



AIR & SPACE POWER *History*

SPECIAL ISSUE 2022 - Volume 69, Number 5
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Special Book Review Issue

Air Force Historical Foundation Annual Awards

June 1, 2023

The Doolittle Awards Presentation will be held at the Air Force Memorial, Arlington, Virginia at 3:00 PM. The event is open to the public, and there is no charge to attend the ceremony. Following this the Foundation's Annual Awards Banquet will be held at the Army Navy Country Club, Arlington Virginia. There will be a Cocktail Hour at 5 PM, and the Dinner/Banquet will foillow at 6 PM The Annual Awards Banquet is open to the public and the ticket information will be available soon. Attire for the evening is service dress/business formal. Check for details at afhistory.org.



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

This year's General Carl A. "Tooe" Spaatz Award will go to General Gregory S. "Speedy" Martin (USAF, Ret.)

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

This year's General James H. "Jimmy" Doolittle Award will go to the 480 Intelligence, Surveillance, and Reconnaissance Wing at Langley AFB.



Reserve the dates, September 15-19, 2023

The Air Force Historical Foundation Annual Symposium and Air and Space Museum Conference will take place in Denver, Colorado, in conjunction with the Wings Over the Rockies Museum. Look for details to be forthcoming at afhistory.org.

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Book Review Special Issue

Over the last couple of years, this editor found that the book reviewers were well ahead of the magazine's ability to print. As a result, the volume of unpublished book reviews grew every issue. We tried to cut back on the backlog by adding an extra group of reviews at the back of the electronic issues. But that still left a sizable number unpublished. So, this special issue is the result. The magazine feels obligated to publish the reviews that it has commissioned, in keeping faith with its reviewers. The following issue fulfills that obligation, we believe, so please take the time to scroll through the issue and enjoy the efforts of the reviewers. This will be the last issue under this name, as the magazine enters a new era, as the *Journal of the Air Force Historical Foundation*. The printed publication schedule will change as well as the name. There will be a single printed issue each year, the Summer (June) issue, which will be twice the size of the normal issue, and contain a great deal of material on the year's theme. The first theme for 2023 will be 50 years after the end of the war in Vietnam.

Richard Wolf, Editor
Air and Space Power History

<i>Darwin's Air War: 1942-1945</i> By Bob Alford	Review by Gary Connor	5
<i>Super Snoopers: The Evolution & Service Career of the Specialist Boeing C-135 Series with the 55th...</i> By Bob Archer	Review by Golda Eldridge	5
<i>Kargil 1999: South Asia's First Post-Nuclear Conflict</i> By Sanjay Badri-Maharaj	Review by Scott A. Willey	6
<i>DH9: From Ruin to Restoration</i> By Guy Black	Review by Steven Agoratus	6
<i>Airmen of Arnhem: The Heavy Lift Crews of Operation Market</i> By Martin W. Bowman	Review by Steven D. Ellis	7
<i>Images of War: The Vought F4U Corsair, Rare Photographs from Wartime Archives</i> By Martin W. Bowman	Review by Joseph D. Yount	8
<i>The Men Who Flew the Halifax</i> By Martin W. Bowman	Review by Golda Eldridge	8
<i>Pacific Adversaries, Volume 2: Imperial Japanese Navy vs the Allies, New Guinea and the Solomons, 42-44</i> By Michael Claringbould	Review by Frank Willingham	9
<i>Pacific Adversaries, Volume 3: Imperial Japanese Navy vs the Allies, New Guinea and the Solomons, 42-44</i> By Michael Claringbould	Review by Frank Willingham	9
<i>I Will Run Wild: The Pacific War from Pearl Harbor to Midway</i> By Thomas McKelvey Cleaver	Review by Steven D. Ellis	10
<i>The First Fighter Pilot: Roland Garros: The Life and Times of the Playboy Who Invented Air Combat</i> By Ed Cobleigh	Review by Gary Connor	11
<i>Modern USMC Air Power Aircraft and Units of the Flying 'Leathernecks'</i> By Joe Copalman	Review by Joseph D. Yount	11
<i>Gloster Gladiator: Mk I and II (And Sea Gladiator)</i> By Adam Cotton & Marek, Rys	Review by Gary Connor	12
<i>A-4 Skyhawk vs North Vietnamese AAA: North Vietnam 1964-72</i> By Peter E. Davies	Review by Steven D. Ellis	12
<i>Ho Chi Minh Trail 1964-73: Steel Tiger, Barrel Roll, and the Secret Air Wars in Vietnam and Laos</i> By Peter E. Davies	Review by Joseph D. Yount	13
<i>Powering the World's Airlines: Engine Developments from the Propeller to the Jet Age</i> By Reiner Decher	Review by Edward M. Young	14
<i>Silver Birds over the Estuary: The MiG-21 in Yugoslav and Serbian Air Force Service, 1962-2019</i> By Bojan Dimitrijevic & Milan Micevski	Review by Steven D. Ellis	14
<i>The Stringbags</i> By Garth Ennis, P.J. Holden, Kelly Fitzpatrick & Rob Steen	Review by Steven D. Ellis	15
<i>Hawkeye: The Enthralling Autobiography of the Top-Scoring Israeli Air Force Ace of Aces</i> By Giora Even-Epstein, Ilan Kfir, & Danny Dor	Review by Steven D. Ellis	15
<i>Fighting in the Sky: The Story in Art</i> By John Fairley	Review by Kathy Wilson	16
<i>Thunderbolts Over Burma: A Pilot's War Against the Japanese in 1945 & the Battle of the Sittang Bend</i> By Angus Findon with Mark Hillier	Review by Edward M. Young	16
<i>Bomber Squadron: Men Who Flew with XV Squadron</i> By Martyn R. Ford-Jones	Review by Golda Eldridge	17
<i>Arado Ar234 Bomber and Reconnaissance Units</i> By Robert Forsythe & Nick Beale	Review by Gary Connor	18
<i>Black September 1918: WWI's Darkest Month in the Air</i> By Norman Franks, Russell Guest & Frank Bailey	Review by Steven D. Ellis	18
<i>North American Aviation in the Jet Age: The California Years, 1945-1997</i> By John Fredrickson	Review by Joseph Romito	19
<i>Poles in Defence of Britain: A Day-by-Day Chronology of Polish Day and Night Fighter Pilot Operations...</i> By Robert Gretzyngier	Review by Steven D. Ellis	19
<i>Airwar over the Atlantic</i> By Manfred Griehl	Review by Gary Connor	20
<i>Air War on the Eastern Front</i> By Mike Guardia	Review by Scott A. Willey	20
<i>Cross Channel Aviation Pioneers: Blanchard and Bleriot, Vikings and Viscounts</i> By Bruce Hales-Dutton	Review by Golda Eldridge	21
<i>Sharks of the Air: Willy Messerschmitt and the Development of History's First Operational Jet Fighter</i> By James Neal Harvey	Review by P. E. Simmons	21
<i>Operation Chastise: The RAF's Most Brilliant Attack of World War II</i> By Max Hastings	Review by Steven Agoratus	22
<i>The British Carrier Strike Fleet After 1945</i> By David Hobbs	Review by Golda Eldridge	23
<i>Britain's Glorious Aircraft Industry: 100 Years of Success, Setback & Change</i> By J. Paul Hodgson	Review by Gary Connor	24
<i>The Phantom Viet Nam War: An F-4 Pilot's Combat Over Laos</i> By David R. "Buff" Honodel	Review by P. E. Simmons	24
<i>Phoenix 13: Americal Division Artillery Air Section Helicopters in Vietnam</i> By Darryl James	Review by Joseph D. Yount	25
<i>The Royal Navy Wasp: An Operational and Retirement History</i> By Larry Jeram-Croft & Terry Martin	Review by Timothy J. Hosek	25
<i>Through Adversity: Britain and the Commonwealth's War in the Air 1939-1945: Volume 1</i> By Ben Kite	Review by Edward M. Young	26
<i>Heavy Date Over Germany: The Life and Times of B-17 Tail Gunner Ray Perry</i> By Jewelle Jordan Kuenstler	Review by Golda Eldridge	27
<i>No Parachute: A Classic Account of War in the Air in WWI in Letters Written in 1917 by A.S.G. Lee,...</i> By Arthur Gould Lee	Review by Daniel J. Simonsen	27

<i>World War II Infographics</i>			
By Jean Lopez, Nicolas Aubin, Vincent Bernard, et al	Review by Steven Agoratus		28
<i>Combat at Close Quarters: An Illustrated History of the U.S. Navy in the Viet Nam War</i>			
By Edward J. Marolda, Ed.	Review by Scott R. Marquiss		29
<i>U.S. Naval Aviation 1898-1945: The Pioneering Years to the Second World War</i>			
By Leo Marriott	Review by Jon Barrett		29
<i>Essex Class Aircraft Carriers, 1943-1991: Rare Photographs from Naval Archives</i>			
By Leo Marriott	Review by Joseph D. Yount		30
<i>Rear Admiral Herbert V. Wiley: A Career in Airships and Battleships</i>			
By M. Ernest Marshall	Review by Scott A. Willey		31
<i>Wings for the Rising Sun: A Transnational History of Japanese Aviation</i>			
By Jurgen P. Melzer	Review by Gary Connor		31
<i>In Good Faith: A History of the Vietnam War Volume 1: 1945-65</i>			
<i>No Wider War: A History of the Vietnam War Volume 2: 1965-75</i>	&		
By Sergio Miller	Review by John Cirafici		32
<i>Air War Over North Africa: USAAF Ascendant</i>			
By David Mitchellhill-Green	Review by Gary Connor		33
<i>How the War was Won: Air Sea Power and Allied Victory in World War II</i>			
By Philips Payson O'Brien	Review by Steven D. Ellis		33
<i>Allies in Airpower: A History of Multinational Air Operations</i>			
By Steven Paget, ed.	Review by Henry Zeybel		34
<i>Last Mission to Tokyo: The Extraordinary Story of the Doolittle Raiders and Their Final Fight for Justice</i>			
By Michel Paradis	Review by Gary Connor		35
<i>Astonishing Stories: Tell Pilots: Marines, Navy, Air Force, CIA, Airlines, Civilian</i>			
By Robert N. Pripps	Review by Steven D. Ellis		35
<i>The Kassel Raid</i>			
By Eric Ratcliffe	Review by Gary Connor		36
<i>Foreign Planes in the Service of the Luftwaffe</i>			
By Jean-Louis Roba	Review by Gary Connor		36
<i>Black Tulip: The Life and Myth of Erich Hartmann, the World's Top Fighter Ace</i>			
By Erik Schmidt	Review by Gary Connor		37
<i>Twenty Days in the Reich: Three Downed RAF Aircrew in Germany During 1945</i>			
By Squire Scott	Review by Frank Willingham		38
<i>Heinkel He 162</i>			
By Dan Sharp	Review by Scott A. Willey		38
<i>Air Defence Artillery in Combat, 1972 to the Present: The Age of Surface-to-Air Missiles</i>			
By Mandeep Singh	Review by Joseph Romito		39
<i>The Dauntless in Battle: The Douglas SBD Dauntless Dive-Bomber in the Pacific 1941-1945</i>			
By Peter C. Smith	Review by Joseph Romito		39
<i>Stuka Spearhead: The Lightning War from Poland to Dunkirk, 1939-1940</i>	&		
<i>Stukas over the Steppe: The Blitzkrieg in the East, 1941-1945</i>			
By Peter C. Smith	Review by Henry Zeybel		40
<i>Shot Down: The True Story of Pilot Howard Snyder and the Crew of the B-17 Susan Ruth</i>			
By Steve Snyder	Review by Scott Marquiss		41
<i>Minuteman: A Technical History of the Missile That Defined American Nuclear Warfare</i>			
By David K. Stumpf	Review by Richard W. McKinney		41
<i>Headhunter: 5-73 CAV and Their Fight for Iraq's Diyala River Valley</i>			
By Peter C. Svoboda	Review by Henry Zeybel		42
<i>Air Wars Between Ecuador and Peru: Volume 1: The July 1941 War</i>	&		
<i>Volume 2: Falso Paquisha! Aerial Operations over the Condor Mountain Range, 1981</i>			
By Amaru Tincopa	Review by Scott A. Willey		43
<i>Twilight of the Gods: War in the Western Pacific, 1944-45</i>			
By Ian W. Toll	Review by Steven D. Ellis		43
<i>The Red Baron: A Photographic Album of the First World War's Greatest Ace, Manfred von Richthofen</i>			
By Terry C. Treadwell	Review by Gary Connor		44
<i>Strike from the Air: The Early Years of the U.S. Air Forces</i>			
By Terry C. Treadwell	Review by Edward M. Young		45
<i>Against All Odds: Pakistan Air Force in the 1971 India-Pakistan War</i>			
By Air Commodore Kaiser Tufail	Review by John Cirafici		45
<i>Selling Schweinfurt: Targeting, Assessment, & Marketing in the Air Campaign Against German Industry</i>			
By Brian D. Vlaun	Review by Golda Eldridge		46
<i>Educating Air Forces: Global Perspectives on Airpower Learning</i>			
By Randall Wakelam, David Varey, & Emanuele Sica, eds.	Review by Henry Zeybel		47
<i>Stealth: The Secret Contest to Invent an Invisible Airplane</i>			
By Peter Westwick	Review by Heather Venable		47
<i>Extremes of Fortune: From Great War to Great Escape: The Story of Herbert Martin Massey, ...</i>			
By Andrew White	Review by Steven D. Ellis		48
<i>Fleet Air Arm Legends 1: Supermarine Seafire</i>			
By Mathew Willis	Review by Daniel J. Simonsen		49
<i>Fighter Aces of the Great War</i>			
By Stephan Wynn and Tanya Wynn	Review by Gary Connor		49
<i>The Aztec Eagles: The Forgotten Allies of the Second World War</i>			
By Walter S. Zapotoczny	&		
<i>Mexicans at War: Mexican Military Aviation in the Second World War</i>			
By Santiago A. Flores	Review by Gary Connor		50



(Above) A USAF O-2 dropping leaflets over Vietnam. (USAF)

(Below) A Forward Air Controller O1-E "Bird Dog" aircraft is shown near a Special Forces Camp in the Republic of Vietnam. (USAF)



Darwin's Air War: 1942-1945. By Bob Alford. Winnellie, Australia: Aviation Historical Society of the Northern Territory, 2011 (second reprint). Photographs. Drawings. Notes. Appendices. Index. Pp. 261. \$49.95 paperback. ISBN: 978-0-98077130-5

Years ago, I was in Darwin, in Australia's Northern Territory. Darwin has a surprisingly rich aviation heritage and had just received a B-52 for its aviation museum. On a drive south, I noted signs pointing out the location of numerous World War II era airfields and the Adelaide River War Cemetery. In the cemetery there was a special memorial to people killed in a Japanese air attack in 1942. My drive could have even more rewarding if I'd had a copy of Alford's book. This extraordinary work provides a detailed discussion of the role Darwin played in defending Australia from a very real threat of Japanese invasion. In so doing, Australia held the line against the collapse of the Allies in the South Pacific.

Alex Spencer's book *British Imperial Air Power* demonstrated that Empire leaders clearly understood Australia's crucial role in any Pacific conflict. But they still underfunded defense requirements, especially in aviation, and stripped Australian resources to fight the war in Europe. Alford's book provides extraordinary details on the specific execution of those decisions to show how ill-prepared the Allies were to defend Darwin in the opening stages of the war.

