. \$39.95 Paperback ISBN: 978-0971165724

For some years, online reference sites, like Mark Wade's *Encyclopedia Astronautica*, David Darling's *The Internet Encyclopedia of Science*, and others less comprehensive have provided one of the quickest avenues to identifying almost anything related to spaceflight. Now, Bruce Cranford's *Spacecraft and Satellite Dictionary* places a relatively easy-to-use, hardcopy finding aid in the hands of space historians, space professionals of all kinds, and interested members of the general public. Sometimes, this book will supply users with all the information needed to proceed with a task at hand; often, it will tell them where to search for more details about everything from aerospace companies, launch facilities, specific satellites, astronauts and cosmonauts, to space organizations, rockets and subsystems, tracking stations, mathematical equations, acronyms, abbreviations, and non-English space terms.

Cranford, who holds aerospace and biomedical engineering degrees and is a docent at the Smithsonian's National Air and Space Museum, spent years systematically perusing the roughly 150 sources in his bibliography, along with many not listed, to compile entries for this dictionary. He has thoughtfully supplied a multi-page "guide to use" ahead of 285 densely packed pages of alphabetized entries. Beyond that core, he includes keys to the Cyrillic and Greek alphabets and space-related terms followed by five appendices: the International Space Station; designations for Soviet and Russian missiles or launch vehicles; launches of U.S. military and intelligence satellites, 1984-2006; spacecraft launch sites worldwide; and an alphabetized table of all spacecraft launched since 1957. The *Spacecraft and Satellite Dictionary* amounts to a veritable *Webster's* for anything related to spaceflight.

As anyone should realize, however, production of so comprehensive a reference work by a single individual is a daunting task, without even contemplating the need for periodic updates to keep it current and revisions to clarify specific entries or correct inaccuracies. Parenthetical cues to bibliographic citations complement many entries, but some of those cues occasionally do not lead to citations (e.g., "Lollini" and "Winick" on p. 294 and elsewhere). One searches without finding organizational entries for "Air

Force Space Command” and “Space and Missile Systems Center.” Although most of the systems in the Space Surveillance Network (SSN) are listed under “SSN,” an explanation that NAVSPASUR transferred from the Navy to the Air Force on October 1, 2004, and became the Air Force Space Surveillance System (AFSSS) is missing. Here is where a digital version of the dictionary could more easily accommodate the almost constant demand for changes.

Cranford apparently chose not to include entries for important rocket and spaceflight pioneers, except for a handful whose surnames are the same as entries with another meaning (e.g., Robert H. Goddard, for whom Goddard Space Flight Center is named). A sixth appendix containing brief entries on individuals like Wernher von Braun, Bernard A. Schriever, Konstantin Tsiolkovsky, Tsien Hsue-shen, Sergei Korolev, and hundreds more would be useful. The information on astronauts and cosmonauts, currently found in the book’s core, could be moved to such an appendix. Such a suggestion highlights the possibility, of course, that a separate biographical dictionary for rocketry and spaceflight might be more appropriate.

No matter how much nitpicking this soft-cover, comb-bound publication undergoes, it remains a tremendously useful single source for identification of space-related terms. I already have pulled it from the shelf more than a few times, especially when confused by Russian organizational names or daunted by orbital mechanics. Cranford’s *Spacecraft and Satellite Dictionary* is already a classic. Those wishing to purchase a copy can go to <http://www.spacecraftnames.info/Spacecraftandsatellitedictionary.html>.

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



**Master Bombers.** By Sean Feast. London: Grub Street Publishing, 2008. Photographs. Appendices. Glossary. Bibliography. Index. Pp. 223. £20.00 ISBN: 978-1-90650201-0

Sean Feast is a British journalist interested in RAF Bomber Command operations in World War II, especially the Pathfinder force. He has written three books on Bomber Command and the Pathfinders and is working on a fourth. His preparation—through extensive interviews with surviving veterans as well as research on official unit histories, personal logbooks, and other firsthand sources—is

evident in the detail and breadth of individual stories.

Feast’s purpose is to correct what he considers an oversight by historians in failing to fully appreciate and document the contributions of the Bomber Command Pathfinder force. In the introduction, he states that this is not a unit history. Instead, it is a narrative of the personal experiences of the members of one squadron to help readers better understand the contribution of this intrepid group of aviators. The stories are well documented and engaging, and the warm and easy prose intersperses first-person narrative with amplifying explanations and detail. While the book focuses almost exclusively on aviators’ stories, it also acknowledges the invaluable contributions of the many hundreds of ground personnel—flight controllers, maintenance personnel, cooks, and batmen among them—who made victory possible. He regrets his inability to tell more of their stories, but attributes this to the difficulty of locating veterans and the fact that aircrew exploits are much better documented.

The book is excellent as far as it goes, but Feast could have spent more time discussing Pathfinder tactics and procedures and assessing their overall contribution to the war effort. The debate surrounding the European strategic bombing campaign’s efficacy—especially Sir Arthur Harris’s city-busting campaign—rages on, but Feast’s work does little to illuminate this subject. In assessing the bomber offensive’s contribution he consistently rates a particular raid’s effectiveness without documenting his assertions. Referring to an attack on Paderborn late in the war he says the appearance of a bright glow, indicating a large fire burning under a complete overcast, demonstrated complete success. However, he never mentions any reconnaissance that confirmed the extent of damage. He also states that the OBOE blind bombing system (used radio signals to triangulate position) allowed for “incredibly accurate bombing.” Feast fails to qualify “incredible” accuracy. Most historians, as well as the U.S. Strategic Bombing Survey, assessed systems like OBOE and radar-assisted bombing to have poor accuracy in most circumstances.

Another issue Feast never directly addresses is the assertion that regular Bomber Command forces often failed—and even refused—to follow the Pathfinders’ directions if they thought the target too hot or the situation too difficult. If this was the case, then an assessment of the Pathfinders’ effectiveness on these missions is critical to determining the overall usefulness of the program.

This is an interesting and useful book

on a topic with which few American readers are familiar. Feast’s prose is engaging, and the stories he relates are interesting in that they now show the tremendous dedication and sacrifice of British bomber crews—men who, in some cases, flew more than 100 operational missions (compared to 25-35 for the average American bomber crew in Europe). Feast accomplishes his purpose; it is just disappointing that he did not further mine the unique resources at his disposal to answer some of these other questions.

*Lt. Col. Golda Eldridge, Commander, AFROTC Det 845, Texas Christian University*



**Thunder on the Danube Napoleon’s Defeat of the Hapsburgs: A Definitive History of Napoleon’s Last Victorious War.** By John H. Gill. Barnsley, UK: Pen & Sword, 2008. Maps. Tables. Diagrams. Illustrations. Photographs. Notes. Bibliography. Index. Pp. xvi, 496. \$48.00 ISBN: 978-1-84415-713-6

The three greatest generals in Western history—Alexander, Caesar, and Napoleon—did not live long considering their impact on the world of their times and in memories since. The last of the three achieved the pinnacle of his fame six years before Waterloo, during the events portrayed here. He won other battles after this, but never another war after the Franco-Austrian conflict of 1809. This was also the high point of the First Empire. Such an overwhelming victory was followed by the capture of the Hapsburg capital, but Archduke Charles and his army had escaped and the war went on. At the same time, the French armies were wearing out and quality was decreasing. However, their enemies were getting better. The army of Austria, in particular, had been reformed by Archduke Charles and was vastly improved. Thus, Austria was tempted to attack France while Napoleon was distracted in Spain.

This is Volume I of three in a series covering that war. The last two volumes will take it to the conclusion and armistice. The French had defeated and destroyed the Holy Roman Empire in the wars of 1797, 1800, and 1805. The Empire attempted a resurgence under a new name, but achieved only a temporary tactical surprise when Charles led the main Austrian army into Bavaria on April 19, 1809. Though this eventually failed, it also displayed the relative decline of the French forces. They still had energy and spirit, but the consequence of adopting

conscripted was less mobility and individual skill. The margin of Gallic superiority was narrowing. Napoleon himself may have started to show some of his final flaws at this time, although he retained his implacable will.

The book gives a detailed account of the decisions, movement, maneuvers, and individuals involved. The emphasis is on leadership—the ability to visualize the total picture and to react quickly. Gill is a retired U.S. Army colonel and is now an associate professor at the National Defense University in Washington. He does well on the military aspects of the story. The 118 pages of very detailed notes are at the book's end rather than the more convenient feet of the pages. The maps, charts, and tables and the four appendices reflect the professionalism of the author, but may have more detail than required by the usual reader. It is hard to tell how wide an audience this will appeal beyond Bonaparte buffs, but I look forward to seeing the next two volumes.

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**Weapons of Choice: The Development of Precision Guided Munitions.** By Paul G. Gillespie. Tuscaloosa: The University of Alabama Press, 2006. Diagrams. Illustrations. Photographs. Notes. Bibliography. Index. Pp. xii, 218. \$35.00 ISBN: 0-8173-1532-2

In the 1991 Gulf War, air power helped win a quick and overwhelming triumph with astonishingly low casualties. Victory was won by a number of factors including superior mass, training, weapons, and planning. Also instrumental in producing this result were a number of new technologies, such as precision guided munitions (PGM), stealth, unmanned aerial vehicles (UAV), satellite support, and aerial command posts (AWACS and JSTARS). These have significantly changed how air wars are fought, at least by the United States, and give air power capabilities that its proponents could only dream of over the years.

*Weapons of Choice* is an in-depth study of the development and employment of PGMs as well as implications for the future. Until the advent of PGMs, air power was more destructive than decisive, known as much for the collateral damage it inflicted as for its military effect. Precision weapons changed that late in the Vietnam War. In contrast to World War II high-altitude visual bombing accuracy that averaged perhaps 2,000 feet in

good weather and SAC high-level radar bombing in the early 1960s, that averaged around 1,300 feet, PGMs could get bombs within tens of feet of the target. The dramatic difference can perhaps be best seen in Vietnam when, toward the end of the Rolling Thunder campaign (1965-68), F-105s with conventional munitions achieved an average accuracy of about 450 feet with six percent direct hits. In 1972, in the same area, U.S. guided bombs recorded an average accuracy of twenty-three feet with almost half being direct hits.

Gillespie covers background, evolution, and operational service of the PGM and goes beyond technology into policy issues in this well-written study. He does an exceptional job describing development and employment of laser guided bombs (LGB). The rapid and cheap development of LGBs into an amazingly effective weapon is a remarkable story told here in detail. Gillespie does interject a cold dose of realism. His major conclusion—that decision makers tend to overestimate what PGMs can achieve both strategically and politically—rings true. He also approvingly quotes the overall air commander in the Kosovo campaign, who stated that even with PGMs there will be unintended civilian casualties. They are not the proverbial silver bullet.

The author encounters difficulties around the edges of his topic, however, as he was not well served by his editor and reviewers. He makes a number of disputable claims, asserting for example that air power had a prominent role in World War I and defeated Japan in World War II; that there is “almost unassailable evidence that technological advantage repeatedly proved decisive” in World War II; and that “under the old American way of war, generals regularly made war on civilians, the outstanding examples perhaps being William T. Sherman in Georgia and Curtis LeMay in Japan.” There is also an issue of balance. *Weapons of Choice* is skewed toward LGBs at the expense of other PGMs: TV-, IR-, and GPS-guided weapons. There are a number of neglected areas as well. For example, he defined cruise missiles out of his study. But the most important neglected point involves intelligence. While Gillespie mentions the mistaken bombing of the Chinese embassy during the Kosovo War, he fails to emphasize that even with satellites and UAVs, intelligence is little better than what it once was. Although accuracy has greatly improved, identifying the proper target in a timely manner has not. Accurately hitting the wrong target can be worse than missing the right one. Gillespie is overly enthusiastic about his subject. He gives PGMs too much credit

for the thwarting of the North Vietnamese 1972 ground offensive, implying PGMs were the major factor—not South Vietnamese ground troops, not air power in general, and not the overextension of North Vietnamese troops and supplies. His bold statement that PGMs have “fundamentally altered the American way of war” must be tempered by the future prospect of continuing unconventional warfare. While PGMs are certainly an important weapon, they are but one of several that shape modern warfare. Moreover, wars are fought with more than just technology.

Gillespie has produced a fine study describing and discussing the development, employment, and future of PGMs. He goes beyond the obvious and is especially effective concerning laser guided bombs. While the book's flaws are distracting, they certainly do not undercut its value. *Weapons of Choice* is an excellent case study of the development of a military technology, as well as an outstanding study of an important air weapon.

*Kenneth P. Werrell, Christiansburg, Virginia*



**General William E. DePuy: Preparing the Army for Modern War.** By Henry G. Gole. Lexington: The University Press of Kentucky, 2008. Maps. Photographs. Notes. Bibliography. Index. Pp. xviii, 364. \$35.00 ISBN: 978-0-8131-2500-8.

In this book, retired Special Forces Col. Henry Gole writes the biography of Gen. William E. DePuy—a major player in the reorganization of the U.S. Army after its failure in Vietnam; the first Training and Doctrine Command (TRADOC) commander; and the proponent behind many of the doctrine changes that would spur the combat arms out of their Vietnam malaise and back into high-technology, high-tempo warfare. Gole is a professional historian who has written two books and has taught at West Point and civilian universities. He has provided the first full-length biography about this key figure who helped fix a broken army and transformed it into an army acknowledged worldwide as first-string. Gole relied on both primary and secondary sources, including interviews with DePuy's peers, subordinates, and family members. An unbiased and objective study, the book reveals both DePuy's great strengths and his human weaknesses.

While the book takes the reader on a tour of DePuy's event filled life—he fought in Europe from Normandy through V-E

Day, supervised clandestine combat operations against China during the Korean War, participated in the Cold War debate over “massive retaliation” versus “flexible response,” played a key role in establishing Special Forces in Vietnam, and served as one of General Westmoreland’s chosen generals—Gole’s own military roots come through in the text as he points out where an experience would help shape DePuy’s tactical and doctrinal beliefs. This adds value as the book becomes (much like DePuy’s own personality) a teaching tool for the military professional. DePuy would form much of his doctrinal view from his combat experience against the Germans, whom he respected as soldiers.

The last four chapters provide a great deal of valuable information. They cover the period when DePuy and his peers fought to fix a broken army, his tenure at the helm of TRADOC, retirement (a period when he wrote), and a final chapter that examines his legacy. Vietnam had a profound effect on DePuy. In 1987, he published an article entitled: “Our Experience in Vietnam: Will We Be Beneficiaries or Victims?” In it, he dubbed television news coverage of military operations as the “final sanction” and warned that our system of government changes in administrations will bring about changes in policy that make long and inconclusive operations like that common to counterinsurgency war ineffective and in fact “doomed.” Because of this and the fact that they could not obtain the intelligence needed to defeat them, regular forces could not effectively battle “embedded forces.” Further, “The heart of prudence and cold realism suggest that U.S. combat forces stay away from embedded forces. Any violation of this advice is almost certain to be militarily futile and politically ruinous.”

Unfortunately, Gole fails to examine the obvious affect these types of views had on America’s poor response to the growing insurgency in Iraq. This is a major failing of the book. Otherwise, the book—which is well illustrated with photographs and maps—is both entertaining and informative.

*David F. Crosby, former USAF history writer and doctrine developer for the Army Air Defense Artillery School*



**Flying From the Black Hole.** By Robert O. Harder. Annapolis, Md.: Naval Institute Press, 2008. Maps. Photographs. Glossary. Bibliography. Index. Pp. viii, 293 [draft manuscript]. \$34.95 ISBN: 978-1-59114-359-8

From 1965 to 1973, B-52s dropped nearly three million tons of bombs on Southeast Asia and dwarfed any single-aircraft campaign statistic. This manuscript attempts to “set the record straight” about the crucial roles played by non-pilot aircrew members—specifically, B-52 navigators and bombardiers. Harder tells his story through an examination of navigator and bombardier training and a discussion of the critical roles played by these non-pilot crew members. B-52 crews consisted of a pilot, co-pilot, tail gunner, electronic warfare officer, navigator, and bombardier. The navigator-bombardiers nested in the aircraft’s forbidding void, the “Black Hole of Calcutta,” behind and below the flight deck.

Harder is a former hole occupant with 145 Vietnam combat missions. He rivets the reader’s attention by describing the beginning of “a slow-motion train wreck.” Strategic Air Command (SAC) leadership decided that only headquarters was capable of planning the B-52 campaign. Their rigid rules of engagement and tactics were designed to keep bombers from colliding with each other. But attacking in single file from the same initial point, at the same airspeeds and altitudes, in three waves precisely spaced four hours apart, taking no evasive action, and breaking right after bomb release provided a high level of predictability for North Vietnamese SA-2 surface-to-air missile (SAM) operators and resulted in unacceptable B-52 losses on the opening days of the air campaign.

The book’s first section addresses the historic background of the navigator/bombardier career field, B-52 development, formation of SAC under Curtis LeMay, and modern navigator and bombardier training. The rigid thinking necessary to conduct nuclear war was inappropriate in a traditional conventional conflict like Vietnam. As an aviation history, these early pages solidly recount strategic bombing and the preparation necessary to prepare crews for nuclear war.

The second section describes B-52 combat operations in Southeast Asia, the widespread unrest as large numbers of crewmen racked up five, six, and seven combat tours because of the policy which limited rotations to 179 days, and the intense bitterness over tactics selected half a world away.

The final chapters detail Linebacker II operations December 18-30, 1972. This intense bombing campaign forced North Vietnamese negotiators back to the “peace table” for a war settlement and a return of American POWs. But, missions during the first few days were met with strong concentrations of antiaircraft fire, SAMs (164

on the first night), and MiG interceptors. Out of 129 B-52s launched the first night, three Stratoforts were shot down and two more were seriously damaged. On the third day, using the same tactics, ninety-nine bombers were launched, six were shot down, and one was seriously damaged—a 7 percent attrition rate. The only positive to come out of the catastrophe was to bring everybody into complete agreement: the attack tactics had to be modified. Throughout the remainder of Linebacker II, with modified tactics, B-52s dropped 15,000 tons of bombs with minimal losses.

Harder did not participate in Linebacker II, but he did a remarkable job of recounting it. The book is well written but lacks references. However, he included a bibliography. His passion for this subject is obvious and provides a lively narrative and enjoyable read.

*Dr. Gary R. Lester, Deputy Historian, Air Force Operational Test and Evaluation Center, Kirtland AFB, New Mexico, and a retired lieutenant colonel who flew the F-4E in Linebacker II.*



**Flying From the Black Hole.** By Robert O. Harder. Annapolis, Md.: Naval Institute Press, 2008. Maps. Photographs. Glossary. Bibliography. Index. Pp. viii, 293 [draft manuscript]. \$34.95 ISBN: 978-1-59114-359-8

The often overlooked contribution of Strategic Air Command’s (SAC) rated navigators is well documented by Robert Harder, who writes much of this account from the personal experience of four years in the Air Force. Graduating from the University of Minnesota, Duluth, as an AFROTC Distinguished Military Graduate, he went through navigator and “bomb-nav” training before reporting into SAC and joining a B-52 crew. While in this position he flew 145 combat missions over Vietnam in the “Black Hole,” the windowless lower deck of the B-52D. After his service he became a commercial pilot and certified flight instructor. He is now a retired retail executive and—with this book—an author who lives in Chicago.

Harder focuses on the Vietnam experience but weaves into it a history of Air Force navigation and bombing since the 1930s. He notes the recent replacement of the rating by combat systems operators—equipment operators with no training in the basic, if obsolete, skills of navigation. As he notes:

*[I]n the space of one human lifetime, the*

rated military professions of navigator, bombardier, and electronic warfare officer were born, grew up during a world war, came into their majority and middle age during several regional wars and a global Cold War, and then died quietly and nearly unnoticed.

But the book is most valuable for recording the experiences and routine of a B-52 navigator (on both sides of the Black Hole) during the Vietnam War, in both the conventional and nuclear modes. Harder vividly captures the stress, excitement, and boredom of the duty, bringing back memories to those of us who lived it and illuminating it for those who would know what it was like. His recall of the particulars of crew training, daily alert routine, and in-flight duties is amazingly detailed and accurate, making it a valuable resource for future seekers of the personal history of the Vietnam Conflict and the mid-Cold War.

While concentrating on the denizens of the Black Hole, he does not ignore the other aviators sharing the crew compartments of the BUFF, the electronic warfare officers (EWOs), gunners, and, of course, the drivers up front—the pilots. From the narrative, the closeness of the combat crew, their integrated skills and expertise, clearly emerges. He recognizes, too, the imperative contribution of the tanker crews to both the Vietnam and Cold War employment of long-range bombardment.

Finally, this is more than a story of plotting fixes, making times over target, and tracking aiming points. It is the story of Arc Light and Linebacker, the bombing campaigns that ultimately overcame organizational difficulties to bring America's involvement in the War in Southeast Asia to an acceptable, if not victorious, end.

Col. Wayne Pittman, USAF (Ret.), Docent, National Museum of the United States Air Force



### **Alaska's Hidden Wars: Secret Campaigns of the Northern Pacific Rim.**

By Otis Hays, Jr. Fairbanks: University of Alaska Press, 2004. Maps. Illustrations. Photographs. Notes. Appendices. Bibliography. Index. Pp. xvii, 182. \$19.95 Paperback ISBN: 1-889963-64-X

An intelligence staff officer in Alaska during World War II, the author is well qualified to examine the 1941-1945 North Pacific campaigns. Though not a detailed history of operations in Alaska, his book examines several interesting aspects of this often overlooked Japanese and

American battleground.

The Japanese attacked Alaska in June 1942, to divert American attention from the pending naval battle near Midway Island. Following their defeat at Midway, the Japanese occupied Kiska and Attu Islands, at the extreme western end of the Aleutians. By mid-1943 the Americans had recaptured the islands and commenced a long-range bombing campaign against Japanese bases in the Kurile Islands which extended north of Hokkaido to the Soviet Union's Kamchatka Peninsula. Alaska also served as a transit point for Lend-Lease supplies transported to the Soviet Union.

Mr. Hays describes how Nisei (second generation Japanese-Americans born in the United States) supported the American war effort in Alaska by translating captured documents and interrogating Japanese prisoners. One poignant story is the translation of the diary of a Japanese doctor killed on Attu. Educated in the United States, the doctor returned to Japan with the Seventh-Day Adventist church before being drafted into the Japanese Army. Mr. Hays also looks at the horrendous weather conditions experienced in the North Pacific and describes the experiences of American airmen captured by the Japanese or interned by the Soviet Union (which did not declare war against Japan until August 1945). More American aircraft were lost to ice, fog, and wind than to the Japanese. As recently as 1999, the Russians discovered the wreckage of a U.S. Navy PV-1 bomber that crashed on Kamchatka and returned the crew remains to the United States for identification.

*Alaska's Hidden Wars* is a good companion volume to Brian Garfield's popular history of World War II in Alaska, *The Thousand Mile War*. Well researched, with notes and a detailed bibliography, Hays' book is recommended for anyone interested in this "forgotten campaign" of World War II.

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



### **Air Power against Terror: America's Conduct of Operation Enduring Freedom.**

By Benjamin S. Lambeth. Santa Monica, Calif.: RAND National Defense Research Institute, 2005. Maps. Photographs. Diagrams. Glossary. Bibliography. Pp. xliii, 411. \$35.00 www.rand.org Paperback ISBN: 0-8330-374-2

*Air Power against Terror* provides a superb moment-by-moment analysis of

the events from the terrorist attacks of 9/11 to the ousting of the Taliban from power in Afghanistan. The book focuses on Air Force participation in Afghanistan from October 2001 to March 2002. Lambeth weaves articles from the *New York Times*, *Washington Post*, *L.A. Times*, *London Times*, *USA Today*, *Time*, *Newsweek*, et al. to present a timeline of events from the Bush-administration drawing board to the execution of the air war over the mountains of Afghanistan. The articles set the scene from which Lambeth injects insider information obtained from personal conversations with key decision makers. The result is a fascinating, systematic analysis of the intricate personalities, conflicts, processes, and beliefs that have become the functioning doctrine in Afghanistan and will most assuredly guide Air Force actions in future conflicts.