Alford provides amazing details: aircraft serial numbers, dates, times, and names of both allied and Japanese forces are presented. Accompanying photographs are of surprising quality. Almost a quarter of the book is composed of appendices, an index, and notes, which make the work useful to serious researchers as well as arm-chair historians.

Central to the story is the devastating Japanese aerial attack on Darwin on February 19, 1942. The Australian government recognized the threat to Darwin and evacuated almost 70% of the civilian population. But Darwin was a critical communication and logistics hub, so government facilities, such as the Main Post Office, remained staffed to support the collocated telegraph station. Additionally, a large convoy of supplies destined for Timor was turned back, so on the morning of the 19th, the harbor was filled with over 30 military and commercial vessels.

The Japanese strike force was like those that attacked Pearl Harbor, Wake Island, and Manila. In fact, many aircrews flew on those missions as well as the Darwin strike. The major difference was inclusion of Japanese Army high-level bombers to follow up on the carrier-based attack. The results were devastating. Staff members at the Post Office took shelter in a nearby bomb shelter. A Japanese bomb made a direct hit on the shelter killing ten men and women. These casualties are commemorated in Darwin and at the Adelaide River War Cemetery.

Alford goes on to tell the story of the resurgence of Al-

lied air power and the role it played in holding the line and providing a firm base for the inevitable overwhelming allied counterattack. Alford provides a detailed account of the air war as Allied activity grew exponentially. One of the appendices is a selection of short biographies on aviators who "wrote" the story.

The book should be mandatory reading for anyone interested in the Pacific War, in general, or in Australia's role in the Allies' ultimate victory. It is packed with detail, citation, and images. The narrative is clear and crisp but casual and very readable.

Gary Connor, docent, Smithsonian National Air and Space Museum's Udvar Hazy Center



Super Snoopers: The Evolution and Service Career of the Specialist Boeing C-135 Series with the 55th Wing and Associated Units. By Bob Archer. Stroud UK: Fonthill Media, 2020. Map. Photographs. Appendices. Bibliography. Index. Pp 327. \$60 (Kindle via Amazon \$20.99). ISBN: 978-1-78155-769-3

My father was first assigned flying 55th Wing RB/EB-47s in 1966. Between him, my oldest son, and me, we've flown virtually every aircraft (minus the OC/WC-135s and E-4s) assigned to the wing since then. So I was very excited to read this book. While other authors claim to tell the story of these special aircraft, they are often long on speculation and short on fact. This book is accurate, where it can be (based on Archer's obvious research). When he doesn't know something, he either offers an educated guess or simply says that information is unknown.

Archer strikes me as what we in the 55th community recognize as a British airplane nut (meant affectionately). These folks would stand outside the perimeter fence at Mildenhall and other bases in the UK with cameras, binoculars, and telescopes waiting for the chance to get a better angle on an aircraft for a photo or the first glimpse of a new bump or bulge on the plane. Archer has combined his passion with extensive research to create an excellent book.

Arranged topically starting with the 55th Wing and Offutt AFB (its home base), it then moves into units; past and present aircraft; operating locations, peace and war operations, war stories; and, finally, a listing of brief histories of aircraft by tail number. These include units and aircraft assigned to the associated units, and thus expands beyond just 55th Wing assets. There are multiple appendices covering units past and present.

This is definitely a book for aviation geeks, as Archer is very specific about aircraft modifications, timelines, and unit assignments. His war stories add color and depth to technical details, so the book will appeal to a more general readership as well. Archer went to the 55th Wing Association and many wing members—i.e., to the right sources for

information. Often times the answer to his question was no answer at all. So the reader will find lots of information about some things (where unclassified information was available—the story of Rivet Amber being one example) and very little about others. I applaud Archer for not engaging in wild and uninformed speculation.

There are some minor editing issues and an occasional factual error but nothing directly associated with the 135s. However, the book lacks notes and has a very limited bibliography that doesn't list any interviews he must have done. It doesn't credit the website rc135.com and its *A Tale of Two Airplanes* concerning Rivet Ball and Rivet Amber, although he does mention it and credit the creator in the text. I would like a more thorough background on where he derived his information.

For anyone interested in these aircraft, this is the best book I've seen on the subject and well worth the money. I'll be sharing this exceptional volume with my son and dad.

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



Kargil 1999: South Asia's First Post-Nuclear Conflict.

By Sanjay Badri-Maharaj. Warwick UK: Helion & Company, 2020. Maps. Tables. Illustrations. Photographs. Notes. Glossary. Bibliography. Pp. 80. \$29.95 paperback. ISBN: 978-1-913118-65-1

Dr. Badri-Maharaj is an attorney, freelance journalist, and independent defense analyst who has written widely on Indian and Pakistani defense matters. In this monograph—another of Helion's generally excellent works on some of the world's lesser-known conflicts—he covers a short war that most of us remember vaguely, if at all. But it is an important conflict, since it involved direct contact between two nuclear powers.

The background of the war is, of course, complicated and involved the long-standing dispute between India and Pakistan over the Kashmir province in the north of both countries. Badri-Maharaj does an excellent job of summarizing the major events and politics that led up to 1999. Part of this background is the importance of the development of nuclear weapons by both sides. When the Kargil War began in May 1999, these two countries had demonstrated and fielded nuclear weapons.

Kashmir is a horrible place to fight a war with its rugged, very mountainous terrain. Running through the middle of the area defining the border was an internationally established Line of Control (LOC). To the south of that ran India's main line of communication in the north, National Highway 1A. The bare essence of the war was the infiltration by regular Pakistani troops in small units into Indian territory between the LOC and the highway. Occupation of the heights would allow interdiction of the highway at a number of points. Indian intelligence abjectly

failed to detect these movements. Routine patrols started to notice the presence of Pakistani forces only after a week of infiltration. Once alerted, however, India's armed forces sprang into action far more quickly than Pakistan had thought possible. Counterattacks began in mid-May, and by July, 26 all territory had been cleared of Pakistani forces.

Unquestionably, this was a predominately ground campaign. However, the Russian- and French-equipped Indian AF (IAF) played a significant role in digging out the well-dug-in enemy in terrain where small unguided bombs didn't do a lot of damage. Because the IAF was under strict orders not to cross the LOC (reminiscent of the Yalu and North Vietnam-China border), attacks were difficult. The Mirage 2000 was particularly important in the ground attack role, while MiG-29s kept the Pakistani AF from interfering. Meanwhile, it has been proven that both Pakistani and Indian forces had nuclear missiles and gravity-bomb-equipped aircraft ready if things got out of hand. Thankfully, they did not.

This is a small conflict compared to World War II's various theaters, or Korea, or Vietnam. However, it is well worth understanding; because it is another example of how airpower has been used to assist the ground troops or turn the tide of a war. Badri-Maharaj's research is excellent and shows in his text. Combined with the quality photos of aircraft and troops involved, the superb drawings of many of the weapon types employed, and the excellence of the many tables giving orders of battle of both sides—both ground and air—and the highly useful maps, the reader has what will be the reference source on this little-known but significant late-20th-century conflict. Helion has produced another in its long line of winners.

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



DH9: From Ruin to Restoration. By Guy Black. London UK: Grub Street, 2019. Photographs. Diagrams. Maps. Pp. 206. ISBN: 978-1-908117-33-5

This ambitious tale of restoration of a World War I RAF bomber significantly departs from the familiar accounts of rebuilt World War II planes. Owner of the warbird restoration shop Retrotec in England, Black located the remains of two DH9s in an old stable in Bikaner, India. A single-engine, two-place, biplane bomber, the DH9 sported two .303 machine guns, an internal bomb bay, and a thoughtfully designed bombsight. Although it failed to achieve its expected performance, urgent combat needs caused the British to rush over 4000 examples into production. Nine RAF squadrons flew DH9s on the Western Front. Although there were a few DH9 aces, the plane took heavy losses, as much from its troublesome engine as enemy action.

Deciding that these rare, historic warbirds deserved restoration, Black set about a decades-long but ultimately rewarding task. As Nick Veronico notes in *Hidden Warbirds* (2014), retrieving warbirds from distant locations involves time, expense, and patience. In this case, Black navigated customs officials, landowners, contractors, and others to retrieve his quarry. He then spent almost 20 years rebuilding the planes. The result was two restored DH9s, one for static display at the Imperial War Museum, and the other the first flying article in a century.

Black's quest is definitely not a driveway project. Readers will gain an appreciation for what goes into a serious restoration. Black desired as near-absolute authenticity as possible for his aircraft. Unlike the ready availability of parts and documentation for World War II planes, it took years of sleuthing to acquire the means to restore his World War I planes. He uncovered seriously obscure documents in archives and networked with fellow restorers, museum staff, parts dealers, and anyone else he thought might help.

Sometimes the drive for authenticity led in strange directions. Assiduous research revealed that some DH9s had found their way to Afghanistan. Suspecting their remnants might yet be in an old aircraft graveyard outside Kabul, he made his way there, despite the unsettled political climate, to retrieve some rare engine parts from the scattered wreckage of everything from biplanes to jets. Bold, creative thinking picked up where no parts were available. He stripped the right material for the padded cockpit ring from a couch—in his own home.

Black did compromise on a few things. For example, he purchased rubber replicas of the rare .303 machine guns for the static display article. They are indistinguishable from the real thing.

Black regarded the first flight of the flying article with trepidation. No one had flown a DH9 in eighty years. No pilot's manual was available. So he hired a professional test pilot and was exhilarated as he watched the aircraft lift off and maneuver over the airfield. The reconstructed pilot's manual appears in this book.

The style is readable and lively. The book has some British-style spelling, phrasing, and terms, but these enrich rather than distract. Photos appear of the aircraft as found, under restoration, and finally, on display or in the air.

Although World War II planes dominate warbird literature, readers looking for another World War I restoration account will find David Bremner, *Bristol Scout 1264: Rebuilding Granddad's Aircraft* (2019) informative.

From Ruin to Restoration is a novel look at an unusual restoration. The most comprehensive work to date on the DH9, this book is recommended for warbird buffs, restorers, and World War I air war historians.

Steven Agoratus, Hamilton NJ



Airmen of Arnhem: The Heavy Lift Crews of Operation Market. By Martin W. Bowman. Havertown PA: Pen & Sword, 2020. Photographs. Notes. Index. Pp vi, 330. \$42.95. ISBN: 978-1-52674-611-5

Martin Bowman, one of the world's most prolific aviation writers, has focused on World War II aircraft and aerial operations for much of his career. In 2013, he wrote a four-volume history of Market, the air portion of Operation Market Garden. Dozens of books have been written about all aspects of Market Garden. The Allies attempted to combine airborne troops deployed behind German lines with an armor column thrusting north from the Belgian-Dutch border to the bridge across the Rhine River at Arnhem in September 1944. From a volume standpoint, histories concerning Market Garden probably rank only behind the invasion of Normandy in June 1944 and the German offensive in December identified by the Allies as the Battle of the Bulge. Of course, Market-Garden failed to achieve its objective of capturing the bridge at Arnhem.

The book proceeds in chronological order, breaking down the scheduled air drops, glider tows, and supply missions on a day-by-day basis. First, the British lift is discussed and then the American as defined by the unit being delivered (e.g., British First Airborne, US 82nd Airborne). Since American troop-carrier units provided the majority of aircraft, US Douglas C-47s and, sometimes, Consolidated B-24s supported the First Airborne. Allied commanders assigned this unit the most challenging objective—capturing and holding the bridge at Arnhem.

While the British relied primarily on the C-47, or Dakota, they also used Short Stirlings and Armstrong Whitworth Albemarle—both originally conceived as bombers but converted for use as transports. The British employed the Airspeed Horsa and General Aviation Hamilcar gliders, while the US relied primarily on the Waco CG-4A. Occasionally, fighter support is mentioned.

A typical chapter discusses the various serials or formations of aircraft departing that day from various airfields throughout England; the units they carried; and the drop zones, landing zones, or supply zones for which they were destined. As the title suggests, the majority of each chapter features anecdotes and comments from aircrew members. Observations by airborne troops are also included, but Bowman shies away from any detailed commentary concerning ground operations. About 370 individuals are cited in the index, which also references a few places.

This book is best suited for a Market-Garden specialist or, perhaps, someone wishing to see if a relative who participated in the operation is mentioned. The aircrew comments are most enlightening, but one has to wonder when and where these were obtained, since the majority of those quoted have most likely passed on. The absence of a bibliography and limited notes are shortcomings. The absence of maps is a glaring omission. Charts or tables or both de-

tailoring specific airlift objectives would have enhanced the narrative. Without having read Bowman's earlier four-part series, I suspect this volume, perhaps, should be treated as an appendix to that work.

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



Images of War: The Vought F4U Corsair, Rare Photographs from Wartime Archives. By Martin W Bowman. Havertown PA: Pen and Sword Books, 2019 (reprint from 2002). Photographs. Pp. 125. \$24.95 paperback. ISBN: 978-152670588-4

Martin Bowman offers a history of the F4U Corsair from the drawing board to battle records from American, British, French, and other military air arms. This history is backed up by pages of photographs. This book combines technical information and detailed developmental history with combat history told, in many cases, by World War II and Korean War veterans. It is well illustrated and readable and has scores of black-and-white photographs—some previously unpublished when the 2002 edition was printed.

Design and development of the plane began in the late 1930s. Its wings were bent to accommodate the gigantic power plant (1800-hp, 18-cylinder Pratt and Whitney R-2800 Double Wasp) the Navy wanted in its fighter. By dipping the wings right at the point where the landing gear resides, designers could win enough ground clearance to put a huge 13-foot 4-inch propeller on a fighter-size plane. First flown in 1940, the prototype Corsair became the fastest US Navy fighter. It flew at 417mph; in later models top speed increased to 450 mph. Production began in 1941 by not only Vought but also Goodyear and Brewster. It entered US Naval service in September 1942.

During World War II in the Pacific, the aircraft was extensively used from land and sea by the US Marine Corps, Royal Navy, and Royal New Zealand Air Force. Many famous squadrons (such as VMF-214 *Black Sheep* and VF-17 *Jolly Rogers*) maintained total superiority over the Japanese. The high-pitched whistling sound Japanese units associated with the Corsair comes from the intakes built into the leading edges of the wings—a feature that reduced drag and contributed to the Corsair becoming the Navy's first 400+ mph fighter. The plane earned two nicknames—the *Bent-Winged Bird* and *Whistling Death*. Both reflect its reputation as one loved by friends and feared by foes. They reference the two central design features that made it powerful and fast enough to have been one of the longest-produced fighters in US aviation history.

The Corsair's lethal internal and external carriage made it a deadly weapon in the right hands, but its long nose and idiosyncratic behavior at landing speeds made carrier landings problematic. The US Navy assigned them

to land-based units until pioneering testing and adjustments made by the Royal Navy's Fleet Air Arm proved safe ship-borne operations were possible. By early 1945, American Corsairs had joined F6F Hellcats on the decks of carriers; and, by war's end, they had a 11-to-1 kill ratio over their Japanese adversaries.

In 1950, when the Korean War began, Corsairs were still a part of the Navy and Marine Corps' arsenal. They flew combat missions from 1950-1953 before being replaced by jet-powered aircraft. The French used them in Indo-China. Their final combat use was in 1969 during the "Soccer War" between El Salvador and Honduras.

The *F4U Corsair* is a compact overview of this subject. If you are interested in an primer of this story and the men who flew the Corsair, read this paperback. However, as with all of the *Images of War* series, there are many other sources that contain more diagrams, notes, sources, and photos in both color and black and white.