Lambeth begins with the hijacking of the planes on 9/11 and quickly leads the reader through the process and accomplishment of building an international coalition and the monumental task of providing a logistics base from which to perform sustained operations. Narrowing his focus, he devotes the majority of his analysis to Air Force development of a new method for conducting war against terrorist groups and the major obstacles to the effectual prosecution of that war.

He depicts an Air Force that used the existing strategies of Operation Southern Watch in Iraq as a template for fighting a war against insurgents in Afghanistan. It didn't take long for many to realize it was the wrong template. The process of learning the right tactics against a rapidly changing insurgency was not accomplished without some bumping of heads and trial and error. Most of the ego clashing occurred within the Air Force itself but was also magnified by overly restrictive Rules of Engagement (ROE) dictated by the White House and strictly controlled by the Secretary of Defense. Washington's insistence on no civilian casualties and control of all target approval was, as Lambeth explains, a new development in how we conduct war. The ROE from Southern Watch and the early hours of Enduring Freedom had to change as situations on the ground changed. The process was often slow and extremely frustrating to both warriors on the ground and aircrews who watched targets of opportunity escape unharmed.

Perhaps the greatest lesson to be learned is discussed in chapter five, where Lambeth analyzes problems that arose during planning and execution of Operation Anaconda. Lack of interagency communication, cooperation, and plan-

ning plagued the operation from the start. Lambeth spends some time refuting allegations of mismanagement levied against General Moseley and discusses at length claims of slow aircraft response during the operation. Just as the Army learned from Somalia to take night-vision goggles on every mission, so the lasting image from Anaconda, as portrayed by Lambeth, is that commanders will never send troops into battle without first having face-to-face planning sessions with other agency commands.

Lambeth devotes all of chapter six to innovations unique to the war in Afghanistan. One of these is the constant and integrated Intelligence Surveillance and Reconnaissance (ISR) assets that contributed to the war effort and, at times, directed aircraft onto enemy personnel. Another was the use of Special Forces (SF) and Air Force Enlisted Tactical Air Controllers (ETACs) as support elements for aircraft. Traditionally, close air support (CAS) aircraft act in a support role to provide CAS to combat personnel engaged with the enemy. In Afghanistan the combat power was coming predominately from aircraft. CAS aircraft, waiting on station for targets of opportunity, were called upon repeatedly by SF and ETAC teams to attack emerging targets. This process was successful in defeating the Taliban and was so reliable that ground forces began to believe they could call for an air strike at any time and an aircraft would be available. This belief contributed to failures during the early hours of Operation Anaconda.

This book represents the first page of air power history in the war on terror and should be read by all officers in command roles from all branches of service. Not only does it depict the frustrations encountered when too much central control is placed on the warrior, but also it outlines the successful operation of a war based predominately on air power.

*Chris Rumley, 314th Airlift Wing Historian, Little Rock AFB, Arkansas*



**What Happened: Inside the Bush Administration White House and Washington's Culture of Deception.** By Scott McClellan. New York: Public Affairs, 2008. Photographs. Index. Pp. 341. \$27.95 ISBN: 1-58648-556-6

Scott McClellan, White House deputy press secretary and, later, press secretary during much of the Bush presidency, presents in his personal account of those highly charged years of controversy—one of

several White House insider books thus far to emerge from the George W. Bush administration. His role within the White House often afforded a first-hand view of Bush's presidential decision making, especially where the war on terrorism, the war in Iraq, the Plame affair, and the Katrina catastrophe are of special interest.

This book may simply be an apologia, accounting for the role that he played as the most visible spokesman for what had become one of the most unpopular administrations in American history. His wish to clear the air is understandable in light of the humiliation he suffered at the hands of the Press Corps for his unwitting defense, during the Plame affair, of two of the administration's top insiders: Scooter Libby and Karl Rove. This defense was shattered during a formal investigation, leaving McClellan in its wake with little or no credibility.

The first part of the book is devoted to McClellan's immersion in Texas politics, beginning as a child beside his mother during her successful career in the world of state politics. He also recounts his all-around successes in college life, academics, sports, and campus politics. He became an aspiring politico in Texas politics as a press secretary, chief of staff, and campaign manager.

McClellan came on board with then-Texas Governor George W. Bush—a leader he held in high regard—when Bush sought the presidency. McClellan believed Bush was the man to make a difference in Washington, where the “permanent campaign” of partisan politics was destructive to good governance. McClellan's disappointment is clear when he discusses the failure of the Bush administration not only to put an end to partisan politics, but to take it to new heights. He devotes part of his book to exploring the adverse impact of politics on war, and how it came to be a major factor in both the Plame affair and the ill-advised decision to attack Iraq. McClellan never accuses the President himself of lying to the public. However, he was, disillusioned to learn belatedly that senior administration insiders were disingenuously driving misinformation campaigns to manipulate American public opinion. He was equally disappointed by the failure of senior presidential advisors to consider opposing views and to entertain the possibility that they just might be wrong. McClellan appears to be sorely disappointed by Condi Rice's lackluster performance as national security advisor and her seeming focus on two objectives: to emerge unscathed from any administration failures, thus protecting her reputation; and to never challenge the President's viewpoints. In McClellan's opinion,

she could have better served the President by airing counter arguments, especially prior to his decision to make war on Iraq.

Scott McClellan wants the reader to appreciate his efforts to preserve his ethical standards in an unethical climate. The greater value of this book, I believe, is its view from an insider's cat seat, allowing the reader to better understand how a presidential administration's senior leaders could fail so badly again and again to provide good governance.

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**The U.S. Nuclear Arsenal: A History of Weapons and Delivery Systems since 1945.** By Norman Polmar and Robert S. Norris, Annapolis, Md.: Naval Institute Press, 2008. Photographs. Appendices. Index. Pp. xvi, 274. \$49.95 ISBN: 978-1-55750-681-8

This book is an insightful, single volume reference to U.S. nuclear weapons and delivery systems. Chapter 1 is a useful, readable introduction to the evolution of nuclear weapons systems. Chapter 2 chronicles the development of nuclear warheads. The remaining chapters describe the evolution of delivery systems, strategic and tactical, including aircraft, missiles, artillery, and anti-submarine weapons. Also included are valuable appendices on the U.S. nuclear stockpile; the effects of nuclear weapons; and a listing (1945-2008) of U.S. strategic offensive forces. The authors also provide a recommended reading list.

The authors need to place an asterisk preceding their statement that the atomic bomb became “the centerpiece” of U.S. strategy after the end of World War II. The ensuing hot debate over American strategy in the 1950s was fueled by the Korean War, in which atomic weapons were not employed, the conflict ending in a stalemate. The war itself presaged a long, drawn-out controversy over whether the U.S. was relying on the atomic bomb to the detriment of its conventional forces, which were more likely to be employed to support U.S. policy.

Polmar and Norris correctly emphasize that Cold War documentation on the role of nuclear weapons continues to be overclassified. It is past time that the U.S. government should declassify the strategic war plan of sixty years ago. When noting the August 1949 Soviet detonation of an atomic bomb, the authors should mention that the Soviet detonation spurred Truman's January 1950 order to proceed

with a crash program to develop the hydrogen bomb. In discussing the FB-111 program, the authors might note that McNamara's attempt at "commonality" was a failure. Air Force Chief of Staff, General Curtis E. LeMay described the FB-111 as "no goddam good as a strategic bomber, it wasn't a strategic bomber and that's a fact." Only seventy-six were built and the Navy opted out of the program.

The authors' assertion that manned bombers could be recalled was a "fallacy," needs to be modified more precisely. When I served as a historian in the SAC Headquarters command post during the late 1950s and early 1960s, we were well aware that bombers could be recalled successfully during the "brief early window," but less successfully, as the authors emphasize, once the aircraft were over Soviet territory.

The authors do a nice job of describing the evolution of the triad of strategic systems—land-based bombers, ICBMs, and Polaris submarine-launched ballistic missiles. According to Polmar and Norris, the term "triad" was coined by Maj. Gen. Glenn Kent, USAF, and used "to rationalize" the requirement for the three strategic offensive forces.

In the late 1950s, with the advent of the Polaris submarine, the Air Force proposed integrated strategic planning and targeting. In April 1959, Gen. LeMay, then Air Force Vice Chief of Staff, testified before the Senate that "functions and weapons of individual services are beginning to overlap." LeMay stated that eventually progress would have to be made toward a single service with a single chief of staff. "Combat elements having the same function or mission," he emphasized, "must be integrated into functional areas under single control." The Air Force Chief of Staff, General Thomas D. White, called for establishment of a single unified U.S. Strategic Command, including SAC and Polaris submarines. The Army and Navy opposed the concept.

As Polmar and Norris point out, the issue was decided in August 1960, by Secretary of Defense Thomas S. Gates, a former Secretary of the Navy. Gates steered a course between the Air Force's proposal for a single Strategic Command and the Navy's insistence on the *status quo*, establishing the Joint Strategic Target Planning Staff (JSTPS) at SAC Headquarters in Omaha. This group consisted of personnel from all the services to maintain a National Strategic Target List (NSTL) and a Single Integrated Operational Plan (SIOP), committing nuclear weapons to specific targets. Gates directed that the CINCSAC would serve as Director, JSTPS with a Vice Admiral as

Deputy Director.

This was a landmark decision in the control of strategic nuclear weapons. It proved to be a harbinger of the firm control of these weapons exercised by Secretary of Defense Robert S. McNamara. As the authors point out, between 1955 and 1960, even before McNamara, the U.S. inventory burgeoned from about 1,000 to more than 10,000 nuclear weapons of all sizes.

Nitpick: In the authors' list of periodicals that publish articles related to discussion of nuclear weapons, I would suggest adding *Air Power History*.

This book is highly recommended as a useful guide to the development of nuclear weapons over the six decades since the end of World War II.

*Herman S. Wolk, Senior Historian (Ret.),  
Office of Air Force History*



**Powerful and Brutal Weapons: Nixon, Kissinger, and the Easter Offensive.** By Stephen P. Randolph. Cambridge, Mass.: Harvard University Press, 2007. Maps. Photographs. Glossary. Notes. Index. Pp. 401. \$29.95 ISBN: 0-674-02491-5

Many readers of this journal are familiar with the belated successes achieved by U.S. air power against the North Vietnamese offensive in 1972. With this definitive study, Stephen Randolph (a former USAF fighter pilot now teaching at the National Defense University) tells the full story of the crisis—tactical, strategic, diplomatic, and political. His book reveals a wealth of new information culled from the infamous White House tapes, recently declassified files of the National Security Council, available North Vietnamese records (translated by former CIA intelligence officer Merle Pribbenow), and the history programs of all four US armed services.

With optimistic goals similar to the Tet offensive of early 1968, North Vietnam launched a three-pronged invasion of the south in March 1972. Employing its growing arsenal of armor and artillery, the North Vietnamese Army achieved stunning early victories facilitated by ineffective resistance by South Vietnamese forces. But the North's advances gradually stalled because of logistical shortcomings, tactical mistakes, and most significantly, "powerful and brutal weapons" that its Politburo, on the eve of operations, had feared might be used by the United States.

Even so, the North Vietnamese had

seriously underestimated American technological progress in weapon systems since the end of operation Rolling Thunder in 1968 and the resolve of a different American commander-in-chief in using them. President Richard Nixon was not about to let a defeat in Vietnam undermine his diplomatic initiatives with the Soviet Union and China or his reelection in November. Although Randolph unsparingly documents the paranoia, bureaucratic back-stabbing, and dysfunctional decision-making process of Nixon and his national security advisor, Henry Kissinger, he gives them full credit for the result of these decisions.

Nixon's hopes of rescuing South Vietnam depended on the growing strategic mobility of American air power. As the crisis unfolded, several hundred USAF combat aircraft rushed to Southeast Asia, where they were joined by five U.S. aircraft carriers. This rapid deployment of forces across such vast distances, explains Randolph, "demonstrated a capability never before seen in strategic affairs" and represented "a turning point in contemporary military history."

The book vividly portrays key players involved on the American side of the drama along with their various agendas. Of special interest to Air Force readers is the role of Gen. John Vogt, whose chief qualification for being given command of Seventh Air Force was Kissinger's friendship and Nixon's trust. Both held most other Air Force leaders in contempt.

Randolph seems generous in recognizing success and seems fair in analyzing failure. The massive impact of the USAF's B-52 bombers (Nixon's favored weapon) and the well-aimed firepower of its AC-130 gunships were especially valuable in devastating enemy formations, as was naval gunfire along the coast. On the ground, brave and professional U.S. Army advisors stiffened South Vietnamese resistance and coordinated vital air support (some conducted by "world class" Vietnamese pilots flying A-1 Skyraiders). Often overlooked, courageous USAF tactical airlifters delivered essential supplies in the face of deadly hostile fire. Two combat leaders earn special praise: the legendary John Paul Vann in the central highlands (killed in a helicopter crash "at the highest moment of triumph in his long career") and Lt. Gen. Ngo Quang Truong in the northeast ("a master in command, as fine a leader as any in the war").

Up north, including areas of Hanoi and Haiphong off limits during Rolling Thunder, the laser-guided bombs delivered by ad-hoc USAF strike packages ("mass gaggles") assembled from scat-

tered bases in Thailand inflicted unprecedented damage on key targets, albeit with embarrassing losses to adaptable North Vietnamese air defenses. After closing Haiphong harbor in a flawless mine-laying operation, U.S. Navy aviators—benefiting from stronger unit integrity, better training, and shorter flying distances than their Air Force counterparts—hit a wider range of targets while achieving more favorable kill ratios against defending MiGs.

North Vietnamese forces also receive well-deserved credit, especially for their endurance, discipline, clear chain of command, and willingness to learn from their mistakes. By October 1972, pushed back in the south and suffering unexpected destruction at home, the North Vietnamese leadership signaled their desire to end the fighting on conditions acceptable to Nixon and Kissinger—terms almost identical to those they eventually signed in Paris on January 27, 1973.

Previously, however, resistance to these provisions by South Vietnamese President Nguyen Van Thieu and backsliding by North Vietnamese negotiators provoked Nixon into launching the so-called Christmas bombing of Linebacker II, a chapter sadly missing from Randolph's book. Fortunately, a concise account of this climactic air campaign can be found in Wayne Thompson's comprehensive history of USAF operations against North Vietnam from 1966-1973, *To Hanoi and Back*.

In the end, however, the battles of 1972 proved to be only "speed bumps" in the road toward the unification of Vietnam under a communist regime. The errors North Vietnam made in the crucible of 1972 "provided a rich menu of lessons learned" for its easy victory in 1975. Without continued American support (undermined by war-weariness and Watergate), the uninspired government of the Republic of Vietnam had little chance against what Randolph characterizes as "probably the most thoroughly mobilized society in humankind's long and violent history."

At a time when even our current President has begun comparing the war in Vietnam with that in Iraq, and the long term effects of the latter on U.S. military readiness is a major issue, Randolph reminds us that "[t]his final splurge of the Vietnam war contributed greatly to the hollow military of the late 1970s."

With intimate conversations in the Oval Office no longer being recorded, it is highly unlikely that the wartime deliberations and decision-making of any subsequent commander-in-chief will ever be so thoroughly described and analyzed as in this important and informative book.

*Lawrence R. Benson, retired Air Force historian, Albuquerque. New Mexico*



**Sleeping with Custer and the 7th Cavalry: An Embedded Reporter in Iraq.** By Walter C. Rodgers. Carbondale, Ill.: Southern Illinois University Press, 2005. Maps. Photographs. Appendix. Pp. xiii, 224. \$29.50 ISBN: 0-8093-2672-8

In a move that would have warmed Ernie Pyle's heart, the U.S. Army embedded journalists in "tip of the spear" combat units during the invasion of Iraq. These journalists had to attend "Embed U," a course designed to give reporters the basic knowledge (such as how to put on a chemical suit) that they would need to survive in units in direct combat with the enemy. Traveling in a CNN-purchased HUMMV equipped with technology that allowed Rodgers to transmit uncensored video reports in real time under combat conditions, Rodgers joined Apache Troop, 3d Squadron, 7th Cavalry—the unit assigned the dangerous mission of clearing the way for the Iraq invasion. Both would make history.

Rodgers would ride in a soft skinned vehicle in a column of M1 Abrams tanks and M3 Bradley fighting vehicles and escape death in a number of ambushes and battles. Along the way, he would share the anger, fear, fatigue, and emotional highs that his soldiers would share.

Journalists in safer environments would attack "embeds" like Rodgers as becoming too close to the soldiers and units they covered, but Rodgers argues that his fondness for the 7th Cavalry never clouded his vision. Eating and sleeping on the battlefield just provided him with the soldiers' view of the war—a view that rarely gets much shrift today.

A veteran of the Middle East and its wars, he also reports that the naiveté of the American forces helped set the stage for the insurgency that followed. In one telling event, he relates how an Iraqi Shiite approached him in Baghdad and asked when it would be okay to begin killing Sunnis. The young American troopers who took Baghdad did not seem to understand the dangerous cultural forces they had unleashed.

Easy and entertaining to read, this book reveals what life is actually like for a combat soldier. Rodgers uses straightforward narrative to tell his tale.

Researchers and military professionals will find the appendix useful. Rodgers included the actual DoD Embed Ground Rules for readers to study.

Well illustrated, with more than thirty photographs taken during the drive to

Baghdad, the book also offers readers a good visual catalogue of the action verbally described in the book—a feature that adds to the book's value.

Unlike today's journalists, Ernie Pyle did not feel the need to apologize or equivocate for chronicling and speaking on the soldier's behalf. Pyle did not read the newspaper or listen to news radio for long stretches because he preferred to write the stories that he wanted to write without the pressures of conformity subtly and not so subtly imposed by the media on its members. He shared the discomforts and dangers with his soldiers and in the process became one of them. Tragically, that led to his untimely death when a Japanese sniper took his life on the island of Ie Shima on April 18, 1945, but the simple truth of his writings had already made him immortal. Walter Rodgers is no Ernie Pyle, but he is as close as we are going to get in the era of 24/7 television news. I recommend his book.

*David F. Crosby, former USAF history writer and doctrine developer for the Army Air Defense Artillery School*



**The Last Epic Naval Battle: Voices from Leyte Gulf.** By David Sears. Westport, Ct.: Praeger, 2005. Index. Pp. 264. \$39.95 ISBN: 0-275-98529-2

David Sears is best known as a business consultant and author of such books as *Successful Talent Strategies*. However, in an earlier life, he was an officer in the U.S. Navy with extensive experience at sea on destroyers. *The Last Naval Battle* reflects this earlier experience, and the combination of sea experience and the analytical approach of a business consultant have allowed him to write an extraordinarily good book about the largest naval battle in history, the Battle of Leyte Gulf.

The outlines of the battle are known to anyone interested in naval warfare or World War II. When the United States invaded the Philippines in 1944, the Japanese initiated a plan called *Sho-Go 1*. Based on the assumption that the Americans considered the Japanese aircraft carrier fleet their primary enemy, the plan called a force of Japanese carriers and their escorts under the command of Vice-Admiral Ozawa to approach from the north to lure the main U.S. force, the fast battleships and carriers of the Third Fleet, away from the landings. The vulnerable transports of the landing forces would then be attacked in a suicide mission by Japanese surface ships from a main force under Vice-Admiral Kurita and another

smaller force under the command of Vice-Admiral Shima. The simple plan proved wildly successful. Ozawa was able to draw the American battleships and carriers away; Shima's force was destroyed in a brisk night battle with superior U.S. surface forces; but Kurita's force of battleships, cruisers, and destroyers, after originally retreating under heavy air attack, turned back and attacked the landing forces, now protected only by small escort carriers and lightly armed destroyers and destroyer escorts, collectively known as the "Small Boys." In one of the most gallant stands in naval history, the Navy's "Small Boys" resistance made Kurita give up the attack and flee.

Rather than concentrating on the details of the battle and the events that led up to it, Sears focuses instead on the personal stories of American Navy men, mainly reservists, who fought the battle. Most served on escort carriers, destroyers, destroyer escorts, and PT boats; and Sears follows them through training and into this climactic battle. As might be expected, the most gripping stories come from the PT boats' personnel and the men of the escort carrier formation, known as "Taffy 3," that was attacked by the main force of the Japanese surface fleet. These men describe their desperate struggles in combat, and Sears continues to follow them after the battle, including those whose ships were sunk and were later rescued. He then continues with their long, often surprisingly arduous trip back to the U.S. To enhance their stories, Sears uses the interesting techniques of footnoting references to a particular person (e.g. "Smokey Bennett...took off [as] an incoming shell hit the front deck...") and in the footnote describing their eventual fate ("Ensign P. A. Bennett, USNR, survived the battle").

While the book is mainly oral history, Sears' naval background allows him to present some excellent technical descriptions of the U.S. training and the Navy's weapons and ships involved in the battle. He blends the important technical aspects and conveys their characteristics without slowing down the story.

In all, this is an excellent book, well written, well researched, and one that keeps the reader involved throughout, though the pace understandably picks up when the battle begins. Any reader with an interest in World War II in the Pacific will find it an excellent read, and those with a general interest in military history will enjoy it as well. Since Sears does not greatly detail how the battle unfolded, especially from the Japanese side, readers who are unfamiliar with the details or nuances of the battle might also want to

read a book that deals with the battle in general: Thomas Cutler's *The Battle of Leyte Gulf: 23-26 October 1944* and H.P. Wilmott's *The Battle Of Leyte Gulf: The Last Fleet Action* are both excellent.

*Dr. Marshall Michel is a retired Air Force fighter pilot. He is the author of Clashes: Air Combat over North Vietnam 1965-1972 and The Eleven Days of Christmas: America's Last Vietnam Battle.*



**Hearts of Courage: The Gillam Plane Crash and the Amazing True Story of Survival in the Frozen Wilderness of Alaska.** By John M. Tippetts. Anchorage, Alaska: Publication Consultants 2008. Maps. Photographs. Notes. Appendices. Bibliography. Pp. 144. \$19.95 Paperback ISBN: 1-59433-077-3

As a youth, I was fascinated by Jack London's stories of Alaskan adventure and peril; his books were hard to put down. I felt much of that same excitement about this book. While London wrote fiction, Tippetts' tale of survival in some of the harshest climate in the world covers actual events. The subtitle won't mean much to many readers until they read the book. The Gillam plane crash in early 1943, however, garnered national attention coming as it did during World War II and the Aleutian Islands Campaign. And the survivors' story just begs to be told. While it primarily concerns civilian aviation, it should prove heartening to any military aviator who has gone through a winter survival course. If these people survived such harsh conditions with little in the way of training and supplies, a prepared aviator facing similar conditions should do quite well. *Hearts* is also a story of amazingly strong and deep faith and the role such faith plays in surviving against greater odds than most folks will encounter in a lifetime.

Tippetts uses an unusual method to tell the survivors' story. He relates key events through the voice of his father, Joseph, one of four men to actually survive the horrific plane crash during one of Alaska's harshest winters in 100 years. To accomplish this feat, Tippetts turned to taped interviews, news accounts, other published sources, and his own recollections of the story from his father and mother. The reader learns of the extreme difficulties the pilot and passengers faced during a full month of sub-zero temperatures under difficult circumstances. Injured, without food or proper winter survival supplies, six people initially pulled together to stand against nature at her worst.