Joseph D. Yount, USAF (Ret) and National Air and Space Museum docent



The Men Who Flew the Halifax. By Martin W. Bowman. Havertown PA: Pen and Sword, 2020. Illustrations. Photographs. Notes. Bibliography. Index. Pp. vi, 231. \$39.95. ISBN: 978-1-52-670568-6

Martin Bowman is a prolific author with dozens of World War II aviation-related works to his credit. He has covered specific airframes, comparisons between iconic aircraft (e.g., P-51 vs Fw 190, P-47 vs Bf 109G/K), and air campaigns (e.g., the Battle for Berlin).

Handley Page's Halifax is one of the lesser known British heavy bombers of the war. I was looking forward to learning more about both the airplane and the men who flew her. What I found was a collection of stories from a variety of crewmembers on their personal experiences. Any information about the aircraft's performance or employment was incidental. What there is comes mostly in one chapter in the comments of one individual. Interesting, but very limited.

So what is here? The book is primarily first person narratives which, in some cases, were lifted from other sources (all noted and properly credited). The narrative quality is very uneven. It is often difficult to decipher whether Bowman or the veteran is speaking due to inconsistent use of quotes. There is a lot of very specific detail about some things: crew names (and often hometown), aircraft tail numbers, and disposition of remains of those killed in action. Even here, there isn't much consistency from one story to the next. In some cases, information on fliers is vague. If Bowman relied on someone's memory (which should be cited), he should make this clear. If he has records verifying information, inconsistency is unaccept-

able. Bowman frequently interjects biographical vignettes of his subjects' personal lives from outside the war in the middle of a battle narrative—both distracting and not particularly relevant. There is a lengthy discussion of Flying Officer Joe Barton's Victoria Cross mission, but no specifics on why he was singled out or got the award—not even the award citation. I suspect he may have been the only Halifax crewmember to receive the award, but I don't know, and there is no explanation. Jargon is also an issue. Different German language terms are used with no translation or explanation given.

So what is missing? A forward or preface would have been helpful. An introduction or connecting narrative about the aircraft's development, capabilities, and employment—especially if framed against the more well-known Lancaster—would add significantly to the book's value. The promotional flyer mentions the book includes the experiences of German night fighter pilots who explain how they stalked their prey. Unfortunately, this is missing completely.

Finally, there are lots of minor editing mistakes, and the bibliography is in the notes (but at least the information is there). There are good notes and lots of good pictures, and the stories are interesting. For someone looking for a fairly generic collection of aircrew experiences flying bombers against Germany in World War II, this is an acceptable book. But it doesn't outshine any of a dozen other books with a similar format and, with a big price tag, I would pass it by.

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



Pacific Adversaries, Volume Two: Imperial Japanese Navy vs. the Allies, New Guinea and the Solomons 1942-1944. By Michael Claringbould. Kent Town, Australia: Avonmore Books, 2020. Glossary. Maps. Photographs. Illustrations. Sources. Pp. 107. \$36.95 paperback. ISBN 978-0-6486659-0-8

Michael Claringbould is a three-dimensional, digital, aviation artist and globally recognized expert on Japanese aviation. He is a contributing editor for *Flight Path* magazine and is the author of several books on the Fifth Air Force and World War II Pacific history. He is a member of Pacific Air War History Associates. While growing up in Papua New Guinea in the 1960s, Claringbould became fascinated by Pacific air war aircraft. He has assisted both with the recovery and identification of such aircraft and has helped both the United States and Japanese governments identify missing aircraft crews. He is the founder of Aerothentic Publications and a partner of Pacific Ghosts.

The Japanese Navy Air Force (JNAF) first appeared in the South Pacific in December 1941 and was at the vanguard of offensive efforts during 1942. After the Guadal-

canal campaign, the JNAF fought a largely defensive war in New Guinea and the Solomons against increasingly powerful Allied forces.

This second volume of a planned series presents fifteen short stories of aerial warfare between the JNAF and the Allied air forces during the New Guinea and Solomons campaigns. It is in the same basic format as Volume One (reviewed in *Air Power History* in the Spring 2020 issue). Claringbould has chosen to present these particular accounts because he has been able to improve their accuracy by matching related Japanese and Allied records. He has also been able to provide photographs of either the actual aircraft involved or of the same aircraft types. Excellent color three-view and profile drawings of the actual aircraft are offered for each chapter. Photographs of personnel involved in the various actions are also shown. Maps of key locations described in the text are displayed.

In preparing these interesting combat stories, Claringbould has applied information from his private archival collection of Japanese and Allied sources. These include memoirs, unit histories, intelligence reports, and interrogation reports. He has tried to provide a balanced perspective, but most of the accounts are clearly written from the Japanese viewpoint. This in itself provides an interesting contrast with preceding similar accounts of the Pacific air war by other aviation historians (e.g., Hickey's *Revenge of the Red Raiders: The Illustrated History of the 22nd Bombardment Group During World War II*, and Evans' *Warpath Across the Pacific: The Illustrated History of the 345th Bombardment Group During World War II*). Claringbould's story in Chapter 14 of the massive USAAF raid against Rabaul on November 2, 1943 (in which the 345 BG took part) stands in stark contrast with Evans' review of the battle in *Warpath Across the Pacific*.

Claringbould's excellent portrayals of JNAF aircraft will be of particular interest to modelers and enthusiasts alike. This book, as with Volume One, has no index. This hinders research a bit, but the book is still worth a look.

Frank Willingham, NASM Docent



Pacific Adversaries, Volume Three: Imperial Japanese Navy vs. the Allies, New Guinea and the Solomons 1942-1944. By Michael Claringbould. Kent Town, Australia: Avonmore Books, 2020. Glossary. Illustrations. Maps. Photographs. Bibliography. Pp. 101. \$36.95 paperback. ISBN 978-0-64866595-3.

Michael Claringbould is a digital three-dimension aviation artist and globally recognized expert on Japanese aviation. He is a contributing editor for *Flightpath* magazine and is the author of several books on World War II Pacific history. His recent history of the Tainan Naval Air group in New Guinea, *Eagles of the Southern Sky*, was ac-

claimed as the first English-language history of any Japanese air unit. An executive member of the Pacific Air War History Associates, he has assisted both the US and Japanese governments with recovery and identification of aircraft and has helped identify missing aircrews.

The Japanese Naval Air Force (JNAF) first appeared in the South Pacific in December 1941 and supported Japanese offensive and defensive efforts there for the remainder of the war. The JNAF operated from both carriers and land bases with a wide variety of superior-performance fighters, bombers, and flying boats. At the onset, pilots and air crews were well trained and had ample combat experience. The US Marines landed in the Solomon Islands in August of 1942. Their primary objective was to gain bases from which to support a campaign to neutralize the major Japanese air and sea base at Rabaul and to ensure open sea routes to Australia. During the ensuing Solomons and New Guinea campaigns, the US Navy was initially forced to use pre-war ships and planes and troops with limited combat experience. However, the persistence and courage of the Allied forces finally broke the back of the Imperial Japanese Navy at Rabaul.

This third volume of a planned series presents sixteen eclectic vignettes of aerial warfare and non-combat incidents of the JNAF and the Allied air forces during these campaigns. It is in the same basic format as previous volumes. Claringbould chose to present these particular accounts, because he was able to improve their accuracy by matching related Japanese and Allied records. As in his previous works, he provides many photographs of either actual aircraft involved or of similar types. Excellent three-view, color drawings of the aircraft are provided in each chapter. Claringbould also provides photographs of personnel involved. Thankfully, he has included maps of key locations described in the text.

In preparing these interesting stories, Claringbould has applied information from his private archival collection of Japanese and Allied sources. These include memoirs, unit histories, intelligence reports, and interrogation reports. He has tried to provide a balanced perspective, but most of the accounts are clearly written from the Japanese viewpoint. This, in itself, provides an interesting contrast with preceding similar accounts of the Pacific air war by other aviation historians. Unfortunately, this book, as with the previous volumes, has no index. This hinders research a bit, but the book is definitely worth a look.

Frank Willingham, National Air and Space Museum docent



I Will Run Wild: The Pacific War from Pearl Harbor to Midway. By Thomas McKelvey Cleaver. Oxford UK: Osprey, 2020. Pp 320. Maps. Photographs. Bibliography. Index. \$30. ISBN: 978-1-47284134-6

Thomas Cleaver has published more than a dozen titles mostly on World War II and the Korean War. Earlier works include the U.S. Navy's campaign in the central Pacific Ocean as well as fighting in the southwest Pacific. In this latest work, he reviews the Allied response to Japan's remarkable success in the six months immediately following Pearl Harbor.

For the most part, he proceeds in chronological order through significant campaigns in the western and southwestern Pacific, southeast Asia, and Burma. Of course, there is some overlap in terms of timing. Writing almost exclusively from the perspective of Allied pilots, he concentrates on the air war. Little space is devoted to naval surface engagements and there is virtually no detailed discussion of any land campaigns.

The first chapter looks at the Japanese attack on Pearl Harbor. He then turns back the clock in the second chapter by discussing the geopolitical situation prior to the attack. He also compares the strengths and weaknesses of the opposing nations' aircraft. After Pearl Harbor, he proceeds to the Philippines, sharing anecdotes from American pilots charged with protecting the commonwealth's airspace prior to the Japanese attack.

The U.S. Marine Corps' gallant defense of Wake Island comes next followed by the conquest of the Philippines and destruction of American air assets. From there, he moves on to the Japanese invasion of the Malay Peninsula and the eventual capture of Singapore. Resistance in the Dutch East Indies (now the sovereign nation of Indonesia), a vital source of oil and raw materials, is covered next.

Moving further west, he discusses the initial engagements of the American Volunteer Group (better known as the Flying Tigers) fighting first in Burma and later in China. He then moves back to the Philippines and the departure of General Douglas MacArthur and the last air assets to Australia. He returns to the fall of the Dutch East Indies followed by the Japanese bombing of Darwin, Australia.

He wraps up his account with the Doolittle Raid on the Japanese home islands, the Battle of the Coral Sea, and the Battle of Midway.

This book is an easy read. In addition to his coverage of the various air campaigns, Cleaver has done an exceptional job of profiling various pilots, when appropriate. His book is best suited for readers seeking an introduction to the Pacific air war in the first half of 1942. The maps are adequate. However, the absence of citations or any other attribution and complete reliance on secondary sources calls into question the credibility of many of the stories. Individuals seriously interested in the beginning of the Pacific War are better served by Richard B. Frank's *Tower of Skulls*.

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



The First Fighter Pilot: Roland Garros: The Life and Times of the Playboy Who Invented Air Combat. By Ed Cobleigh. Paso Robles, California: Check Six Books, 2019. Bibliography. Pp. 322. \$19.95 paperback. ISBN: 978-1-62967156-7

A fighter pilot himself, Cobleigh builds a strong case to name Roland Garros “The First Fighter Pilot.” He has prepared a standard biography then brought it to life by putting himself in Garros’ mind and explaining to the reader what Garros thought and why he made the decisions that defined his career. Garros had an amazing career as a sportsman, athlete, adventurer, and aviator. His life as a fighter pilot was, unfortunately, truly short.

In 2021, Garros is known only for the French Open Tennis Championship venue. But in the early 20th Century, he was known throughout France and much of the world for his astonishing accomplishments. Garros played a major role in advancing the reputation of French aircraft designers and builders as well as his own.

He made numerous US tours as part of several traveling aviation circuses. At one Texas airshow in 1910, he was asked to perform the role of a reconnaissance scout to find “enemy” troops for National Guardsmen to engage. Little did he know that, in a few short years, he would be performing that mission in the skies over the Western Front.

Garros’ air racing career and numerous attempts to fly his aircraft higher and further than his contemporaries are interesting. He set an altitude record and accomplished the first direct non-stop flight from Europe to Africa, crossing the Mediterranean Sea in the process. Other stories show he performed amazing feats of airmanship.

His military career is best remembered for mounting steel plates to his aircraft propeller to allow a fixed forward firing machine gun to be mounted in the nose of his aircraft, effectively creating a bird of prey. After shooting down his first German opponent, he visited the crash site and observed the gruesome result of his handiwork. He quickly shot down three additional aircraft before being shot down himself. German troops captured his modified aircraft before he could burn it. The German’s turned it over to the brilliant, if ethically challenged, Anthony Fokker, who developed the synchronizing mechanism used to allow machine guns to fire through propellers. That breakthrough initiated a time known as the Fokker Scourge, where the life expectancy of an Allied pilot was measured in weeks if not days.

Garros spent three years as a prisoner of war before escaping and making his way back to France. He insisted on rejoining the fight, but prison had taken its toll. Aviation technology had advanced quickly, his physical condition had deteriorated, and he was shortly shot down in flames.

Cobleigh gives the reader an excellent story of a name that stands with Bleriot, Morane, Saulnier, and Moisant in the pantheon of French aviation. But his seamless blending of fact and fiction limits the book’s use as a serious research

tool. As for the text, Cobleigh’s editorial team did him no favors. Edith Berg became Ester Berg; the Bayeux Tapestry became the Bayonne Tapestry. Paragraph breaks appear randomly throughout the text, in mid-word or mid-sentence. Spelling errors abound. Cobleigh adds to the problem by weaving in some not necessarily needed, titillating anecdotes. Still, the book is a very enjoyable read that gives one a newfound respect for Roland Garros, his life, and his accomplishments.

Gary Connor, docent, Smithsonian National Air and Space Museum’s Udvar Hazy Center



Modern USMC Air Power Aircraft and Units of the Flying Leathernecks.’ By Joe Copalman. Vienna, Austria: Harpia Publishing, 2020. Tables. Photographs. Notes. Sources. Appendices. Glossary. Pp. 253. \$59.95 paperback. ISBN: 978-1-950394-02-9

This is an excellent and very comprehensive book. Copalman’s coverage runs the gamut from an overview of USMC aviation units and the organizational structure of Marine aviation, to a history of aviation within the Corps, to a detailed overview of the aircraft flown during the 2000s (both manned and unmanned). His writing style is easy to follow. He intermixes technical jargon and details with personal experiences from Marines representing a number of disciplines.

The book follows a topical organization starting with an introduction to the overall subject, a section on Corps-aviation organization, twelve chapters on the different missions (e.g., attack, fighter, helicopters, test and evaluation), and then concludes with a very short chapter about the future of aviation in the Marine Corps.

What makes this book so valuable is its detailed coverage of all aspects of USMC air. Readers not overly familiar with Marine aviation will learn how the Corps operates from both land and sea bases. They will see how tests and evaluations of the many different platforms are accomplished and look at operations of both manned and unmanned aircraft. Everything about Marine aviation from helicopters to fighters to KC-130 tankers is tailored to support the ground component. As a ground-centric Marine officer long ago wrote, “The only excuse for aviation in any Service is its usefulness in assisting the troops on the ground to successfully carry out their operations.” This is largely true for the Corps; therefore, how air assets communicate and cooperate with Marines on the ground is a huge part of the story. The mission of the forward air controller (in the Corps, JTAC—Joint Terminal Attack Controller) is critical. Copalman covers this well, including changes brought in by digitization and linked video feeds. He also exposes readers to developments of the less-often discussed world of electronic warfare, a discipline that

plays an important role on today's battlefield and has driven many changes over the last two decades.

Copalman guides the reader through twenty years (2000-2019) of USMC airpower in transition. The Corps operates a wide range of fixed-wing, rotary-wing, tiltrotor, and unmanned aircraft. There have been resultant changes in both organizations and hardware. Copalman tells the significance of each change. Some, such as conversion from the KC-130T to the KC-130J or from the AH-1W to the AH-1Z, were incremental, evolutionary steps. On the other hand, introduction of F-35 Lightning II revolutionized the way the USMC can fight. He looks at what each legacy aircraft did or could do and how the successor is leveraging the past to improve upon previous capabilities. In the end, the purpose is still to support Marine riflemen.