The Lockheed 10B Electra was owned by the Morrison-Knutson (M-K) Construction Company. The very experienced Harold—"Thrill 'em, Spill 'em, but No Kill 'em"—Gillam was the pilot that day. Passengers included Bob Gebo, M-K Alaska's general contractor; Susan Batzer, Civil Aeronautics Administration (CAA) stenographer; Sandy Cutting, M-K mechanic; Dewey Metzdorf, Anchorage hotel owner and superintendent of Alaska railroad stores, commissary and hotels; and Joseph Tippetts, CAA airways engineer. On January 5, 1943, despite a hastily repaired oil leak in one engine and the high possibility of icing during the flight, Gillam took off from Seattle bound for Annette Island, Alaska. He'd survived worse weather, but his confidence may have been their undoing. Before reaching safe haven at Annette Island, the plane's left engine quit and heavy icing forced them to crash.

The exact cause of the crash, pilot error or equipment failure, is for others to judge. Tippetts story tells of the well-documented aftermath. Batzer succumbed to her injuries two days after the crash despite the valiant efforts of Tippetts and Cutting, the least injured individuals. Not knowing their exact location and realizing they had neither the food nor the winter survival equipment to last for long, Gillam soon set out to find help. He didn't return and it wasn't until much later the others learned of his fate when his frozen body was found. The remaining four, two seriously injured, strove to survive. And that effort is the stuff of which great adventure stories are made.

Adding immeasurably to the story is Tippetts' wonderful collection of artwork, photographs, newspaper clippings, and the like. The illustrations and the text serve to give the reader not only an exciting account of an horrific challenge but a visual feel for the place, people, and peril in which the participants truly showed their hearts of courage. But it is far more than just a story of Alaskan survival. It is also a heart-tugging story of faith and, more importantly, the very real value of a strong faith in surviving such conditions. In short, I found *Hearts of Courage* a great read.

*CMSgt. Robert J. Davis, USAF (Ret), Member of the National Book Critics' Circle*



**Best of Breed: The Hawker Hunter FR10.** By Nigel Walpole. South Yorkshire: Pen and Sword Aviation, 2006. Photographs, Bibliography, Index. Pp. xiii, 215. \$34.00 ISBN: 1-84415-412-2

This book describes the training and operational life of the Hawker Siddeley Hunter FR10 in the British Royal Air Force. The Hunter has been described by aviation historians as Britain's most successful post-war jet aircraft and the best fighter-reconnaissance aircraft ever built. Initial design work on the intended replacement for the Gloster Meteor began in 1948. Nine years later, Hawker began conversion of the Hunter F6 into a reconnaissance fighter, the FR10, incorporating a tail parachute, UHF radio, voice recorder, and three nose cameras. Delivery of 43 FR10s began in September 1960.

Walpole has ably captured the aircraft and its role but also the "ethos and personalities" of the Cold War pilots who flew the aircraft both in Germany and the Middle East during the 1960s. His intent was to describe the work and play "within the FR fraternity of the 1960s" from their commitments to NATO to Aden and Bahrain. Walpole makes no excuses for his views on how armed reconnaissance could and should have "contributed to the land/air battle." His main goal was to dismiss misconceptions on the role of the FR10 both then and today; he more than skillfully achieves this.

Walpole asserts early that the FR10 was the "perfect platform for the dual roles of recon and attack" and was in fact the "best of the Hunter breed." During operational training of Hunter FR10 pilots, every aspect of its potential was addressed; from reaching and acquiring targets to assimilating target information to most effective use of the cameras. FR10 pilots often operated alone and at ranges outside radio contact. They had to be meticulous flight planners, conduct comprehensive target studies, and have visual acuity and a retentive memory for the visual reconnaissance mission. Walpole brings to the reader's attention the nearly impossible taskings given FR10s. However, the FR10 proved its capabilities during various NATO exercises and in combat duty in Gibraltar and Aden.

Competitions within military aviation have always been a fact of life. One of these was the strictly reconnaissance Royal Flush held annually between the 2d and 4th Allied Tactical Air Forces. For nine years, FR10s participated against Republic RF-84F Thunderjets, McDonnell RF-101 Voodoos, Lockheed RF-104 Starfighters, McDonnell Douglas RF-4C Phantom IIs, and occasional French Dassault Mirages. During the initial years, Royal Flush was held on one base. This provided a venue for participants to cross-feed operational techniques and experiences. Changes made in 1964, where squadrons flew a common pattern

from their home stations, reduced the effectiveness of the exercise considerably.

The jewel of *Best of Breed* comes in three of the later chapters which touch on FR10 combat operations: "Gibraltar Duty," "Action in Aden," and "Gulf Watchdogs." During the summer of 1967, Spain imposed a no-fly zone around Gibraltar. FR10 squadrons were required to keep a continuous presence of two aircraft in the colony to safeguard British airspace sovereignty along with harassment-free access to civilian and military aircraft. Four years prior to this, the British colony of Aden merged with members of the Federation of the Emirates of the South, forming the Federation of South Arabia. This federation was opposed by the people of Aden, and two rival national groups emerged. FR10's based out of RAF Khormaksar provided near-real-time information on activities throughout the area to infantry, Royal Marine, Parachute Regiment, and Special Air Service (SAS) units. In support of these units the FR10 proved their worth. Walpole points to particular missions where FR10 capabilities were well received. During one mission, an SAS patrol had been ambushed and surrounded with the FR10s coming in and carrying out continuous reconnaissance and repeated attacks until nightfall when the patrol was able to break free. Another mission involved FR10s assisting soldiers who were sent to assist the crew of an Army helicopter which had been shot down. Walpole acknowledges that during their stay in Aden, Hunter pilots were labeled as "terrible," "irresponsible," "hard living and hard drinking," but always blamed their behavior on the various "dangers they faced."

*Best of Breed* is an excellent history of the Hawker Hunter FR10 and its RAF service. Walpole does an exceptional job relating the various aspects of training an FR10 pilot went through at RAF Chivenor to their combat service in Aden and Gibraltar. Conversely, as he states in one of the final chapters, the history of the FR10 would not be complete if it were not for the ground troops who serviced and maintained the jets. Without their dedication and understanding of the mission, the FR10 would not have had such a storied history. Historians of aviation reconnaissance aircraft would be remiss not to have this volume on their shelves.

*R. Ray Ortensie, Staff Historian, Air Education & Training Command, Randolph AFB, Texas*



**Nexus: Strategic Communications and American Security in World War**

**I.** By Jonathan Reed Winkler. Cambridge, Ma.: Harvard University Press, 2008. Maps. Notes. Index. Pp. 347. \$55.00 ISBN: 978-0-674-02839-5

*Nexus* is an interesting and scholarly work dealing with strategic communications during World War I. That equated to underwater telegraph cables and radio, the latter being in an early, almost experimental, state. Great Britain had established a virtual monopoly in underwater cables in order to tie the British Isles to imperial possessions in Africa, India, and the Far East. All Dominions were in contact with London in nearly real-time. A cable message could go around the world in about an hour.

The UK had a thriving cable manufacturing industry; a fleet of cable ships to lay cables and haul them up for repairs; and a lock on the world supply of "gutta percha," a form of latex wrap harvested from trees in the Netherlands East Indies and Malaya. Gutta percha was the only effective insulating material to keep underwater cables watertight and functional. Germany and France also had invested in a cable infrastructure to connect them to their colonies.

On August 4, 1914, the day after World War I started, a British civilian cable ship sailed into the North Sea and pulled up and severed five German cables, cutting German capability to pass telegraphic traffic via cable and forcing her to rely on radio transmissions which were easily intercepted. This was a first attempt by the UK to control strategic communications. The British then instituted censorship controls on all traffic passed over cables under their control. They largely succeeded in establishing a communications blockade of Germany much like their physical blockade of shipping.

Winkler deals with the growing realization by authorities in the U.S. Navy and State Departments that they were dependent upon strategic communications controlled to a large extent by the UK. That realization grew slowly as British censorship interfered with U.S. national objectives. There were also complaints by American businesses that confidential commercial data were falling into the hands of rival British firms. Consequently, they were at a disadvantage in dealings in foreign commercial markets. As the U.S. government tried to deal with the problem, they discovered the difficulties in uniting all government entities and commercial enterprises in support of a common strategy.

The book is a bit tedious in places as Winkler delves into details. But the devil is in the details, and Winkler lays them out for the interested reader. It truly was a

game that the U.S. did not win by the time the war ended. However, we gained a realization of the importance of U.S.-controlled strategic communications in diplomatic, defense, financial, and commercial matters. That slowly led to growing national control of strategic communications.

One fascinating piece of research reveals successful German efforts to sever British and Allied underwater cables during the war. U-boats, operating submerged, were used to hook and sever cables. As a submarine officer for twenty-two years, who considers himself fairly knowledgeable about submarine history, I never knew about this.

Winkler's painstaking research also revealed the U.S. Army's consideration in 1918 of sending its increasing traffic to the American Expeditionary Force in France via cables—unencrypted in order to move information faster. They assumed cable traffic was totally secure. Fortunately the Army called on AT&T to validate that assumption before proceeding. Assisted by Western Electric and Western Union, AT&T proved that cable traffic could be copied with no indication whatsoever to the cable operators. The Army quickly discarded its "speed-up" effort. Those who have read *Blind Man's Bluff* about U.S. submarines tapping a Soviet communications cable in the Sea of Okhotsk in the 1970s will find this fascinating. Incidentally, underwater cables are not just historic relics. About 90 percent of current intercontinental internet traffic is carried by underwater cables. *Popular Science*, April 2009, has an article about the dependence of the internet upon undersea cables.

With its excellent maps showing worldwide and area coverage of the cable and radio networks of the major countries, this book is a fascinating read.

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



**Reflections on Air Force Independence.** By Herman S. Wolk. Washington, D.C.: Air Force History and Museums Program, 2007. Maps. Tables. Diagrams. Photographs. Notes. Appendices. Glossary. Bibliography. Index. Pp. ix, 125. www.gpo.gov

Virtually no historian has written as much about events leading up to Air Force independence, or about the years immediately following that independence, as Herman Wolk. Because of that, the publication of this newest work could be looked upon by many as the culmination of an

outstanding career.

A small book, *Reflections* nonetheless covers the period from the end of the First World War to the years immediately following Air Force independence, with an emphasis on the 1940s. This is Wolk's specialty, and he provides a fine general history of the events and individuals who contributed to independence.

Wolk does an excellent job of examining three events and/or individuals he feels were instrumental in achievement of Air Force independence. The first is contributions made by Generals Hap Arnold and George Marshall. Wolk illustrates how the close working relationship between the two led to gradually increasing autonomy for the Army's air arm. He also illustrates one point that might not be readily known to laymen; namely, that while Arnold pushed for independence, he was willing to put it off due to the exigencies of war and belief that the Army Air Forces lacked an experienced officer corps to provide proper administration of its programs.

Wolk's second point concerns the importance of Maj. Gen. Lauris Norstad. Wolk argues that Norstad—who is largely forgotten today, despite his leadership of NATO and a recent (2000) biography—was a key element in eventual independence and in mitigation of Navy reluctance towards that independence through his work with Vice Admiral Forrest Sherman.

Lastly, Wolk contends that the lineage of the Strategic Air Command was directly traceable to the Twentieth Air Force during the war. He argues that competing priorities of Admiral Nimitz and Generals Stillwell and MacArthur in the Pacific required an air command controlled by one officer, answering only to Washington. Hence, the beginnings of the specified command.

The first six chapters could be considered a general history of Air Force independence. However, in the epilogue Wolk unleashes his considerable knowledge of the subject to argue and illustrate more substantive points. First he examines a source of derision towards the Army's airmen from the end of World War I on, namely that they were overly idealistic and prone to make predictions of events or challenges that seemed unlikely when they were made. Mitchell's prediction of massed bomber formations that would cross oceans and Arnold's vision of unmanned aerial vehicles illustrated the airmen's perceived lack of maturity. Secondly, and more significantly, is Wolk's argument that Air Force independence is not yet complete. He notes that issues over roles and responsibilities were not resolved with the National Security Act of

1947 or even the Key West and Newport conferences. Even today they tend to cause problems between services.

Wolk has provided another excellent source on Air Force independence. While this is a relatively short volume, it contains excellent material, and its assumptions are spot on. Both the lay reader and professional historian can benefit from it.

*MSgt. Dennis Berger, USAF (Ret),  
Doctoral Candidate, Texas Tech University,  
Lubbock.*



**The Flying Circus: Pacific War 1943 as Seen Through a Bombsight.** By Jim Wright. Guilford, Ct.: The Lyons Press, 2005. Photographs. Pp. x, 214. \$22.95. ISBN 1-59228-656-9.

Although it might not have been intended to read this way, *The Flying Circus* is really two books in one, or perhaps one book with two loosely connected themes. Wright addresses his two themes sequentially. Most of the book is devoted to his personal recollections of his enlistment in the Army Air Forces immediately following the attack on Pearl Harbor, his assignment to the newly formed 380th Bomb Group (Heavy), his individual and unit training as the 380th prepared for combat, and the year he spent flying B-24 missions from bases in the Pacific.

In telling the story of his decision to enlist immediately after the attack on Pearl Harbor, Wright does an excellent job of simultaneously describing how the attack galvanized the country and instilled in most citizens the passionate desire to support the war effort and the willingness to make the sacrifices that would be needed to achieve victory. This is perhaps the most valuable part of the book, because Wright's narrative gives the reader insights into the national mood, a mood that those born after the war might otherwise find difficult to appreciate. By themselves, Wright's first few pages make the book worth reading.

Following its activation and initial training, the 380th deployed to the Pacific in April 1943. The story that Wright tells about the remainder of that year is both familiar and new. The familiarity stems from the fact that service in World War II bomber units, when viewed from the perspective of an individual airman or crew, was much the same regardless of where the operations took place. The newness comes from Wright's descriptions of air combat operations viewed from a much higher perspective, for the air war in the Pacific was far different from the sort of

operation that was conducted by Army Air Forces in Europe. There are countless stories of the European bombing missions that encompassed hundreds of bombers in massive strikes against strategic targets. By contrast, much of the 1943 air war in the Pacific was conducted on a far smaller scale, with missions sometimes involving fewer than twenty aircraft. For the reader whose knowledge of World War II bomber operations is focused primarily on operations in Europe, Wright's well-written narrative provides another part of the story.

In his final chapter Wright moves to his second theme, a discussion of what he calls the "bountiful legacy" of "good things, of gifts and dreams and broad attitudinal changes that our common victory over the Axis powers in World War II wrought upon our land and world, to the enrichment of us all." He talks about the hard-earned lessons that came out of the war, with two of the most important lessons being the a growth of confidence in individual and collective abilities and the sense of "inclusiveness" in American society that resulted from the tearing down of racial, ethnic, and gender boundaries. He offers the view that these lessons established the foundation for major accomplishments following the war, to include the GI Bill, the interstate highway system, the leap into the space age, and the dramatic advances in civil rights.

These post-war achievements are of course significant and represent a legitimate source of pride for the generation that was largely responsible for bringing them about. But Wright does not present a convincing argument that the lessons of World War II were the driving force behind the achievements. Perhaps the connection exists, but Wright's explanation does not convince us of the cause-and-effect relationship. The weakness of this argument is the book's only flaw.

Lastly, for those who find Jim Wright's name familiar but can't recall why, the author is the same Jim Wright who later went on to serve as a U. S. congressman for thirty-four years and as Speaker of the House of Representatives before charges of improper behavior forced him to resign. Wright does not address his congressional years in this book, and the omission is appropriate. This book is about the experiences of a young man fighting a war that took place more than sixty years ago, and his years as a politician cannot enhance that story.

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

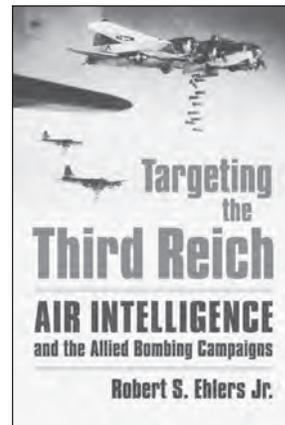


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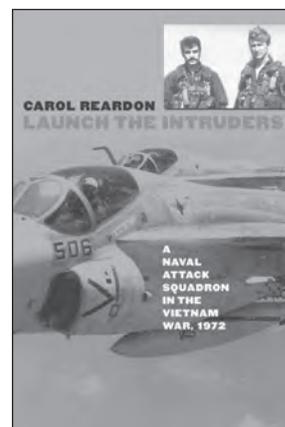
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# Books Received

Althoff, William F. *Forgotten Weapon: U.S. Navy Airships and the U-boat War*. Annapolis, Md.: Naval Institute Press, 2009. Notes. Illustrations. Photos. Notes, Bibliography. Index. Pp. xii, 417. \$49.95 ISBN: 978-1-59114-010-8

Buell, Thomas B. *The Quiet Warrior: A Biography of Raymond A. Spruance*. Annapolis, Md.: Naval Institute Press, 1987. [Originally published by Little, Brown, and Co., 1974.] Maps. Photographs. Bibliography. Index. Pp. xxxvi, 518. Paperback \$24.95 ISBN: 978-1-59114-085-6

Chertok, Boris. *Rockets and People Hot Days of the Cold War, Vol. III*. Washington, D.C.: NASA History Division [NASA SP-2009-4110]. Photographs. Notes. Glossary. Index. Pp. xxxiii, 796, \$49.95. ISBN: 978-1-59114-940-8

Dow, Andrew. *Pegasus: The Heart of the Harrier: The History and Development of the World's First Operational Vertical Take-off and Landing Jet Engine*. Barnsley, S. Yorkshire, UK: Pen & Sword Aviation, 2009. Illustrations. Photographs. Notes. Appendices. Bibliography. Index. Pp. 543. £35.00 ISBN: 978-2952-638159

Eisel, Braxton and Jim Schreiner. *Magnum! The Wild Weasels in Desert Storm*. Barnsley, S. Yorkshire, UK: Pen & Sword Aviation, 2009. Illustrations. Photographs. Appendices. Bibliography. Index. Pp. 274. £30.00 ISBN: 978-1844159079

French, Francis and Colin Burgess. *Into That Silent Sea: Trailblazers of the Space Era, 1961-1965*. Lincoln and London: University of Nebraska Press, 2007. Photographs. Glossary. Index. Pp. xxviii, 497. Paperback \$22.95. ISBN: 978-0-8032-2639-5

Fredrickson, John C. *The B 45 Tornado: An Operational History of the First American Jet Bomber*. Jefferson, N.C. and London: McFarland & Co., Publishers, 2009. Maps. Photographs. Notes. Appendix Bibliography. Index. Pp. 264. Paperback \$45.00 ISBN: 978-0-7864-4278-2

Gallentine, Jay. *Ambassadors from Earth: Pioneering Explorations with Unmanned Spacecraft*. Lincoln and London: University of Nebraska Press, 2009. Diagrams. Photographs. Bibliography. Index. Pp. xvii, 500. \$34.95 ISBN: 978-0-8032-2220-5

Gillespie, Ric. *The True Story of the Earhart Disappearance*. Annapolis, Md.: Naval Institute Press, 2009. Maps. Photographs. Notes. Index. Pp. xiv, 256. Paperback: \$12.00 ISBN: 978-1-59114-508-0

Haarr, Geirr H. *The German Invasion of Norway, April 1940*. Annapolis, Md.: Naval Institute

Press, 2006. Maps. Photographs. Appendices. Glossary. Index. Pp. 474. \$49.95. ISBN: 978-1-59114-310-9

Jacobson, Jack. *Introducing . . . The Sky Blazers: The Adventures of a Special Band of Troops That Entertained the Allied Forces During World War II*. Washington, D.C.: Potomac Books, 2009. Photographs. Pp. xii, 277. \$26.95 ISBN: 978-1-59797-285-7

Lavell, Kit. *Flying Black Ponies: The Navy's Close Air Support Squadron in Vietnam*. Annapolis, Md.: Naval Institute Press, 2009 [Originally published in 2000]. Photographs. Notes. Appendix. Bibliography. Index. Pp. xv, 328 Paperback \$21.95 ISBN: 978-159114-468-7

Maloney, Sean M. *Confronting the Chaos: A Rogue Military Historian Returns to Afghanistan*. Annapolis, Md.: Naval Institute Press, 2009. Photographs. Notes. Index. Pp. xvi, 256. \$34.95. ISBN: 978-1-59114-508-0

Moulin, Herve, Ed. *History of Rocketry and Astronautics* [AAS History Series, Vol. 31. *IAA History Symposia, 1967-2000, Abstracts and Index*]. San Diego, Calif.: American Aeronautical Society, 2009. Paperback plus CD-Rom ISBN: 978-0-877030552-7 [www.univelt.com]

Noles, James L. and James L. Noles, Jr. *Mighty By Sacrifice: The Destruction of an American Bomber Squadron, August 29, 1944*. Tuscaloosa: The University of Alabama Press, 2009. Maps. Photographs. Notes. Bibliography. Index. Pp. x, 277. \$34.95 ISBN: 978-0-8173-1654-9

Rickman, Sarah Bryn. *Nancy Batson Crews: Alabama's First Lady of Flight*. Tuscaloosa: The University of Alabama Press, 2009. Photographs. Notes. Bibliography. Index. Pp. xviii, 207 Paperback \$29.95 ISBN: 978-0-8173-5553-7

Rumerman, Judy A. *NASA Historical Data book, Volume VI*. Washington, D.C.: NASA History Division, 2009 [The NASA History Series, NASA SP-2009-4012] Tables. Diagrams. Illustrations. Photographs. Notes. Index. Pp. xxiii, 1040. \$ ISBN: 978-0-16-080-501-1

Werrell, Kenneth P. *Death from the Heavens: A History of Strategic Bombing*. Annapolis, Md.: Naval Institute Press, 2009. Photographs. Notes. Index. Pp. xv, 332, \$49.95. ISBN: 978-1-59114-940-8

Wood, Bob. *Dr. Space: The Life of Wernher von Braun*. Annapolis, Md.: Naval Institute Press, 2005. Photographs. Notes. Index. Pp. xv, 332, Paperback \$12.00. ISBN: 978-1-59114-940-8



# THE AIR FORCE HISTORICAL FOUNDATION

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October 10, 2009

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Dear Members of the Air Force Historical Foundation:

I am honored to inherit the presidency and board chairmanship from Lieutenant General Mike Nelson. He superbly led our Foundation for almost six years—moving our organization forward, accomplishing noteworthy milestones, and overcoming challenging obstacles. I thank General Nelson, both personally and on behalf of the Foundation, for his outstanding leadership, dedication, and long service to our Nation. We will continue to build on this legacy.

I know most of you are aware of the work we do to promote the preservation and appreciation of the history and heritage of our United States Air Force and its predecessors. We recently held our biennial symposium, *The Balkans Air Campaigns in the 1990s*, and annual awards ceremony—both to great acclaim.

We consider ourselves to be an active partner with our Air Force as we strive to make historical information about our service and its predecessors more readily available to the public, as well as members of our Air Force. However, we have many challenges as we strive to remain relevant and viable. In that regard, the Board is anxious to hear from our membership and readers regarding our performance and new ideas for the future. We pledge to follow up every input.

We appreciate your continued strong support of the Foundation as we seek to carry the torch borne for so long and so well by those who have gone before.

Sincerely,

Dale W. Meyerrose  
Major General, USAF (Retired)  
President and Chairman of the Board

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## October 8, 2009

The Air Force Historical Foundation's 2009 Symposium was a successful showcase of presentations, debates, and discussions by noted historians, authors and military personnel. All centered on the Balkans Air Campaigns of the 1990s and the residual effects of those conflicts.

The day-long event also featured powerful keynote addresses by leaders in the United States Air Force, and award presentations that recognized those who have made their mark on air power history.



(Left) Historian Chris Mayse (at podium) presents his paper on the U-2 in Operation NOBLE ANVIL/ALLIED FORCE during the Symposium's morning panel, which detailed the Balkans Air Campaigns from three distinct perspectives.