This book was written between the summers of 2019 and 2020. In that period the Corps published many new policies and acquisition plans. So this book is current and includes a discussion on implications of the current Commandant's, General Berger, visions for a new and leaner Corps.

This book is timely, well-written, and informative. For those interested in Marine aviation and its role in the US military, it is well worth the time to read.

Joseph D. Yount, USAF (Ret) and NASM docent



Gloster Gladiator: Mk I and II (And Sea Gladiator).

By Adam Cotton and Marek Ryś. Lubin, Poland: Kagero Publishing, 2019. Illustrations. Photographs. Notes. Bibliography. Index. Pp. x, 216. \$39.95 paperback. ISBN 978-83-65437-86-0

Gloster's Gladiator is the last biplane fighter to enter service in the Royal Air Force (RAF) and Fleet Air Arm (FAA) and one aircraft that should have never seen action during the Second World War. Developed in an era of reduced defense budgets and emerging aircraft and engine technologies during the inter-war years of the 1920s and 30s, the Gladiator was a stop-gap fighter. It was obvious among British Empire defense planners that monoplanes such as the Spitfire and Hurricane were indeed the future, but full production of those aircraft was still a few years off. While the RAF was still soldiering on with obsolescent Hawker Fury and Bristol Bulldog fighters, the German, Italian, and Japanese militaries were forging ahead. Although equipped with such modern features as an enclosed cockpit, flaps, radios, and wing-mounted machine guns, the Gladiator's outward appearance seemed more fitting for dogfighting Fokker D.VIIs and Pfalz D.XIIs in First World War skies. But it was, in fact, a stepping stone to more modern Second World War aircraft. Several future aces (e.g., South African AF Squadron Leader "Pat" Prattle, who got 26 confirmed kills in Gladiators, and RAF Squadron

Leader "Cherry" Vale, who accounted for another ten) cut their teeth flying Gloster's biplane.

The chapters bring to life an aircraft overshadowed by Spitfires, Hurricanes, and Mosquitos. From the Gladiator's early development by Gloster aircraft designer Henry Philip Folland in 1934, to the aircraft's 1938 combat debut with the Chinese Nationalist Air Force against Japanese A5M *Claudes*, to its final battles in 1942 against the German and Italian air forces over the skies of the Mediterranean, Cotton and Ry do an excellent job of blending operational facts with technical details of this aircraft.

Gloster Gladiator is both well written and cited, using a variety of secondary resources to take an objective assessment of this unique aircraft's capabilities and its pilots' performance during the war. Cotton and Ry cover not only the aircraft's remarkable operational history (including the fact that RAF Pilot Officer and ace Roald Dahl, later the author of children's books such as *Charlie and Chocolate Factory* and *Matilda*, flew Gladiators before transferring to more-modern Hurricanes), but also clearly outlines the Gladiator's journey to its production in the waning days of the biplane era. Second-line duties and service with foreign air forces (e.g., Finland, Greece, and Norway) are also briefly covered. The book includes pages of lavish artwork and 3-D exploded views of the Gladiator, vividly bringing details of the aircraft to life.

Kagero Publishing has a reputation for quality publications. The only thing that distracts from the book are some photographs of aircraft and pilots being out of sequence with the chapters. This minor criticism should not dissuade anyone from reading this excellent book on one of the lesser-known airpower components of the Second World War.

Col Jayson A. Altieri, USA (Ret.), Assistant Professor of Leadership Air War College, Maxwell AFB, Ala.



A-4 Skyhawk vs North Vietnamese AAA: North Vietnam 1964-72. By Peter E. Davies. New York: Osprey Publishing, 2020. Maps. Tables. Diagrams. Illustrations. Photographs. Illustrations. Index. Pp. 80. \$22. ISBN: 978-1-47284079-0

With more than 30 titles to his credit concerning Vietnam and Cold War aircraft, Davies once again has plumbed his information warehouse, churning out one of the more recent entries in Osprey Publishing's popular and slickly produced "duel" series. This effort is his seventh "duel" with a Vietnam theme. The others concerned aircraft pairings (e.g., F-4 vs. MiG-21) and aircraft vs. surface-to-air missiles (SAM) (e.g., F-105 vs. SA-2). In this volume, he emphasizes the capabilities of the Douglas A-4 Skyhawk light-attack aircraft and the U.S. Navy's efforts to suppress enemy air defenses, particularly anti-aircraft artillery

(AAA), in one of the most heavily defended air combat arenas in history.

A typical chapter examines both the American and North Vietnamese sides from a technical and operational perspective. After an introduction, Davies reviews the design and development of the aircraft and the various AAA weapons. That chapter is followed by a discussion of technical details. A chapter devoted to establishing an historical context then precedes two chapters that focus on operations. The comments from A-4 pilots are succinct yet appropriate in conveying the intensity of fire directed at aircraft attacking one of the many heavily-defended targets in the North.

The topical approach results in some unavoidable repetition. The information, however, is organized quite logically. From a graphic standpoint, this is a first-class effort. The tables and diagrams convey significant data in a compact, yet understandable fashion. Photographs of North Vietnamese equipment and personnel from a private collection nicely complement the aircraft shots pulled from the archives. The illustrations, frequently one of the most significant features in an Osprey publication, are excellent.

While the emphasis is on AAA, the impact of SAMs and enemy aircraft receives appropriate attention. The importance of electronic warfare also receives its due. Without having read Davies' other books in this series, it's understandable that there might be considerable overlap. On the other hand, I found this volume to be a solid overview of how the U.S. Navy dealt with the North Vietnamese air-defense system. As a wet-behind-the-ears intelligence officer assigned to the 4th Tactical Fighter Wing just after that unit returned from Linebacker II in February 1973, I would have found this book most useful in trying to understand the aircrews' experiences in suppressing AAA.

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



Ho Chi Minh Trail 1964-73: Steel Tiger, Barrel Roll, and the Secret Air Wars in Vietnam and Laos. By Peter E. Davies. Oxford UK: Bloomsbury Publishing, 2020. Maps. Photographs. Notes. Tables. Sources. Glossary. Index. Pp. 96. \$24.00. ISBN: 978-1472842534

The Trails War was a series of campaigns (the so-called “secret war”) to cut the Ho Chi Minh Trail, the supply routes Communist forces depended on in Laos, Cambodia, and South Vietnam. This short book contains a chronology, discussion of both sides' capabilities, US objectives, and a short analysis on why the US failed to close the trail.

On December 14, 1964, Operation Barrel Roll—the US air war in northern Laos—began. On April 3, 1965, Operation Steel Tiger began as a covert aerial interdiction to

impede the flow of men and materiel from the Democratic Republic of Vietnam (DRV) via the trail. Therefore, America was really fighting in four separate theaters: “in-country” South Vietnam, an air war over North Vietnam, a campaign against the Ho Chi Minh Trail, and supporting allies in a civil war in Laos.

Davies notes that the US held air superiority. Their arsenal eventually included propeller aircraft (T-28, C-47) and jets (F-105, F-4, F-8), helicopters (CH-3, HH-53), gunships (AC-47, -119, and -130), and unique “one-of-a-kinds” (EC-121R, QU-22B). Their bombs and rockets improved over time, especially with the arrival of laser-guided weapons. Tactics changed as needs arose or technology permitted. Discussed are both slow and fast forward air control aircraft and an electronic fence to find and destroy infiltrators. However, terrain, vegetation (triple canopy jungle), weather (monsoons), a slash-and-burn agriculture (smoke and haze), and political considerations limited, and sometimes prevented, successful interdictions.

General Giap was the DRV's architect for successful infiltration of men and material. Under constant threat of air attack and enduring heavy losses, thousands of North Vietnamese troops and civilians devised ingenious means to survive attacks. They traveled in trucks or by foot, day or night, sometimes pushing bicycles laden with ammunition and rice. Resourceful engineers and construction crews frustrated US efforts. The trail was an intricate maze of roads, foot and bicycle paths, and truck parks. Supply bunkers, storage areas, barracks, hospitals, and command-and-control facilities were concealed from aerial observation by an intricate system of natural and man-made camouflage. The DRV responded to aerial threats through increased use of heavy concentrations of AAA. By 1968, it was mainly 37mm and 57mm radar-controlled weapons. In 1969, 85mm and 100mm guns appeared. Eventually, over 1500 guns defended the system. In 1972, the Soviets made more SA-2s and SA-7s available to the DRV. Their use made the trail even more deadly.

Davies shows US and South Vietnamese interdiction efforts were impacted by weather from mid-May to mid-September. Since the road network was generally dirt, most military efforts the trail supported were conducted during the dry season. Eventually, the bulk of the trail was either asphalted or hard packed, thus allowing large quantities of supplies to be moved even during the rainy season. Due to the increased effectiveness of US interdiction efforts, DVR transportation units usually took to the roads only at dusk, with traffic peaking in the early morning hours. Just as US aircraft came on station, traffic would subside until just before dawn, when fixed-wing gunships and night bombers returned to their bases.

As more territory within South Vietnam came under Communist control, the DRV could extend the trail into that country. American fighting methods proved counter-productive. US firepower was so destructive that it killed thousands of the civilians it was meant to “save.” Never-

theless, the campaign had a profound effect on the course of the war.

This book is well written and an easy read. It provides points to ponder when it comes to the application of airpower within the greater context of international diplomatic, informational, military, and economic efforts.

Joseph D. Yount, USAF (Ret) and NASM Docent



Powering the World's Airliners: Engine Developments from the Propeller to the Jet Age. By Reiner Decher. Barnsley UK: Pen & Sword, 2020. Photographs. Illustrations. Bibliography. Pp. 218. \$45.00. ISBN 978-1-52675-914-6

Reiner Decher's aim with his book is to provide an overview of the relationship between aircraft engines and the airliners they powered over time, from the piston-engine era to the current generation. There are some excellent descriptive sections in the book, but the reader has to wade through general descriptions of airliners and numerous digressions to find them. It is sometimes unclear whether Decher's focus is on the development of the engine or the airliner.

Decher brings to the book a wealth of experience in aerodynamics and propulsion. During his professional career he has actively participated in the progress of jet engine technology over the past few decades. He holds a PhD in aerodynamics from MIT and taught for many years at the University of Washington. He served as an advisor to the Propulsion Research Group at Boeing and with other companies.

The book begins with the often overlooked point that the history of the development of the modern airliner can't be separated from the history of the development of aircraft engines. The challenge to the engine designer has been to develop engines of increasing power and reliability that the aircraft designers demanded. The first few chapters are devoted to the piston engine and the airliners of the piston-engine era. Decher gives the reader a rapid tour of aviation development beginning with the Wright Brothers through World War II, with commentary on aircraft engines and changes in aerodynamics. The major portion of the book is devoted to the turbine engine in its initial military uses and its progressive development for commercial airliners. Decher traces the transition from the turbojet to the turbofan engine and on to the high-bypass turbofan engines of today.

The overview of the piston era is basic. There was too much repetition of descriptions of commercial airliners of the 1920s, 1930s, and 1940s that have appeared elsewhere. There was not enough on engine development during the critical decade of the 1930s, when the major engine manufacturers such as Bristol, Wright Aeronautical, and Pratt

& Whitney doubled the horsepower of their engines. For example, he mentions, almost in passing, the development of higher octane fuels during the 1930s but says little about the impact this had on engine development and how engine designers coped with the higher temperatures and pressures resulting from their use. The descriptions of the big radial engines that powered the last of the piston-engine airliners are, again, a bit formulaic.

Decher really hits his stride when he gets into jet engines. There are some excellent discussions about the challenges the early jet-engine designers faced, along with descriptions of the key differences between radial- and axial-flow compressors. Similarly the discussion of the transition from turbojet to turbofan engines is enlightening. However, there are numerous digressions and jumps in the chronology that are confusing to the reader. A more rigorous and disciplined thematic approach that tied engine and aircraft development together would have been helpful.

Edward M. Young, PhD, volunteer, Museum of Flight, Seattle



Silver Birds over the Estuary: The MiG-21 in Yugoslav and Serbian Air Force Service, 1962-2019. By Bojan Dimitrijevic and Milan Micevski. Warwick UK: Helion, 2020. Maps. Tables. Illustrations. Photographs. Notes. Tables. Bibliography. Pp. 72. \$29.95. ISBN: 978-1-913118-69-3.

This work is Dimitrijevic's fourth contribution to Helion's @War series. Currently the Deputy Director of the Institute for Contemporary History in Belgrade, Serbia, he formerly was the custodian of the Yugoslav Aviation Museum. While most of his writing has been published in Serbian, he has produced other English language books on World War II armor combat in Yugoslavia. Micevski, a 30-year specialist in Yugoslav and Serbian aviation, has contributed two books to this series.

The MiG-21 is easily the world's most widely built jet fighter. Of the approximately 12,000 produced, about 89 percent were constructed in the Soviet Union, with the remainder made in Czechoslovakia and India. The Chinese built their own version. The Yugoslav Air Force began acquiring the MiG-21 in 1962. The final one, used for training, crashed in September 2020, after this book went to print.

Proceeding in chronological order, the authors discuss the introduction of the aircraft into service. Interestingly, the type replaced former USAF North American F-86D and E aircraft. While under President Tito, Yugoslavia tried to maintain a neutral course during the Cold War. The nation's military had to prepare for threats from both North Atlantic Treaty Organization and Warsaw Pact

countries. During these years, the Yugoslav Air Force expected to use its MiG-21s in both intercept and ground-attack roles. Of course, the Soviets continued to upgrade the original design. Therefore, over the years, the Yugoslavs would utilize 12 different variants, including two-seat and reconnaissance versions.

The book's first three chapters emphasize training. Combat operations are introduced in Chapter 4 as Yugoslavia fractured into multiple states. With aircraft deployed to various parts of what would become the former Yugoslavia, Serbia took control of almost all aircraft and personnel. A few Croatian pilots defected in their MiG-21s, prompting authorities in Belgrade to severely restrict the actions of those military members considered to be of questionable allegiance. In the midst of this upheaval in the political situation, the combat effectiveness of the MiG-21 was affected. The authors discuss this in considerable detail.

However, when war resumed with the conflict in Kosovo in the late 1990s, the MiG-21 remained on the sideline. Military leaders recognized the aircraft was clearly inferior to its NATO counterparts and kept them out of the skies, only to see the majority destroyed on the ground. Hardened shelters were virtually ineffective against precision-guided munitions. However, a larger, mostly underground air base proved to be relatively safe.

The authors enhanced the text with a wide selection of photographs and a number of tables. With the wide variety of MiG-21 models referred to, one table that would have been helpful was one identifying the Yugoslav aircraft by their NATO code name (Fishbed D. F. etc.). Written, as it is, from a Serbian perspective, the book balances the NATO view found in most English-language publications. This concise history is recommended to anyone interested in the post-World War II air forces of Eastern Europe.

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



The Stringbags. By Garth Ennis, P.J. Holden, Kelly Fitzpatrick and Rob Steen. Annapolis MD: Dead Reckoning, 2020. Illustrations. Pp 186. \$29.95. ISBN: 978-1-68247-503-4

Garth Ennis is a well-recognized creator of numerous comic-book characters dating back to the 1990s. He wrote successful titles for DC Comics and Marvel Comics. Assisted by illustrator P. J. Holden and others, he has produced a serious comic book about the Fairey Swordfish, Britain's World War II biplane best remembered for its torpedo attacks against the Italian and German navies.