(Right) Joining Mayse on the panel were (from left to right) Dr. Daniel Haulman, of the Air Force Historical Research Agency, and Maj. William March, Royal Canadian Air Force, CD, MA, along with moderator Dick Anderegg.



The 2009 Symposium's afternoon luncheon was highlighted with an address by Dr. Alan Gropman of the Industrial College of the Armed Forces. (Left photo at podium.) During an informal and insightful speech, Gropman detailed the challenges faced by the Tuskegee Airmen and the successes they achieved in combat. Col. Charles McGee of the Tuskegee Airmen is above left. Morning Keynote Addressee Dr. Benjamin Lambeth, RAND Corp., is above right.

Maj. Gen. Dale Meyerrose, USAF (Ret.), President and Chairman of the Air Force Historical Foundation (second from right), presents the *Air Power History* Best Article Award for 2008.

Recipients Joseph Caver, Dr. Wesley Phillips Newton and Jerome Ennels (left to right) won for their article "Setting the Record Straight Regarding Lieutenants White and McCullin, Tuskegee Airmen," published in the Fall 2008 issue of *Air Power History*.



Photos by Christopher J. McCartin,  
www.chriscrossphotography.com



The second award presented during the Symposium's luncheon was for the Best Air Power History Book of 2008, given to Donald Caldwell and Dr. Richard Muller (left and right center, respectively) for *The Luftwaffe over Germany: Defense of the Reich*. John Kreis (at left) chaired the selection committee.

(Below left) Maj. Gen. Charles J. Dunlap, Jr. fields questions from the audience following his afternoon keynote address, which underscored the vital role of air power in the modern warfare challenges faced by the U.S. and allies today. And later (below right) General Dunlap discusses questions further with Lt. Col. Lawrence Spinetta.

Two key organizers of the symposium, Lt. Col. James A. Vertenten, USAF (Ret.), (below center) who served as chairman for the symposium, and Col. Tom Bradley, USAF (Ret.) (below right), Executive Director of the Air Force Historical Foundation.



The afternoon panel focused on the lessons learned from Balkans Air Campaigns and how they can be applied during future conflicts, featuring presenters from both the private and military sectors. Seated from left to right are panel members: Col. Michael W. Isherwood, USAF (Ret.), Lt. Col. Erik Rundquist, (USAF), Dr. Rebecca Grant from the RAND Corporation, and the Moderator, Dr. Tim Keck, AF/HO.



The headliner at the evening's banquet was Air Force Chief of Staff General Norton A. Schwartz, who delivered the keynote address.



Lt. Gen. Michael Nelson, the outgoing President and CEO of the Air Force Historical Foundation, presented a special award to his predecessor, Gen. W. Y. Smith, for his sustained support.



Jacob Neufeld presented a special award to Col. Scott A. Willey, the Book Review Edit for Air Power History for his outstanding performance in the position over the past six years.



Maj. Gen. Dale Meyerrose and Gen. Schwartz performed the honors in recognizing Herman S. Wolk as recipient of the Third Annual Dr. I.B. Holley Award for significant contributions to the research, interpretation, and documentation of Air Force history.



Gen. Thomas Stafford was recognized as the winner of the Third Annual Gen. Carl A. "Tooey" Spaatz Award for significant contributions to the making of Air Force history during a lifetime of service.

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# SOLICITATION OF NOMINATIONS FOR FOUNDATION AWARDS

AIR FORCE  
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CONTRIBUTING MEMBERS 2009  
(As of October 15, 2009)

The Air Force Historical Foundation solicits nominations for two prestigious awards to be presented in 2010. The awards are the fourth annual General Carl "Tooe" Spaatz Award and the fourth annual Major General I. B. Holley Award.

The Spaatz Award was created in 2007 to recognize a living person(s) who has made a sustained, significant contribution to the *making of Air Force history* during a lifetime of service. The first three recipients are General David C. Jones, Maj Gen John R. Alison, and Lt Gen Thomas P. Stafford.

The Holley Award was created in 2007 to recognize a living person(s) who has made a sustained, significant contribution to the *research, interpretation, and documentation of Air Force history* during a lifetime of service. The first three recipients are Maj Gen I. B. Holley, Brig Gen Alfred F. Hurley, and Mr Herman S. Wolk.

Any current Air Force Historical Foundation member may nominate a person(s) for these awards. Nominations will be accepted by the Foundation Executive Director any time through April 30, 2010. The nomination should be brief (not more than one page) and highlight significant contributions of the person(s) nominated. After the selection process is completed, the nominating member may be asked to provide the winner's biography which will be incorporated into the citation to accompany the award.

The nomination may be made by mail at the Foundation's regular mailing address (AFHF, P O Box 790, Clinton MD 20735-0790), by email to [execdir@afhistoricalfoundation.org](mailto:execdir@afhistoricalfoundation.org), or in person at the Foundation's office, Room C-102, Building 1535, Andrews AFB, Maryland. Members may call (301) 736-1959 for further information or assistance.

The Foundation President, with the advice of the Board of Directors, will select the ultimate recipients of the awards, which will be presented during an awards banquet in the Fall 2010.

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## 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.

If an article is typed on a computer, the disk should be in IBM-PC compatible format and should accompany the manuscript. Preferred disk size is a 3 1/2-inch floppy, but any disk size can be utilized. Disks should be labelled with the name of the author, title of the article, and the software used. Most Word processors can be accommodated including WordPerfect and Microsoft Word. As a last resort, an ASCII text file can be 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: [jneufeld@comcast.net](mailto:jneufeld@comcast.net).

## Letters

## Dorr Replies

In his letter, published in the Fall 2009 issue of *Air Power History*, Norman Polmar gives inaccurate totals for numbers of World War II fighters built. The numbers should be 12,571 Corsairs, 15,486 Mustangs, and 15,683 Thunderbolts. The Corsair remained in production until 1953, and was the last piston-engine fighter manufactured in the world with the exception of the Yugoslav S-49 derivative of the Soviet Yakovlev Yak-9. Norman is also inaccurate in writing that only one P-47 fighter group was in service at the end of World War II. There were about a dozen.

Robert F. Dorr, Oakton, Virginia

## Lucky Lindy?

"I find the omission by Stanley Shapiro ["The Celebrity of Charles Lindbergh," *Air Power History*, Vol. 56, No.1, Spring 2009] of a specific and precise reference, in the text or notes, to the source of his opening assertion: "After 1957. . . Charles Lindbergh led a secret life crammed with three extramarital affairs and seven unacknowledged children," a serious oversight, if not a flaw. Shapiro takes off with his assertion (psycho-social) of Lindbergh's personality and celebrity, without providing any of the facts—even the source reference—to back up or support his allegation."

Name withheld, Pasadena, California

## Prof. Shapiro Responds

I would not have made the assertion, if it were not now broadly accepted fact among Lindbergh scholars, which is why I did not document it. For such documentation, see Mark Landler, *N.Y. Times*, August 2, 2003, and subsequent issues, concluding with DNA confirmation on November 29, 2003. Also see [www.dw-world.de](http://www.dw-world.de) (June 20, 2005). For Lindbergh's own documentation, consult Rudolf Schrock, *Das Doppelleben des Charles A. Lindbergh (The Double Life of Charles A. Lindbergh)*, Heyne Verlag, 2005. A popular summary is available in Gail Saltz, *Anatomy of a Secret Life*, N.Y., 2006, pp. 65-69, which goes much further than I do in putting Lindbergh on the couch.

Prof. Stanley Shapiro

## Stuart I. Rochester, 1945–2009

Dr. Stuart I. Rochester, sixty-three, Historian of the Office of the Secretary of Defense, died on July 29, 2009, after a long and courageous battle with cancer.

He graduated *magna cum laude* from Loyola College (Baltimore) in 1966; attended the University of Virginia, earning a master's degree (1966) and Ph.D. (1973) in history; and served as a Ford Foundation Scholar, Du Pont Fellow, and National Endowment for the Humanities Fellow. Dr. Rochester taught at Loyola College, from 1970 to 1980. At Loyola, he published two books, *Takeoff at Mid-Century: Federal Civil Aviation Policy in the Eisenhower Years* (1976) and *American Liberal Disillusionment in the Wake of World War I* (1977), which won a Phi Alpha Theta Manuscript Award.

In 1980, Dr. Rochester accepted a position as a staff historian with the Historical Office of the Office of the Secretary of Defense, where he worked for nearly thirty years, becoming Deputy OSD Historian in 1987 and OSD Historian in 2008. He made critical contributions to nearly every book and study the OSD Historical Office completed between 1980 and 2009. He served as principal editor for the *OSD History Series* and *DoD Special Studies Series*, and chief editor of the *Public Statements of the Secretary of Defense*.

Dr. Rochester co-authored the definitive history of the U.S. POW experience during the Vietnam War, *Honor Bound: The History of American Prisoners of War in Southeast Asia, 1961-1971*. Vice Admiral James Stockdale called *Honor Bound* "a monumental achievement, not only for its depth and breadth of treatment but in its honesty and accuracy." Eugene Rostow described the book as a "masterpiece," and Jack Shuttleworth in *War, Literature, and the Arts* characterized it as a model of "balanced scholarship and meticulous research." DoD officials consulted the book in awarding the Medal of Honor to Army Capt. Humbert "Rocky" Versace and in deciding in 2004, to place the name of deceased POW Air Force Lt. Edward (Alan) Brudno on the Vietnam Veterans Memorial. *Honor Bound* continues to provide critical historical context and perspective for Defense officials in matters relating to the Geneva Conventions, POW survival and resistance training, and Code of Conduct behavior.

By Glen R. Asner, ODAM

## Air Power History Best Book Award for the Year 2008

A three-member panel of judges chose as Best Air Power History Book for 2008 **Donald Caldwell's and Richard Muller's *The Luftwaffe Over Germany***. The award is given annually after carefully considering and rating all of the books 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. Both of the authors are accomplished air power historians, and both of them have extensive experience in assessing the performance of the German Air Force during World War II. This year's competition was especially demanding, as several of the books nominated could have won, and all of them presented unique aspects of air power operations.

*The Luftwaffe Over Germany* describes how the German Air Force developed its capabilities through the course of World War II in the longest air defense battle ever fought. The *Luftwaffe* command charged with defending the German homeland included not only the air defense fighter arm, but also the network of ground based anti-aircraft guns as well as the radar warning sites and the command network. This combination had to protect German industries, Germany's cities and their populations, and military installations from attacks by the bombers of the Royal Air Force and the United States Army Air Forces, and it nearly defeated the Americans in the late summer and fall of 1943.

The judges included Douglas Wright of San Jose, California, and Alfred Hurley and Lawrence Spinetta of the Air Force Historical Foundation. These three had a particularly difficult job, as several of the books considered scored highly. The runner-up in the judging was Steve Calls' *Danger Close*, a story of the Air Force's tactical air controllers in Afghanistan and Iraq. The importance of *Danger Close* is that it describes how the Air Force developed a way to deliver close air support, bringing air attacks on an enemy unit that is in direct combat with U.S. or allied ground forces. How to do this, and the Air Force's responsibility has been a matter of bitter contention between the Army and the Air Force since before World War II. Equally significant is another book, *Phantom Reflections*; written by Mike McCarthy. This book describes the assessment of warfare and one pilot's place in it

during a year flying F-4s from Thailand during the war in Southeast Asia. Colonel McCarthy poignantly tells of his developing sense of himself and of his struggle to understand the war during the time that he flew combat missions over North Vietnam.

In another category of books, this year we had several that centered on specific personal reminiscences, and two of these, by George Watt and Gene Wink, tell of escaping from German forces after being shot down over Belgium. Both of these authors, as young pilots, met several Belgian civilians shortly after landing. The Belgians—at extreme risk—protected the pilots from capture and then helped them to cross France and the Pyrenees mountains into Spain, from where they could be returned to American control and come back to the United States.

I should like to offer my gratitude 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 writing, contemplating their projects, and revising the texts.