Unlike other authors who, all too often, fabricate dialogue and pass it along as authentic to complement the narrative, Ennis makes very clear what is fiction and what

is fact in this story of what turns out to be the trials and tribulation of a three-man Swordfish crew. To provide context for the crewmembers' "bubbles," Ennis inserts boxed text explaining the actual historical event or circumstances.

The first episode concerns the November 14, 1940, attack against the Italian navy in the port of Taranto by 21 Swordfish. Holden created about 200 illustrations for this portion, which takes up about one third of the book.

The second episode dramatizes the sinking of the Germany battleship *Bismarck* in May 1941. After the dramatic, week-long sea chase, gunfire from several Royal Navy battleships sent the *Bismarck* to the bottom of the sea. However, one of 16 Swordfish launched against her played a critical role by disabling her steering with a torpedo. This section, the longest of the three, also features more than 200 illustrations.

Finally, the third episode remembers the successful February 1942 dash up the English Channel by a German task force returning to the homeland from Brest, France. Despite having more than 100 aircraft in place to thwart the Germans, the British managed to attack with only six Swordfish (all of which were lost) and a few Bristol Beauforts. These planes launched their torpedoes without effect. This section, slightly shorter than the two others, contains a similar number of illustrations.

From a production standpoint, this is a first-class effort. The illustrations are amazing, and the dialogue is believable. However, this work is best suited for comic-book fanciers. Perhaps it might stimulate interest in military history among a younger generation. Aside from a bit of profanity, this work might find a place in a middle- or high-school library. Collectors of all things "stringbag" might want it, but others interested in the Swordfish's amazing history should look elsewhere.

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



Hawkeye: The Enthralling Autobiography of the Top-Scoring Israeli Air Force Ace of Aces. By Brigadier General Giora Even-Epstein, Ilan Kfir, and Danny Dor. London: Grub Street, 2020. Map. Photographs. Notes. Glossary. Index. Pp. 192. \$32.95. ISBN: 978-1-911621-96-6

Aside from describing an unsuccessful air-to-air intercept in the preface, Israel's leading ace generally proceeds with his story in chronological order. Born in 1938, Epstein grew up in a kibbutz. His family survived the 1948 Israeli War of Independence, the first of six significant conflicts in which he would have a front-row seat.

Interested in flying at an early age, he failed to gain admittance to pilot training until age 24, the maximum al-

lowed by the Israeli Air Force (IAF). Prior to that, a flight surgeon had determined that he had a heart condition that precluded flying. However, Epstein qualified as a paratrooper in the Israeli army. As a member of the Israeli team, he competed in the 1962 sky diving world championships.

After flight training, he first flew helicopters before moving on to fighters—the Dassault Ouragan, Dassault Super Mystere, and Dassault Mirage III, the aircraft in which he would first go to war in June 1967.

Over the next seven years, he would also fly the Israel Aerospace Industries Nesher and Kfir. Between the June 1967 Six-Day War, the War of Attrition, and the Yom Kippur War of October 1973, he would total 17 victories, the most by any pilot since the Korean War. He scored in both the Mirage III and the Nesher with the majority of his victories coming in the Yom Kippur War. Much of the book is devoted to that conflict.

In 1977, he left active duty to fly for El Al Israel Airlines. He continued his military career as a reservist. When he retired at age 59 from the IAF, he had spent the previous nine years in the General Dynamics F-16.

As did America's best-known fighter pilot, the late Chuck Yeager, Epstein benefitted from exceptional eyesight, hence the nickname "Hawkeye." And, unlike most American fighters of the late 1960s, the Mirage III and Nesher both possessed guns, providing more flexibility in air-to-air engagements.

Perhaps one of the more interesting takeaways from this work is Epstein's criticism of the IAF performance during the Yom Kippur War. For those unfamiliar with that conflict, the Egyptian and Syrian forces attacked Israel with army units protected by mobile surface-to-air (SAM) missile batteries. Their rapid success caused panic at the highest levels. Epstein suggests that the IAF had become complacent after dominating performances in 1967 and during the War of Attrition. The Egyptians and Syrians had learned from their defeats. The IAF suffered significant close-air-support losses before neutralizing the SAMs.

This book is highly recommended for readers interested in air-to-air combat or Israel's wars. While a chronology and a table itemizing Epstein's victories would have been helpful, it is well written and an easy read.

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



Fighting in the Sky: The Story in Art. By John Fairley. Havertown PA: Pen & Sword Books, 2020. Photographs. Appendix. Pp.143. \$42.95. ISBN: 978-1-52676-220-7

John Fairley's experience writing about equestrian art certainly paid off in this newest publication, *Fighting in the Air: The Story in Art*. He served as an officer in the

Royal Navy Volunteer Reserve aboard the aircraft carrier *HMS Albion* and in various positions in British television. His public relations background translates well into this creatively, and factually, written work on both the exhilaration and destruction of flying and fighting.

As a result of worldwide public awe of flight and its subsequent use as a weapon of war, the early days of aviation were captured by artists who also happened to be pilots or observers. More recent times, however, consist of pilots who had (or have) to describe their sights and emotions to war correspondents and artists.

Fighting in the Air is broken up into three parts: the First World War, the Second World War, and post-1945. While each section is well-written and dotted with works of art, they are not cohesive. The first part is almost poetic and contains several stories and letters by the participants-artists. It is organized by topic rather than time. As an American flyer, I almost compare the style to the poem, *High Flight*, by John Gillespie Magee, Jr. The chapter on World War II is more chronological and written with a factual tone rather than as a storyteller as in the first chapter. The third and final part (post-1945) almost exclusively deals with the Falklands. While the Falklands campaign was an important post-World War II event, a broader view of air power would have suited the book better.

The highlights of the work include the number of photographs and the stories that go with them. They cover a wide range of *British* warfighting in the air through the eyes of a number of artists and flyers. However, the book would be better served with something in the title letting the reader know up front that it is British-centric. While other nation's aircraft are mentioned, they are done almost as a sidebar.

Historians traditionally look to other historians, theorists, and strategists when examining the usefulness, desire, or reason to use airplanes. They don't look to artists or the original pilots for inspiration or to what draws them to this vocation. This book, its stories, and its images serve to fill in some of those motivations. It is a good read, ideally suited for those drawn to art as a way of experiencing life. The images are ideally suited to the limited, but well-written supporting text, covering 100 years of fighting in the sky in just 143 pages.

Kathy Wilson, MA, Norwich University



Thunderbolts Over Burma: A Pilot's War Against the Japanese in 1945 & the Battle of the Sittang Bend. By Angus Findon with Mark Hillier. Barnsley UK: Air World Books, 2020. Photographs. Appendices. Pg. 189. \$34.95. ISBN:978-1-52677-966-1

There are not many memoirs by RAF pilots who flew fighters during the Burma campaign in World War II, and

fewer still by pilots who flew the Republic Thunderbolt in Burma. Although he saw combat only in the last few months of the war, Findon has provided a welcome addition to the literature on the air war over Burma. The book came into being by happenstance. John Gadd, a British businessman, happened to meet Findon in the late 1980s and persuaded him to record his experiences as a Thunderbolt pilot in Burma. Some years later, Hillier took on the task of turning Findon's recordings into a book, while adding some material to put Findon's memories in context of the war in Burma in 1945. The result is a recounting of Findon's efforts to become a pilot in the RAF; his long period of training; and his final, successful effort to get into combat.

Findon joined the RAF at the end of 1941, after working on a farm and serving as a member of the Home Guard. By this time in the war, most British candidates for aircrew went to Canada for training under the British Commonwealth Air Training Plan. Findon did his initial training in Britain and, after selection for pilot training, went on to Canada, where he learned to fly on Fairchild Cornells. He recounts how he went on to single-engine training on Harvards and then, to his disappointment, was posted to become a flying instructor. A sympathetic instructor wangled a posting for him back to England to become a fighter pilot. He was then posted to No. 73 Operational Training Unit in Egypt where, given his choice of training on Spitfires or Thunderbolts, he chose the latter; he recognized he would have a better chance of getting into a squadron and into combat as a Thunderbolt pilot in Burma.

Findon provides a good description of his training on Thunderbolts before he finally arrived at No. 34 Squadron in Burma in June 1945, in the middle of a monsoon. The squadron was flying close-air-support missions for the British Army, attacking retreating formations of Japanese troops trying to retreat across the Sittang River into Thailand. As Findon recounts in his memoir, flying a heavily loaded Thunderbolt through monsoon weather was often hair-raising. After the end of the war Findon converted to Spitfires and remained in the Far East until late 1946. He rejoined the RAF in 1952 and served for several years as a flying instructor.

While Findon did not fly many combat missions, he flew during the final months of the war in Burma, a period that has received little attention, and clearly enjoyed flying Republic's big fighter. Hillier has included facsimile pages of Findon's RAF log book documenting his flying career. Even more useful are extracts from the No. 34 Squadron Operational Record book for the period of Findon's service with the squadron. These provide even more information on each of his combat missions.

Edward M. Young, PhD, volunteer, Museum of Flight, Seattle



Bomber Squadron: Men Who Flew with XV Squadron. By Martyn R. Ford-Jones. Havertown PA: Casemate, 2019. Illustrations. Photographs. Appendices. Bibliography. Index. Pp. 272. \$36.95. ISBN: 978-1-78155-708-2

Ford-Jones is the XV Squadron's acknowledged historian with a long-time interest in the RAF. He has written a book that is one of a genre seen more and more frequently: books focusing on World War II's lesser known units, aircraft, and people. They aren't about well-known units such as the Dambusters or Flying Tigers, iconic aircraft such as the Spitfire or Flying Fortress, or people such as Guy Gibson or Tex Hill. Rather, they cover the average soldier, sailor, or airman. Why the authors have a particular affinity for their chosen subjects is often not spelled out.

This year marks the 75th anniversary of the end of the most destructive war in human history. Originally published in 1988, this book has been reissued in a revised edition and tells the story of one of the many squadrons that served in Bomber Command during that war. Their service spanned the conflict's entire length and involved them flying five different types of aircraft in combat: the Fairey Battle, Bristol Blenheim, Vickers Wellington, Short Sterling, and Avro Lancaster. One can actually trace the development of British bombing thought and doctrine by following the upgrade from single-engine light, to twin-engine medium, to four-engine heavy bombers.

Ford-Jones frames the narrative using each chapter to tell one man's story of service with XV Squadron. His choices of personnel are relatively diverse within the aircrew, including men from all of the various crew positions. He does not include any squadron leadership or non-flyers, i.e., ground crew or support personnel.

I found a number of problems with this book. For one, a reader may sometimes question the information presented. One chapter is on Stewart "Paddy" Menaull (later an air vice marshal). Bomb damage assessments from his missions show the bombs always hit the target. Even on a good day, most readers know that was rarely the case and certainly not on a regular basis. Another problem is that Ford-Jones frequently interjects seemingly irrelevant information. A case in point is when he points out that squadron member Kenneth Griffith roomed with an individual who got sick, was invalided out of the service, and later became a well know actor. This adds nothing to the narrative about the unit or the war.

When a bomber was lost to a fighter, Ford-Jones always makes a point of listing the fighter pilot's name, rank, and full unit. He also includes exact takeoff and landing times and tail numbers for all bombers on each mission discussed. It's as if he's trying to show he read the records to fill up space. This seems to be an increasing trend in books of this nature over the last 10 years or so. Finally, the writing style is somewhat stilted and sentence structure is sometimes odd. There are enough spelling and

grammar errors for them to be noticeable.

Overall, however, the airmen's assessments of the various aircraft flown are interesting. Even with its shortcomings, this book is generally worthwhile in the human interest vein. Ford-Jones' connection with the modern-day unit has me wondering if he is considering writing histories covering the squadron during other time periods (World War I, Cold War, Desert Storm). With a little work on style, such additional volumes would be very useful and would provide an interesting perspective on the evolution of the RAF.

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



Arado Ar 234 Bomber and Reconnaissance Units. By Robert Forsythe and Nick Beale. Oxford UK: Osprey Publishing, 2020. Photographs. Illustrations. Pp. 96. \$24.00 softcover. ISBN: 978-147284439-2

Any reader familiar with the Osprey Combat Aircraft series, knows exactly what kind of book *Arado Ar 234 Bomber and Reconnaissance Units* will be before they open the cover. They will find a clearly written narrative on the subject matter. Research and citations will be brief but adequate. Photographs will illustrate salient concepts. And there will be illustrations—lots of illustrations.

The first quarter of this book serves as an introduction to the Ar 234 itself. Often overlooked in favor of the Me 262 Schwalbe, the Blitz was a significant step forward in medium bomber and reconnaissance capability. The number of similar platforms that emerged in the world's air forces in the late 1940s (e.g., English Electric Canberra, Ilyushin Il-28 Beagle, North American B-45 Tornado) pays homage to the technology and design significance of the Ar 234. The book goes into some detail on the teething problems of the Blitz. Especially interesting is the discussion of bombsights and experiments designed to determine if the optimum weapon delivery profile was level or glide bombing. Disappointingly, there is not a parallel discussion of reconnaissance systems.

The remainder of the book addresses the brief operational career of the Blitz. Fortunately, it draws heavily on the memoirs of Erich Sommers as published in his highly recommended autobiography *Luftwaffe Eagle*. Sommers had the space to tell a more complete story, whereas Forsyth and Beale offer a brisk narrative, compressing an 18-month operational career into a few pages. When the authors take the time to tell a more complete story, as they do with the Remagen Bridge campaign, they show themselves to be competent storytellers.

My greatest complaint about the book is the presentation of the written text. As with many Osprey books the text is presented on the outer two-thirds of the page with the inner third reserved as "white space." This means there

is sufficient room to either use a larger, more readable font or keep the smaller font and expand the material presented. In this book, the publisher gives you the worst of both options.

Arado Ar 234 Bomber and Reconnaissance Units is an adequate introduction to a unique and transitional aircraft. But the book's real value is as a starting point for further research and reading.

Gary Connor, docent, Smithsonian National Air and Space Museum's Udvar Hazy Center



Black September 1918: WWI's Darkest Month in the Air. By Norman Franks, Russell Guest and Frank Bailey. London: Grub Street, 2018. Tables. Photographs. Appendices. Index. Pp. 280. \$29.95 paperback. ISBN: 978-1-911621-11-9.

Norman Franks published his first book in 1976 and is, perhaps, the world's preeminent expert on World War I pursuit aviation. Besides being one of the founders of *Cross and Cockade*, a society devoted to World War I aviation, he also has been very much involved with *Over the Front*, a similar organization. Both groups have published exceptionally high-quality journals over the years. He and two other aviation enthusiasts, Guest and Bailey, first published their findings concerning losses of aircraft over World War I's Western Front in 1995. Grub Street has reissued that work in paperback and added six pages of photographs. It is unfortunate that they didn't also add maps, notes, and a bibliography, as they would have been helpful.

The authors' meticulous research is laid out day by day for the entire month. The accounts for each day follow the same format. Working from north to south, the first section is devoted to the British front, followed by the French, the Americans, and the Royal Air Force's Independent Air Force (IAF). The IAF was the first systematic attempt at strategic bombing. If possible, every enemy loss, claimed or reported, is noted. Occasionally, excerpts from after-action reports, journals, or letters personalize the conflict. Each day's report concludes with a table summarizing each side's claims versus reported losses.

Reading each day's summary one after another reinforces the notion that by the fall of 1918, the British, French, and Americans were finally winning the war by attrition. Whereas the Germans had exceptional pilots and the best pursuit aircraft (the Fokker D.VII), they were ultimately overwhelmed by numbers.

Even after the introduction of gun cameras in World War II, accurately resolving victory claims has always been difficult to achieve. Based on their research, the authors claim that the British and the Americans were extremely generous in recognizing victories by their pilots, particu-

larly when compared with German records.

Aside from the propaganda value derived from promoting the achievements of the best shooters, did individual claims really matter that much? By the fall of 1918, the air war was quite sophisticated, with special tactics for attacking barrage balloons; specially equipped aircraft for close air support; long range aircraft for strategic bombing; high-altitude recon aircraft; and, of course, very capable pursuits. Achieving air superiority during a ground offensive was the primary goal. In the final months, the Germans had no answer.

Analysis is limited, aside from the repeated refrain concerning the U.S. Army Air Service's stubbornness in launching costly bombing raids without escorting pursuits; but the research was excellent and resulted in a book best suited for the specialist seeking a first-class reference work.

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



North American Aviation in the Jet Age: The California Years, 1945-1997. By John Fredrickson. Atglen PA: Schiffer Military, 2019. Maps. Photographs. Tables. Diagrams. Illustrations. Notes. Appendices. Bibliography. Pp. 222. \$45. ISBN: 978-0-7643-5874-6

North American Aviation (NAA) has such a rich history that when John Fredrickson tried to tell the NAA story, he found that the company's extensive accomplishments couldn't be captured in a single volume. Thus, it became a three-volume work: *Warbird Factory: North American Aviation During World War II* was reviewed in *Air Power History*, Summer 2016; this is the second; and the third volume, focusing on NAA operations in Columbus, Ohio, has not yet been published.

Although the book's scope is NAA after World War II, Fredrickson appropriately begins with a recap of how the company's achievements during the war affected it in the post-war years. NAA produced three exceptional World War II airplanes (T-6 Texan, P-51 Mustang, and B-25 Mitchell). These successes gave the company confidence in its ability to design effective airplanes, run huge factories, and recruit and retain thousands of workers. This confidence was reinforced during the Korean War, when the F-86 Sabre emerged as arguably the world's premier fighter, taking that mantle from the P-51.

NAA projects after the Korean War included successes and failures. On the positive side are the X-15 research aircraft, AGM-28 Hound Dog cruise missile, F-100 Super Sabre, and T-39 Sabreliner. The negative side includes the P-82 Twin Mustang, F-93 escort fighter, B-45 bomber, YF-107A, F-108 Raptor, and XB-70 bomber. Some of the apparent failures were due not to bad designs, but rather

to shifting military requirements or to NAA's failure to understand those requirements.

In the space race, North American won the contracts for the Apollo command and service modules and for the second stage of the Saturn V rocket. These were key elements in the US's successful lunar landings. But along the way, NAA senior executive Harrison Storms bore much of the blame for the Apollo 1 fire that killed three astronauts.

Several elements of the book stand out. First, Fredrickson provides excellent bio sketches of key NAA individuals such as executives Dutch Kindelberger, Lee Atwood, and Storms; designer Edgar Schmued; and pilots Bob Hoover and Scott Crossfield. Second, some of his descriptive stories are quite well done, particularly that of the XB-70 mid-air collision. And third, he presents an insightful analysis of the factors that led to NAA's decline. As the key factor in that decline, he cites Kindelberger's failure to put in place a plan to develop the executives who would succeed him.

My major criticism of the book is that there are too many instances of unclear, confusing writing. The most notable example is the discussion of the corporate acquisitions that led to the disappearance of the North American Aviation brand. The description of how NAA evolved from a stand-alone company to a firm that became owned by Rockwell and Boeing left me so confused that I had to consult another source to understand what actually happened. This is just one example of the lack of clarity that appears in many places throughout the book.

If you're looking for a useful history of NAA's post-war work and of some of the key people who guided NAA through these years and are willing to tolerate lapses in clarity, this would be a good addition to your library.

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



Poles in Defence of Britain: A Day-by-Day Chronology of Polish Day and Night Fighter Pilot Operations July 1940-June 1941. By Robert Gretzyngier. London: Grubb Street, 2016. Photographs. Appendices. Bibliography. Index. \$29.95 paperback. ISBN: 978-1-910690-15-4

In 2002, the result of Gretzyngier's years of exceptional research was published. His book chronicled the flying activities of Polish airmen in Royal Air Force service after they had escaped from their occupied home country. This reprint was released in 2016 to recognize the 75th anniversary of the time period covered in the book.

Starting on July 13, 1940, and continuing through June 2, 1941, Gretzyngier includes every record he discovered that mentioned a Polish pilot either in combat or training. Whenever appropriate, he has included verbatim after-action reports or excerpts from log books or journals.

He also has attempted to cross-reference victory claims with records of the other side's losses, whenever possible. Both sides frequently over claimed, a pattern established in World War I that continued at least through the Korean War.

Despite the expected language problems, the first Polish pilots, many of whom were far more experienced than their RAF counterparts, quickly found themselves engaged in intense aerial combat, mostly over southeast England, against German and Italian aircraft. Initially, they were assigned mostly to Hawker Hurricane-equipped squadrons. In the coming year, however, they would also fly Supermarine Spitfires and Boulton Paul Defiants.

The first Polish unit, No. 302 Squadron, began operations July 13, 1940. Eight other squadrons comprised primarily of Polish pilots would see action in the coming year. The frequency of the reports reflects how often Polish pilots engaged Germans. In August and September, this occurred almost daily. Autumn brought poorer flying weather. Also, the Axis tended to emphasize smaller raids without escorts in day or at night compared to the mass attacks of the summer months.

Having turned back the onslaught, RAF's Fighter Command switched to escorting bombers (code named *Circus*), searching for targets of opportunity (*Rhubarb*), and engaging in homeland defense. In both instances, the RAF hoped to attrit the enemy air force in France. Before the emergence of the combined bomber offensive in 1942, when the RAF bombed Germany at night and the Americans in the daylight, one has to wonder how useful Fighter Command's early approach was other than as an opportunity for new pilots to gain combat experience.

With far fewer chances to engage the enemy, Polish pilots were more frequently mentioned in training accidents than in the past.

This book is best suited for specialists or individuals with a particular interest in the early World War II exploits of the Polish flyers. Unfortunately, the absence of citations makes one question where the information came from. A map or maps with the operating bases would also have been helpful.

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



Airwar over the Atlantic. By Manfred Griehl. Barnsley UK: Pen and Sword Aviation, 2016. Photographs. Pp. 72. \$19.99 paperback. ISBN: 9781848327917

Griehl is well known as a photo-archivist with access to a remarkable collection of World War II-era Luftwaffe images. Periodically he assembles a hundred or more images and offers them as part of Pen and Sword's "Luftwaffe at War" series. *Airwar over the Atlantic* follows that for-

mula. Of its 72 pages, four are devoted to text and the balance to images with brief captions.

Some of the images, most of which are uncited, are interesting. Many show ground support operations of the "Black Men" (maintenance and other ground support personnel) and their equipment, an often-overlooked aspect of the Luftwaffe. A few images are in color, but there is no indication if the color is original or the result of colorization. This omission limits their use to modelers and researchers alike.

The textual content of the book is muddled and confused. One picture refers to a "moveable MG15 fixed" to the aircraft which begs the question: Is it "moveable" or "fixed"? Griehl credits the Luftwaffe with developing the skip bombing tactic later used by the USAAF in the Pacific. The book focuses on the employment of large multi-engine platforms (e.g., Fw 200, He 177, Ju 88) and ignores the contributions of other long range reconnaissance platforms, such as the Ju86. He focuses on convoy reconnaissance and interdiction yet makes no mention of the Luftwaffe's failure to see or strike the largest armada ever assembled, the D-Day invasion fleet.

Airwar over the Atlantic offers an assemblage of images sharing a niche subject. Perhaps that is enough to spark curiosity for further research using more satisfying resources.

Gary Connor, docent, Smithsonian National Air and Space Museum's Udvar Hazy Center



Air War on the Eastern Front. By Mike Guardia. Havertown PA: Casemate Publishers, 2020. Maps. Illustrations. Photographs. Bibliography. Index. Pp. 128. \$24.95 paperback. ISBN: 978-1-61200-908-7

This book is another in Casemate's line of heavily illustrated histories of World War II. Guardia is a US Army veteran who has written widely on primarily ground-warfare subjects. However, in recent years, he has broadened his output into air warfare as well. The story of the air war on the Eastern Front has to be told in the context of the ground war, since Soviet Air Force operations were so closely tied to the activities of the Soviet Army.

Most Westerners are far less familiar with the Soviet war than they are with the war on the Western Front. They have probably heard of the siege of Leningrad, the major battles in and around Stalingrad, the stoppage of the Germans at Moscow, and possibly the Battle of Kursk. Those stories (except for Kursk and involvement of the Ilyushin Il-2s) mostly center around the huge numbers of men and armored vehicles involved. But the Red Air Force was there—in all operations—from the start of Operation *Barbarossa* in June 1941 until the Fall of Berlin in May 1945.

Thankfully, Guardia starts this short history with a

timeline. It includes only major events of this four-year war but at least orients the reader to the scope of the conflict. He provides short chapters on the period leading to the Great Patriotic War and on the opposing Red Air Force and Luftwaffe. The book then presents *Barbarossa*, the Soviet counteroffensives, Germany's fall, and the aftermath of the war.

From the start, both the Soviet ground and air forces were chewed up and pushed aside. Thousands of troops and hundreds of aircraft could be lost daily. Much like Napoleon's 1812 operations in Russia, it appeared the juggernaut could not be stopped. But the Soviets eventually held and, with their vast human and economic resources, adapted and overcame. New leaders emerged, and better tanks and aircraft were built—by the thousands. This force beat back the Germans over the next three years to the very heart of the Reich.

The pictures tell much of the story. Printed on gloss paper, their quality is as good as the originals. They show not only the machines, but the men and the conditions under which the two sides fought as well. Of course, a book of this size covering a topic as large as it does can serve only as a primer. For a more complete story of the Red Air Force's war, Hardesty and Grinberg's *Red Phoenix Rising: The Soviet Air Force in World War II* (2012) well fills the bill. But this book would make an excellent supplement to the more detailed history, primarily because of its rich collection of photos. If all a reader wants, however, is an overview of the force that flew over 3 million sorties during the conflict, this book will do nicely.

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



Cross Channel Aviation Pioneers: Blanchard and Bleriot, Vikings and Viscounts. By Bruce Hales-Dutton. Yorkshire UK: Air World, 2020. Photographs. Bibliography. Index. Pp. ix, 220. \$49.95. ISBN: 978-1-52677559-7

The first crossing of the English Channel by a heavier-than-air powered aircraft was a major achievement in aero history. However, this interesting work covers all aspects of flight across the Channel, from the first balloon crossing in 1785 to the technological innovations in the 21st century. This format allows Hales-Dutton to review and comment on the development of aviation from its beginnings with balloons to the present. This most-recent work is a companion volume to another that he wrote in 2018 on transatlantic pioneers. The focus is on civil aviation, so at least one major historical event involving aircraft and the Channel isn't mentioned—the disappearance of band leader Glenn Miller in 1944. This doesn't in any way detract from the book's interest, since Hales-Dutton's research includes a tremendous variety of "air"craft (you will

understand the quotation marks when you think about this list): balloons, early airplanes, passenger air travel, air cargo operations (car ferry), hovercraft, rotorcraft, model planes, man-powered and electric-powered machines, gliders, wing suits, jetpacks, drones, hoverboards, and flying cars.

Insets throughout the book include technical descriptions of key machines and some limited information on their inventors and pilots. The book tends to focus on events; so, there is far less background on the pioneer or the machine, especially for the early pioneers. The later narrative includes more detail on both, although there is still information included in insets. The description of Bleriot's flight is very brief (in keeping with the flight itself), with a much longer discussion of the aftermath (i.e., the parties, presentations, and awards). There is a little here for someone interested in the more technical aspects of the machines (control methods, engines, and construction) and the training and preparation of the pilots. All of this, however, is limited by space, given the span of time and variety of topics covered. There are entire chapters devoted to the development of cross-channel-aircraft car ferry and hovercraft operations. These provide a fascinating glimpse into lesser known aspects of aviation history that should intrigue readers unfamiliar with the concepts.

There are some minor editing issues involving missing words. These are a nuisance but seem to be fairly standard fare from this and many of the other publishers reviewed of late. Hales-Dutton has provided a very useful chronology of key pioneers across the spectrum. This shows, in particular, the geometrically increasing pace of the technology people used and are using to cross the Channel. At \$50.00, the book is a bit pricey; but, for readers interested in aviation firsts and lesser known methods people use to cross the English Channel, this is a good book.

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



Sharks of the Air. Willy Messerschmitt and the Development of History's First Operational Jet Fighter. By James Neal Harvey. Havertown PA: Casemate, 2011. Photographs. Notes. Bibliography. Index. 402 Pp. \$24.95 paperback. ISBN: 978-1-61200-892-9

Harvey has written a riveting work about Willy Messerschmitt and the impact of his Me 262 on military aviation. Harvey's 40 years of experience as an owner/operator of multiple vintage aircraft gave him a unique vantage point to present this story. A successful advertising executive, he also wrote screenplays and novels. *Sharks of the Air* is his only non-fiction work.

Young Willy Messerschmitt grew up in Bavaria. His lifelong interest in aviation began as a child watching a dirigible fly. He joined a group of young aviators who designed,

built, and flew gliders. During World War I he served on the ground crew at Schleissheim airfield (the cradle of Bavarian aviation). “The Professor” (as Messerschmitt was called) started his first company, *Flugzeugbau Messerschmitt Bamberg*, in the early 1920s. In 1927, he was told to merge with *Bayerische Flugzeugwerke AG (BFW)* by government officials if he wanted to receive contracts and subsidies. The M17 and M19 began his string of prize-winning entries in various European competitions in the 1920s and 1930s. The M19 was the first low wing monoplane to lift more than its own weight, a feat considered impossible by leading experts at the time. In 1934, he began his signature project, the Bf 109. Messerschmitt became director of *BFW* in 1938 and renamed the company *Messerschmitt AG*.

Throughout the tenure of the Third Reich, Messerschmitt was confronted by professional challenges and its labyrinth of politics. He was a friend of Erhard Milch (of *Deutsche Lufthansa*), but that friendship turned toxic after Milch’s good friend died piloting the first M20. Milch blamed Messerschmitt for the crash. As Milch rose higher in the circles of the Reich, he continued to deliberately undermine Messerschmitt’s work and persona at every opportunity.

After VE Day, Messerschmitt (and others) were arrested and flown to London. There they were interrogated by US and British officials who wanted the new German jet and rocket technologies. Three years later, he returned home and utilized Marshall Plan funds to restart his factory, building automobiles and domestic products. In the 1950s, Messerschmitt returned to aircraft manufacturing, building under licenses the Lockheed F-104 and Fiat G.91 fighters. In the 1960s, he helped found the European Airbus project and contributed some early design criteria. Retiring in 1970, he passed away eight years later.

This is, essentially, a biography of Willy Messerschmitt. Harvey has masterfully crafted (through Messerschmitt’s eyes) a history of Germany’s aviation accomplishments. The book offers a rich and detailed history, including decisive air battles and operations in the European and Soviet theaters. From early glider design through the Me 262; from early family financial support through funding by the Third Reich; and from production through combat, Harvey’s style reads like a novel—except that his descriptions are supported by numerous notes.

The photographs, accompanying notes, and bibliography richly support the narrative. The photos are printed on high-quality glossy paper. Breaking the narrative into 94 chapters of three to five pages each makes it an easy read. Harvey has written a riveting story recounting the life and times of an aeronautical genius and his signature aircraft that will appeal to aviation and history buffs.