The remainder of the books nominated for this award appears on the next page, and the judges and I recommend them, as well as those mentioned above to anyone who has an interest in air power and the Air Force:

Jack Stokes Ballard, *War Bird Ace: The Great War Exploits of Captain Field Kindley*

Louis S. Rehr, with Carleton R. Rehr, *Marauder; Memoir of a B-26 Pilot in Europe in World War II*

Thomas E. Alexander, *Rattlesnake Bomber Base, Pyote Army Airfield in World War II*

Darrel D. Whitcomb, *Combat Search and Rescue in Desert Storm*

John Gargus, *The Son Tay Raid, American POWs in Vietnam Were Not Forgotten*

George Watt, *Escape From Hitler's Europe, An American Airman Behind Enemy Lines*

Gene Wink, *Born to Fly*

William P. Head, *Shadow and Stinger; Developing the AC-119G/K Gunships in the Vietnam War*

Michael Robert Terry, Editor, *Winged*



Thomas S. Momiya stands beside a model of the Japanese MXY7 Ohka bomb. Mr. Momiya authored the article, "Racing against Invasion: Engineering a Kamikaze 'Cruise Missile,'" that appeared in the Vol. 56, No. 2 [summer issue] of *Air Power History*. (NASM Photo.)

### *Crusade, The Quest for American Air and Space Power*

By John F. Kreis, Chairman, Publications Awards Committee

### **Museum Launches Virtual Tour**

The National Museum of the U.S. Air Force has launched a free museum tour podcast on their Web site at: [www.nationalmuseum.af.mil](http://www.nationalmuseum.af.mil).

The podcast acts as a virtual tour when visitors are exploring the application on a computer. A map of the museum galleries, called a pod map, shows the arrangement of aircraft with "hotspots" on which more information such as the audio podcast, images or additional links can be accessed.

Once the visitor has explored the pod map, options include creating a personal playlist of various audio segments, downloading the playlist to a computer or subscribing to the podcast via iTunes. Once visitors subscribe to the podcast, they are encouraged to download it to an MP3 player and bring it to the museum during their next visit. Each podcast is numbered and signs are posted throughout the galleries to alert visitors where the next podcast begins.

"This is a really exciting way to use new technology," said Sarah Olaciregui, the podcast administrator. "Visitors can bring in their own device they are comfortable with using and listen only to those segments that interest them, all while getting more out of their museum experience." Olaciregui also says the idea

is to further merge the experiences of the online and onsite visitor.

"Our research indicates that most people visit the museum's Web site to either plan their next visit or for enjoyment. We think the museum tour podcast will enrich the experiences for those particular online visitors and help them move easily throughout the galleries once they arrive at the museum," she said. According to Olaciregui, many people may not have the opportunity to visit the museum or visit as often as they would like. She says the museum tour podcast will allow them to experience the museum no matter their location or help them keep up with always new and changing exhibits.

Tour segments for the Early Years Gallery and Air Power Gallery are now available to the public. Plans call for the Cold War Gallery portion to be complete in late fall with the rest of the galleries coming online throughout 2010. In the coming months, visitors will be able to click on a hotspot on the map and see a 360 degree view of that area. Visit [www.nationalmuseum.af.mil/podcasts/index.asp](http://www.nationalmuseum.af.mil/podcasts/index.asp) to explore the museum tour podcast.

The National Museum of the United States Air Force is located on Springfield Street, six miles northeast of downtown Dayton. It is open seven days a week from 9 a.m. to 5 p.m. (closed Thanksgiving, Christmas and New Year's Day). Admission and parking are free.

For more information, please contact the National Museum of the U.S. Air Force at (937) 255-3286.

## Lt. Gen. William O. Senter 1910-2009

William Oscar Senter died on April 19, 2009. Born in Stamford, Texas, in 1910, he moved with his family to Abilene, Texas, where he graduated from high school in 1928. After attending Hardin-Simmons University for a year, he entered the U.S. Military Academy, graduating in June 1933, and was commissioned a second lieutenant in the Coast Artillery Corps.

In September 1933, Lieutenant Senter attended flying school, receiving his pilot's rating a year later and transferring to the Air Corps. Upon graduation, his first station was Langley Field, Virginia, where he served with a bombardment squadron. In 1937, he entered Massachusetts Institute of Technology and completed a course in meteorology. In June 1938, he served as a weather officer at Maxwell Field, Alabama.

In June 1942, Lieutenant Colonel Senter was assigned to Army Air Force Headquarters, as chief of operations in the Directorate of Weather and later an executive officer in November 1942. In April 1943, he assumed command of the AAF Weather Wing in Asheville, N.C. In March 1945, he was assigned as staff weather officer for the Far East Air Forces on Luzon, Philippine Islands. The following September he assumed command of the 43d Weather Wing on Luzon and in July 1946 moved with the wing to Tokyo, Japan, where he commanded it for two years.

Colonel Senter entered the Air War College at Maxwell Field in July 1948. Upon graduation a year later he was appointed deputy chief of the Air Weather Service at Andrews AFB, Md. He became chief of the Air Weather Service in August 1950, as a brigadier general and was promoted to major general during his tour as chief.

He was named commander of the Oklahoma City Air Material Area in May 1953, moving in August 1957 to Headquarters Air Material Command as director of Procurement and Production. He was assigned assistant deputy chief of staff, material (July 1961 designated systems and logistics) Headquarters U.S. Air Force in August 1959. General Senter assisted the deputy chief of staff, systems and logistics, in the administration and direction of the procurement, production, maintenance, supply and transportation programs of the Air Force.

He was promoted to lieutenant general and assigned as director, petroleum logistics policy, Office of the Assistant Secretary of Defense (Installations and Logistics), in August 1963. He retired in June 1966.

A rated command pilot and technical observer, General Senter was awarded the Legion of Merit with oak leaf cluster.

## Thank You, Reviewers

*Once every year, it's been my custom to acknowledge the help of several individuals, without whose assistance I could not possibly produce this journal. They are: Brig. Gen. Alfred A. Hurley, USAF (Ret.), publisher; Dr. Richard I. Wolf, layout, typesetting, and chief collaborator; Col. Scott A. Willey, USAF (Ret.), book review editor; David Chenoweth, photo and illustrations resource; Robert F. Dorr, writer/editor of the "History Mystery"; Col. Tom Bradley, USAF (Ret.), circulation and advertising; and Angela Bear, office manager and administrator extraordinaire. Eileen De Vito and her spouse, Richard, are our last line of defense—extraordinary proof-readers. In addition to these "regulars," I also send out manuscripts to several highly respected and knowledgeable peer reviewers. These individuals critique submissions and make recommendations regarding publishability. Thank you, thank you.*

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*Our book reviewers are also a talented and expert band of individuals who love to read the latest air and space history literature. Several are authors themselves and, hence, know the historiography of their subjects. They provide guidance on the strength or weakness of new books and back up their estimations. Thank you, thank you.*

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## Lieutenant General Alvan C. Gillem II 1917-2009



Lt. Gen. Alvan C. Gillem II, was the son of Army Lt. Gen. Alvan C. Gillem, Jr., commander of the Third U.S. Army from 1947-1950.

Born in Nogales, Arizona, in 1917, General Gillem II enlisted in the Army in 1935, and received a congressional appointment to the U.S. Military Academy the following year. On his graduation in 1940, he entered pilot training and won his wings in March 1941. For two years, during which he rose to major, he served as a flying instructor in Texas.

In April 1943, he went overseas as a staff officer at headquarters of the Mediterranean Allied Air Forces in North Africa, transferring later that year to the 31st Fighter Group. Flying the British Spitfire and the American P-51 Mustang, he was credited with destroying three enemy planes in aerial combat.

Promoted to lieutenant colonel in May 1944, he returned to the United States a month later to serve in the Plans Division at Headquarters Army Air Forces in Washington, D.C. In March 1946, he was a member of the original cadre to set up the Strategic Air Command,

with headquarters at Andrews AFB, Maryland. After graduating from Air Command and Staff School in 1948, he was assigned to the Central Intelligence Agency in Washington, D.C. In July 1950, he was promoted to colonel and assigned to Turner AFB, Georgia, as deputy commander of the 31st Fighter Wing with which he had served in Italy. In March 1951, he was named commander of the 108th Fighter Bomber Wing there.

In December 1951, General Gillem went to England as Commander, Royal Air Force Station Upper Heyford, a part of SAC's 7th Air Division. He came home to attend the Air War College in 1953, and remained at Maxwell AFB, Alabama, until July 1957. Then he returned to SAC as commander of the 380th Bombardment Wing at Plattsburgh AFB, N.Y.

Promoted to brigadier general in May 1961, he moved up to command SAC's 820th Air Division at Plattsburgh AFB, and in September 1961, was assigned to Westover AFB, Massachusetts, as commander of the 57th Air Division. In July 1963, he became commander of the 823d Air Division at Homestead AFB, Florida, where a month later he was promoted to major general.

Transferred to SAC headquarters at Offutt AFB, Nebraska, in May 1964, as deputy director of operations, General Gillem was named director of operations (later redesignated as deputy chief of staff, operations) in July 1965.

In June 1968, upon promotion to lieutenant general, he took over the 3d Air Division at Andersen AFB, Guam, where for the following two years he commanded SAC's B-52 and KC-135 forces operating in the Western Pacific and Southeast Asia. In April 1970, the 3d Air Division was redesignated the Eighth Air Force, which he commanded until August 1970. He then became commander of the Air University.

Rated a command pilot, his military decorations include the Distinguished Service Medal with oak leaf cluster, Legion of Merit, Distinguished Flying Cross with oak leaf cluster and the Air Medal with fifteen oak leaf clusters.



Our Fall 2009 mystery aircraft was the Navy's F2H-2N Banshee, the night-fighter version of the McDonnell fighter of the 1950s. Everyone who identified the aircraft with the generic term F2H was credited with a correct answer.

The Banshee or "Banjo" completed its maiden flight at St. Louis, Mo., on January 11, 1947, piloted by Robert M. Edholm and powered by two Westinghouse J34-WE-30 turbojets. It entered service in 1949, the year the Soviet Union exploded its first atomic bomb.

After the Banshee's introduction to service at Cecil Field and at Atlantic City, N.J., on August 9, 1949 over Walterboro, S.C., Lt. J. L. "Pappy" Fruin became the first flyer in the United States to make an emergency ejection to escape a stricken airplane, leaving an F2H-1 successfully at over 600 miles per hour.

The F2H-1 model (56 built) was followed by the F2H-2 (306 built), and by the F2H-2B modified to carry atomic bombs (27 modified), F2H-2N

night fighters (14) and F2H-2P photoreconnaissance planes (89). Banshees flew in combat in Korea and appeared in James Michener's novel "The Bridges at Toko-ri," although F9F Panthers stood in for them in the 1955 movie starring William Holden and Grace Kelly.

In 1950, the Navy ordered the F2H-3 (250 built), first flown in March 1952, with a fuselage lengthened by eight feet and fuel capacity increased 50 per cent. The Royal Canadian Navy operated two squadrons of F2H-3s. The similar F2H-4 (250 built), with improved engines and radar, was first delivered in 1953.

The Banshee was retired in 1961.

Thirty-one readers identified the Banshee. Our random "History Mystery" winner is Tom Kyriakakis of Annandale, Va. He'll receive as his prize a copy of the book *Hell Hawks*, a history of a P-47 Thunderbolt fighter group in combat. The book is also available from [robert.f.dorr@cox.net](mailto:robert.f.dorr@cox.net).

## This Issue's Mystery Plane

Can you identify this issue's "mystery" aircraft? Remember the "History Mystery" rules:

1. Submit your entry on a postcard. Mail the postcard to Robert F. Dorr, 3411 Valewood Drive, Oakton VA 22124. Entries may also be submitted via e-mail to [robert.f.dorr@cox.net](mailto:robert.f.dorr@cox.net).

2. Name the aircraft shown here. Include your address and telephone number. Entries not accompanied by both an address and a phone number will be disqualified.

3. A winner will be chosen at random from among correct entries and will receive an aviation book.

And do you have a rare photo of a little-known aircraft? We'll return any photos sent by readers for use on this page.





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