P. E. Simmons, Ph.D., docent, Smithsonian National Air & Space Museum



Operation Chastise: The RAF’s Most Brilliant Attack of World War II. By Max Hastings. New York: Harper Collins, 2020. Maps. Photographs. Diagrams. Appendices. Notes. Bibliography. Index. Pp. 364. \$35.00 ISBN 978-0-06-295363-6

RAF Bomber Command 617 Squadron, composed of handpicked crews led by famed Wing Commander Guy Gibson, destroyed the M hne and Eder dams in Germany on the night of May 16-17, 1943 in the famed “Dambusters” raid, code-named Operation Chastise. Flying four-engine Lancaster bombers modified to carry a bomb designed specifically for the task, the raiders breached the dams, caused catastrophic flooding, killed over a thousand people (including many slave laborers), and at least temporarily disrupted enemy munitions production in the Ruhr River valley. Eight of the 19 bombers, carrying 53 of the total 133 crew, were lost—a rate of almost forty percent. The raid stretched British scientific, technological, and military resources to their utmost. Planners expected long-term effects disproportionate to the size of the mission, but a massive enemy effort repaired the dams and restored munitions production within a few months. Although Allied intelligence recognized that at the time, historians ever since have debated the relative value of the outcome against the tragic cost in human lives on both sides.

Well-known military historian Max Hastings has written a fresh account of this famed mission. Drawing on extensive interviews and archives in Britain, Germany, and the US, he focuses on the raid’s effect on people—bomb designer Barnes Wallis, mission planners, aircrew and their families, and civilians in the path of the flood. A master of historiography, Hastings weighs the ultimate outcomes of not only the Dambusters raid but also the RAF and USAAF strategic bombing campaigns against the context of overall Allied military strategy. In most cases he finds them wanting.

The style is easygoing and conversational. For a mission that depended on cutting-edge technology and novel techniques above all else, it would be easy to overwhelm the reader with facts, figures, and physics. This book, however, relates technical detail at a level appropriate to convince the reader of the uniqueness of the weapon (code-named Upkeep) and the daring, unconventional nature of the mission. Readers hungry for more on Upkeep will find Iain Murray’s detailed *Dambusters Owner’s Workshop Manual* (2011) informative.

Carefully selected photos, a number of which appear for the first time, picture inventor Barnes Wallis and his weapon, 617 Squadron aircrew and their families, the target dams, and enemy repair efforts. Of special note are rare images of a Lancaster dropping an Upkeep. Images of victims taken by authorities in the aftermath of the flood emphasize the calamitous human costs of that night. Readers will find further pictorial coverage of the raid in Clive Rowley, *Dambuster 2018*.

Works on the Dambusters started appearing soon after the war with Paul Brickhill's classic 1951 effort. Since then many studies have covered this operation. Recent efforts include James Holland (2013), Colin Higgs (2013), Chris Ward (2009), John Sweetman (1990) and Alan Cooper (1982). Biographies of individual raiders include Marcus Fielding, *Les Knight* (2019), Dave Birrell, *Joe McCarthy* (2012), Jenny Elmes, *John Hopgood* (2015), Charles Foster, *David Maltby* (2008), and Arthur Thorning, *Melvin Young* (2008). Charles Foster, *The Complete Dambusters* (2018) contains biographical profiles of every raider. Helmuth Euler, *A German View* (2016) provides perspective from the enemy side.

No Dambusters account would be complete without mention of Guy Gibson. He could have led the mission from the ground but chose to do so from the air. Involved in every aspect of weapon and tactics development, Gibson recruited crews, drilled them relentlessly, and personally led planes over the target. Descriptions of his background, personality, command style, and family life enable the reader to understand how deeply the raid's success depended on this one extraordinary man. Although marred by some inconsistencies and edits by wartime censors, his classic *Enemy Coast Ahead* (1944) remains one of the best works on the raid. Biographies by Geoff Simpson (2013) and Susan Ottaway (2003) fill out the picture of Gibson's life and achievements.

Dambuster scholars have debated for decades the role in the raid of Air Chief Marshal Sir Arthur Harris, head of RAF Bomber Command. Throughout the war, Harris consistently fended off plans and proposals that had the potential to divert his heavy bombers from their campaign of night area bombing over Europe. Hastings argues that Harris similarly refused to lend the Dambuster planners his combat-tested resources. Absent Bomber Command experience and expertise, the raid suffered. Too few bombers were involved to hit all the projected targets. The Lancasters penetrated enemy territory in three waves at two-hour intervals, guaranteeing surprise for the first wave and heavy losses to enemy flak for the rest. The inexperienced crews that filled out the ranks could not meet the mission's demanding flight profile. Hastings argues that Bomber Command participation might have enabled the raid to succeed to a larger degree than it did and that subsequent strikes on enemy repair efforts would have magnified the raid's adverse effects on enemy weapons production.

This convincing, well-argued and researched book pulls together the threads of technology, people, strategy, and tactics to enable the reader to grasp the full and devastating impact of Operation Chastise, and indeed, the air war over Europe. It is recommended reading.

Steve Agoratus, Hamilton NJ



The British Carrier Strike Fleet After 1945. By David Hobbs. Barnsley UK: Seaforth Publishing, 2015. Diagrams. Photographs. Notes. Glossary. Bibliography. Index. Pp. xvii, 622. \$40 paperback. ISBN: 978-1-5267-8544-2

Anyone who wants to know anything about the development and employment of Royal Navy aircraft carriers in the decades after World War II would do well to start with this book. It covers all aspects of carrier operations and, with its length, can serve most readers as a one-stop shop on this subject.

Hobbs is well qualified to take on this task. A former naval aviator and curator of the Fleet Air Arm Museum, he has either lived or studied the history in depth and has written many other titles covering the Royal Navy and, in particular, its aircraft carriers. This is a detailed work and includes lots of technical information. Thankfully, Hobbs' style is such that you don't get bogged down in the detail. He provides a nice balance of technical and human interest stories to keep the reader's attention while making his points. That said, there is absolutely no question that Hobbs is a vociferous partisan of carrier aviation and makes no effort to hide it. In spite of this obvious bias, his arguments are consistently well delivered.

One of several themes developed throughout this book is the long suffering Royal Navy vs. the villains. These villains fall into three broad categories: the tight fisted *money grubbers* (politicians), the *ignoramuses* (RAF leadership), and the *fools* (some shortsighted Royal Navy leadership). These caricatures show up so often as to become tiresome. There is enough evidence to justify most of his arguments, but his caricatures are overblown and detract from the absolutely valid points.

Hobbs makes a much stronger argument for the flexibility and adaptability of carrier forces as a force in being (visible presence). He argues convincingly (within the context of his examples) that carrier forces are easier to insert/withdraw with a generally smaller logistics tail than land-based aviation. The problem is he fails to adequately address carrier-force limitations: the vulnerability of large surface ships to attack, the limited range of carrier-borne aircraft, and the logistical challenges of supporting large naval forces in far-flung locations for long periods of time. He argues carrier forces can reach places the supposedly strategic V bombers of the RAF couldn't. However, the question of how close to the enemy landmass (with the associated risks) the ships must operate is never addressed.

My biggest complaint is Hobbs' ubiquitous use of hindsight. He criticizes all his villains through a lens where he knows the outcomes and what he feels should have been the obvious choices at the time. Hobbs consistently shows how carrier forces either were, or should have been the force of choice in various circumstances. This is, of course, much easier to do when one knows how things turned out.

In the end, this work's positive points far outweigh its issues. Hobbs' knowledge seems second to none, and he

seamlessly weaves the technical information with history to make a very readable narrative. In the end, this is a very useful book despite the obvious bias. The arguments are well delivered and would make Hobbs' points better without his heavy-handed opinions. There probably isn't a better resource for this information. One could wish, however, that the bludgeon was a bit more subtle.

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



Britain's Glorious Aircraft Industry: 100 Years of Success, Setback & Change. By J Paul Hodgson. Yorkshire UK: Pen and Sword Air World, 2020. Photographs. Tables. Illustrations. Appendices. Bibliography. Notes. Index. Pp. xiv, 481. \$60.00. ISBN: 9781526774666

Hodgson endeavors to tell the reader the entire history of British aviation from 1908 thru 2020. No small task. He stuffs a tremendous amount of information into his product, which is both good and not good for the reader. The font selected is uncomfortably small, and the page margins are very narrow. These make it difficult to settle into a comfortable reading experience. Hodgson's style is somewhat Dickensian, favoring long complex sentence structures, so the narrative flow suffers. Photographs are small and the captions are even smaller, so visual detail is lost and the photos lose relevance. The bottom line is that this book is not a casual recreational reading experience. However, the reader who sticks to the task will be rewarded with copious amounts of detailed data.

The British aircraft industry, glorious or not, arose in an environment of war or the threat of war. This political, technical, and resource environment spawned a distorted business model which suffered from a "start-stop" resource flow. Typically, the civilian aviation market provides a firm foundation for military surge requirements. However, due to their size, British commercial markets could not sustain the total industrial base through unending cycles of "buildup-war-drawdown." Breakthrough programs (e.g., TSR-2 and Comet) somehow failed to materialize or failed to meet marketing targets, thus adding more stress to the overtaxed civilian aviation industrial base. While still capable, the industry has been on a downhill trend for the past 50 years. It has been forced to rely on international partnerships, government intervention, and consolidations to survive.

Recent press reports have revealed two US offers to the British government to participate in the F-117 program, both of which the British declined. This anecdote is not mentioned in Hodgson's book, but one has to wonder what an infusion of stealth technology would have done to the British aviation industrial base in the 1980s. The good news for allies is that the British have proven to be trustworthy and capable partners. Aside from some hiccups

such as the TSR-2 debacle and security breaches on the Manhattan Project, the British aviation industry has proven itself to be a capable and efficient contributor. The question Hodgson ponders is whether the industry has already shrunk to a point of irrelevance.

I found the chapter titled "Glory and Conclusions" unique in that it was clear, concise, and direct. The chapter acknowledges Britain's future role as a "Contributor" to programs controlled by other countries and corporate entities. Hodgson seems comfortable that the British aviation industry will always have a glorious past, and the future will take care of itself.

The core quality of this work is the extensive set of appendices that take up 140 pages, or nearly a third of the book. The information contained in them is clear, concise, and extensive. The 14 appendices, supported by a detailed bibliography, make this book invaluable to the serious researcher.

Gary Connor, docent, Smithsonian National Air and Space Museum's Udvar Hazy Center



The Phantom Viet Nam War, An F-4 Pilot's Combat Over Laos. By David R. "Buff" Honodel. Denton TX: University of North Texas Press, 2018. Photographs. Glossary. Index. 306 Pp. \$29.95. ISBN: 978-1-57441-732-6

Lt Col Honodel enjoyed a distinguished 22-year USAF career with over 4400 hours in F-4s, A-10s, OV-10s, and T-33s, and two tours in Viet Nam. While assigned to the 555th Tactical Fighter Squadron (the Triple Nickel) based at Udorn, Thailand, from 1969-1970, he completed 137 missions. These combat experiences are the focus of this book.

He starts with his time in Army ROTC at Penn State and how he came to join the USAF. As a history major, he heard of Viet Nam and Laos but had very little knowledge about the US military or the developing war there. His first "personal experience" with the Viet Nam war was watching then-Vice-President Johnson motorcading through campus and waving at students.

As a 21-year old, Honodel saw himself as the mirror image of a poster on the recruiter's wall—a seemingly invincible "hot shot" wanting to fly fighters. After pilot training, he went through F-4 training at David-Monthan AFB and eventual assignment to the 555th. He characterizes his early days in military aviation and training as being enthusiastic and impatient, wishing to fly combat as soon as possible. To be "The Man." As a recently arrived pilot at Udorn, he labels himself as a 'know it all' fighter pilot who quickly learned that wartime flying was very different from peacetime flying and training exercises. During his first combat mission over Laos, Honodel made novice mistakes due to combat jitters. Flying at typical stateside

speed, he was quickly warned by his GIB (Guy in Back) to increase speed. He dodged the ground fire, delivered his bombs (but missed the target), and was quickly brought down to earth with his GIB's "are you trying to get us killed?" lecture.

Honodel draws the reader into a first-hand account of life as an F-4 pilot, chronicling how he survived both in the air and on the ground. Interspersed with stories about life as a fighter pilot, he reflects about the "...war that was not really a war..." He shares how his squadron dealt with the volatility and serendipity of flying combat, attacking targets ranging from bridges to supply trucks to clumps of trees. He describes in fond detail his squadron mates—the range of personalities, their adventures in town, rituals for arriving and departing personnel, and their seriousness about successfully completing their missions. He particularly extols the absolute dedication of the search-and-rescue personnel retrieving downed aviators.

His vignettes feature rich descriptions and details written in language that will be appreciated by aviators and non-aviators alike. His conversational, short-story style, woven with technical details and insights, keeps the general reader engaged. One of his most memorable and thought-provoking quotes is his realization that, "The hardest part of serving in the Vietnam conflict was not fighting it. The truly hard part was coming home." Returning to his family, traveling in uniform, Honodel realized people he knew and others he didn't viewed or treated him with disrespect or ambivalence. Decades later, during a visit to the Viet Nam Memorial in Washington, the impact of the war hit him viscerally. He dedicated this book to those flyers and special friends who served in the air war over Laos, especially those who did not return.

The photographs, excerpts from the F-4 pilot's manual, and glossary of military and aviation terminology are most helpful to the non-military reader. All in all, the book is very professional and very enjoyable.

P. E. Simmons, Ph.D., docent, Smithsonian National Air & Space Museum, Udvar-Hazy Center



Phoenix 13: Americal Division Artillery Air Section Helicopters in Vietnam. By Darryl James. Barnsley UK: Pen & Sword Military, 2020. Photographs. Notes. Appendix. Pp. 169. \$29.95. ISBN 978-1-52675-942-9

This book is about Darryl James' year in Vietnam (1968-1969) as an Army officer and helicopter pilot. James was assigned to the Americal Division's Artillery Air Section, based out of Chu Lai in I Corps, South Vietnam. During his tour, he flew both the OH-23G and OH-6A small scouting and observation helicopters. The book's title comes from his personal call sign, Phoenix 13, under which he flew many different kinds of missions: scouting, convoy es-

cort, search and rescue, and insertion of long-range patrols.

I expected to read about flying from his viewpoint. But James very skillfully wove in the stories of twelve other Army aviators with whom he served. This collection of personal war stories is based on the thirteen pilots' experiences in Vietnam put onto paper almost a half century after they occurred.

The book begins in 1964 as ROTC cadet James watches an Army air power demonstration at Ft. Devens, Massachusetts. He glosses over his two years in graduate school and his time as a second lieutenant in command of a tank platoon at Ft Knox, Kentucky. He covers helicopter training at Ft Wolters, Texas, and Ft. Rucker, Alabama, in two pages.

The next twenty-six chapters, however, cover James' Vietnam assignment. They recount events from in-country missions as well as his twelve-day Christmas trip to Clark Air Base and Angeles City, in the Philippines, to attend jungle survival training and get some rest and relaxation. These chapters are mission stories relating daily occurrences for the thirteen pilots. These stories, sometimes called "TINS" (an irreverent pilot acronym for "this is no s—t") allowed the aviators to learn from each other's experiences and mistakes. The "TINS" within this collection also reveal the brotherhood developed between not only the pilots themselves, but with their crew chiefs as well. These pilots relied on their flying expertise, courage, story swapping, and a bit of luck to survive to operate every day. James even has a chapter entitled "Flying in Vietnam: 90 Percent Boredom, 10 Percent Stark Terror" to make that point.

Chapter twenty eight covers James' return to his wife and their separation after his Vietnam assignment. The last chapter covers the status of James and twelve others he flew with during this period and where they are in 2020. I recommend this book with its many stories and insights. It is an accurate example of what Army scout-helicopter aviators faced in order to fulfill their assigned and presumed tasks in I Corps during the period 1968-1969.

Joseph D. Yount, USAF (Ret), and NASM Docent



The Royal Navy Wasp: An Operational and Retirement History. By Larry Jeram-Croft and Terry Martin. South Yorkshire, England: Pen and Sword Aviation, 2018. Photographs. Illustrations. Tables. Appendices. Pp. xiii, 264. \$49.95. ISBN: 978-1-52672-114-3

As with any aircraft, it is the operators and maintainers who are best placed to tell the story. Rather than a rote recitation of dates, versions, and operations, this work provides a nice interleaving of experiences throughout the Wasp's long and incredible career—exciting, humorous, heroic, and frustrating. The book accounts for Wasps in

Royal Navy service and those purpose-built for, and shared with, foreign services, concluding with discussions of those still flying.

The Westland Wasp was the first helicopter designed to operate from the confined spaces of Royal Navy frigates and destroyers. The first section of this book establishes the lineage of the Wasp from the immediate post-World War II-era Cierva W.9 and W.11, through the Saunders-Roe Skeeter and P.531, to the Wasp. It also covers the military requirement for the Manned Anti-Submarine Torpedo Carrying Helicopter (MATCH) system. The Wasp HAS Mk1, a response to the MATCH requirement, was intended to fly off frigates and destroyers to launch torpedoes and drop depth charges on submarine contacts outside of the home ship's weapons range. Jeram-Croft and Martin devote a fulsome portion of the first section to the design decisions and teething pains in Wasp development: landing gear type, powerplants, weapons control systems, ditching flotation devices, and the like. The capability and flexibility of the Wasp soon led to further missions such as visual search, mail runs, and the additional role of anti-ship warfare/surface attack using wire-guided missiles (Nord AS.12). These are addressed in sections on Wasp operations during the Cold War, the euphemistically named "Cod War," and the Falklands War.

The second section of the book includes tables and limited discussions on Wasp operations with the navies of New Zealand, The Netherlands, Indonesia, Malaysia, Brazil, and South Africa. The final part of this section accounts for all the Wasps still flying (albeit not in military hands) and those on static display. The plethora of tables in chapters 10 and 11 seem to account for all Wasps ever produced. The end of the book details Martin's personal experiences as a Wasp private owner and operator, and the occurrence of a powerplant failure that had never occurred in a Wasp before.

The first-hand accounts of Wasp operations, drawn from diaries, logs, journals, and the magazine *Flight Deck*, were intriguing. They serve to put into clear context the fact that the Wasp was a mechanical machine with little boost augmentation on the controls and no computer-assisted flight management. Especially interesting were accounts of flight operations in the "Cod War" with Iceland and of being the first Royal Navy platform to fire guided missiles at a surface target (AS.12s against the Argentine *ARA Santa Fe* at Grytviken, South Georgia, during the Falklands War).

The work is an overall good read, made more interesting with the inclusion of first-hand accounts. An index and notes would serve the book well and help establish context and continuity across chapters and operations and personalities, especially the wide variety of personal accounts. Likewise, a suggested bibliography of additional works on the Wasp would help establish further context for this book.

Coincidentally, this book was published in 2018, the

30th anniversary of the Wasp's completion of Royal Navy service.

Timothy J. Hosek, USG (Ret), NASM Docent, Fairfax, Virginia



Through Adversity: Britain and the Commonwealth's War in the Air 1939-1945: Volume 1. By Ben Kite. Warwick UK: Helion, 2019. Maps. Photographs. Figures. Annexes. Notes. Bibliography. Index. Pp. v, 492. \$44.17. ISBN: 978-1-912866-23-6

Ben Kite's first book, *Stout Hearts: The British and Canadians in Normandy 1944*, was an excellent study of the British and Canadian armies in the Normandy campaign. As an experienced British Army combat officer, his intention was to document how an Army actually conducts operations. He examined the infantry, artillery, armor, engineers, intelligence, and other branches to understand how they fought, and to convey the experiences of soldiers during the campaign.

Through Adversity is the first of two volumes covering British and Commonwealth air forces during World War II. His goals with these two volumes are three-fold: 1) describe the main themes or elements in the British and Commonwealth air war; 2) explain, in detail, tactical and operational techniques employed; and 3) use memoirs and oral history interviews to show what it was like to go against German fighters, fly a bombing mission over Germany, patrol the seas searching for submarines, or fly off a pitching carrier deck to patrol a convoy.

Part I covers the expansion of the RAF during the 1930s and how the RAF conducted flight training. The remaining three parts cover air superiority (II), the bomber offensive (III), and the maritime air war (IV). Each includes details and observations on strategy, evolution of tactics, operations, and aircraft. In the section on air superiority, Kite covers successes (the Battle of Britain, night fighter defense over Britain, and the defense of Malta) and failures (loss of air superiority to the Japanese over Malaya, Singapore, and Burma). The bomber offensive is organized around the conduct of a bomber mission over Germany, from preparation to return. The final section on the maritime air war covers Coastal Command's war against the U-Boats, anti-shipping missions, and operations of Fleet Air Arm (FAA) aircraft carriers. Throughout, Kite is frank about the challenges faced in developing suitable aircraft and tactics, particularly the limitations of bombers at the start of the war and the RAF's failure in the interwar period to maintain an effective maritime anti-submarine capacity and to provide support for the FAA. The loss of air superiority to the Japanese shows the danger of underestimating one's enemy.

Through Adversity is not a strictly chronological ac-

count, though it does follow the sequence of air operations following the start of the war and includes descriptions of several notable air actions. Kite does provide a good overview of the different applications of air power. His book is particularly good at taking appropriate selections from the extensive list of memoirs cited in his bibliography to illustrate and support his observations on operations and tactics. His descriptions are often cast in the words of those who flew on the various missions. He made good use of often unexploited oral-history interviews from the Imperial War Museum and the Australian War Memorial. What comes across are key themes Kite identified as leading to successful application of air power: innovation, flexibility, cooperation, leadership, courage, and determination.

However, there are a surprising number of minor errors which might have been avoided with more careful fact checking: B-17s and B-24s did not fly missions over Europe between 32,000' and 38,000'; German night fighters were not armed with 40mm cannon; and the F4U Corsair had six, not four, wing guns. Despite these, the book is informative and valuable to the study of British air power in World War II. The second volume, *Undaunted*, will cover air transport, photographic reconnaissance, air intelligence, and close air support.

Edward M. Young, PhD, volunteer, Museum of Flight, Seattle WA



Heavy Date Over Germany: The Life and Times of B-17 Tail Gunner Ray Perry. By Jewelle Jordan Kuenstler, Ed. Abilene TX: State House Press, 2019. Photographs. Notes. Bibliography. Index. Pp. xiv, 213. \$29.95 paperback. ISBN: 978-1-93333-780-7

As members of the Greatest Generation become fewer and fewer, we are left with memoirs or biographies to remember their service and sacrifice. *Heavy Date* is the biography of one of the millions of American men and women who left home and security to serve in places most of them didn't even know existed. Ray Perry was a west-Texas farm boy whose family survived the Depression, eking out an existence as cotton farmers. The book is based on his letters home and a lengthy interview conducted several years before he died in 2017.

Kuenstler is a local journalist who knew the family (including Ray's son, former Texas governor Rick Perry) and was familiar with Ray's story. Perry served as a B-17 tail gunner in 1944-45, training in the Southwest US before being stationed in England. Perry's letters home are interspersed with explanatory narrative based, in part, on the interview Kuenstler conducted late in his life. The narrative does a good job of explaining information in the letters and interview that might otherwise have been unclear. The letters themselves are very vanilla. They focus on Ray's re-

ceiving mail, food (local and what he got from home), money, and his number of missions (completed and remaining). There are no deep thoughts or reflection on self or the war. Perry is simply a young man relating the commonplaces of everyday life. What there is of the philosophical comes from the interview. Some of his more interesting thoughts and observations come from his training experiences. He liked Arizona but did not like what he referred to as "Yankee" Nebraska, although his best friend on the crew, Sandy Herron, was a Nebraskan. Perry apparently overlooked Herron's Yankee background, because, like Perry, he was from a small farming community and had grown up poor. Perry was okay with the English countryside but was not at all impressed with London. For many of the same reasons (too many people, too much bustle), he wasn't a fan of southern California where he spent the last part of his service. Descriptions of his crew consist of where they came from and what sort of airman they were—no comments on personalities, motivations, or quirks.

The book is generally well written; and Kuenstler, for the most part, lets the letters and interviews speak for themselves. Perry saved a bomb tag from each mission as a memento. Kuenstler uses these to chronicle his progress up to the required 30 missions (the required-mission count was raised from 25 to 30 prior to his arrival in theater). There is explanatory narrative for some. There are lots of pictures, most of them taken by Perry or his family, that add a real sense of him and the time. They are often grainy and overexposed, a feature not of the editing but the inexpensive camera used to take them. There are no maps, although the promotional release says there are two.

At the end of the day, this is an enjoyable read without being especially enlightening. Perry was the typical World War II American soldier: someone not especially interested in or excited about going to war but who saw it as their duty, did their best, and came home to continue a life interrupted. For interested readers, the \$14.98 ebook is the way to go.

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



No Parachute: A Classic Account of War in the Air in WWI in Letters Written in 1917 by A.S.G. Lee, Sherwood Forresters, Attached Royal Flying Corps. By Arthur Gould Lee. London: Grub Street. 2018. Photographs. Maps. Appendices. Pp. 240. \$17.95 paperback. ISBN 978-1-911621-05-8

In May 1917, Lee was a new Royal Flying Corps (RFC) pilot arriving in France with only 85 hours of flight time. He had more flight hours than most new pilots arriving in France but was still unprepared for the dangers of aerial combat over the Western Front.

No Parachute is the collection of Lee's letters to his wife

in England. Being married was the exception for new RFC pilots. He wrote his bride regularly providing her with the details, both exciting and mundane, of his experiences in France—squadron parties, dinners, and aerial combat. Lee was one of only two squadron members who remained in the Royal Air Force, ultimately retiring as an air vice marshal. In 1968, he published the letters in a single work.

Lee was assigned to No. 46 Squadron flying the Sopwith Pup. His excitement is clear in a letter to his wife: “Now I’m right in the Great Adventure, of fighting the war in the air, and wondering where it will lead to.” He gained more and more experience and, along with his fellow pilots, routinely complained about their Pups being no match for many of their German counterparts. Midway through his tour, No. 46 Squadron was re-equipped with the more capable Sopwith Camel. But readers will notice a shift in the emotion of Lee’s letters. The excitement is gone. “The truth is that the spirit doesn’t move me at the moment to write long, descriptive tomes. That spell of low strafing has knocked some of the stuffing out of me, I suppose. I don’t get the same thrill out of flying, even on Camels.”

By the end of his tour (January 7, 1918), Lee had amassed 386 total flight hours: 286 in combat, with 222 of them over the lines. He was a double ace (11 victories), had 56 combats during 118 patrols, and had been reported missing four times.

So, why the title *No Parachute*? On January 1, 1918, Lee wrote about a fellow pilot, “Ferrie,” taking over as flight commander of Lee’s C Flight. Only two days later, Lee wrote: “I’m terribly depressed this evening. Ferrie has been killed. . . his right wing suddenly folded back, then the other, and the wreck plunged vertically down . . . God, imagine his last moments, seeing the ground rushing up at him, knowing he was a dead man, unable to move, unable to do anything but wait for it. A parachute could have saved him, there’s no doubt about that. What the hell is wrong with those callous dolts at home that they won’t give them to us?”

Lee’s appendices describe the fate of his fellow squadron members, failures of high command, Trenchard’s strategy of the offensive, and “why no parachutes.” He concludes with a quote from a post-war report investigating the matter: “No one in high quarters had any time to devote to investigating the merits of an appliance whose purpose was so ridiculously irrelevant to war as the saving of life in the air.”

No Parachute is a premiere “There I was” story. Lee’s letters are engaging and drive home the brutal nature of the World War I air war. The book is a true gem and a must read for those interested in the World War I air war and the stresses of war.

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



World War II Infographics. By Jean Lopez, Nicolas Aubin, Vincent Bernard, and Nicolas Guillerat. New York: Thames & Hudson, 2019. Maps. Tables. Diagrams. Pp. 191. ISBN 978-0-500-02292-4

This book is not a statistical compilation, but a complete history in graphic format of the war from a political, military, economic, and social perspective. The book summarizes each topic and conveys analysis of key principles in lively, colorful graphs, charts, maps, timelines, tables and lists—or “infographics.” Each topic distills the latest published research of even such seemingly obtuse topics as Gross Domestic Product (GDP) into an intuitive and readable format.

It was originally issued in French by co-authors Lopez, Managing Editor of *War and History Journal*, and military historians Aubin, Bernard, and Guillerat. Infographics have gained popularity recently. Also known as data visualization, they condense topics of wide scope into a concise format. This book elaborates on Doyle’s *World War II in Numbers: An Infographic Guide* (2013). Readers of this work will find much of interest in Addington’s *The Great War 100: The First World War in Infographics* (2014), and Watson and Smith’s, *An Infographic History of the Cold War* (2020).

The authors cover not only the war, but also devote numerous pages to prewar events and conditions that led to the conflict. Country-by-country statistics illustrate the creeping onset of Fascism in Europe. Graphs of economic activity point out that the Nazis had to conquer and absorb the financial, manufacturing, and labor resources of neighboring countries to survive. Those in search of comparative statistics on the means of fighting the war will find thorough analysis on the armies, weapons, aircraft, ships, and industrial output. A good example of this format is the USAAF and RAF strategic bombing campaign. Infographics packed into just a few pages depict the numbers of aircraft and sorties by month, bomber losses on escorted vs. unescorted missions, the effect of enemy day and night fighters, tons of bombs dropped, and estimated destruction of German cities.

All expected battles and campaigns are covered in detail. Specific examples bring dry statistics to life. For example, 17 Wehrmacht armored divisions took part in Operation Barbarossa. In seven months of combat, the 7th Panzer Division was reduced from 400 officers to 64, 14,000 troops to 5,133, and 265 tanks to just 9. Readers wanting more than a graphic summarization will find a bibliography of the sources for each topic at the bottom of the pages.

Most World War II histories end with V-J Day. This book painstakingly details outcomes: the massive costs; horrific numbers of people killed, wounded, and missing; displacement of populations; destruction of housing, industry, and transport; redrawing of national boundaries; the fall of colonial empires; and the dawn of the Cold War.

Stepped in the history of World War II from a French

perspective, the authors interweave details on how France met with disaster. Apparently no fans of their country's efforts, they contend that pre-war politics hindered effective diplomacy; dissect the June 1940 Battle of France in excruciating detail; suggest that the Resistance, riven by factionalism, was largely ineffective as a military force; and assemble in-depth statistics on collaboration with the enemy.

The book features crisp, detailed, and accurate profiles of weapons and people. The format's inherent brevity, omits some areas such as special forces, the role of neutral nations, and changes in the role of women.

Cloth-bound and printed on archival-quality card stock, this book is worth its relatively steep cover price. It will replace the surveys most of us keep, but never open, and invites even the casual reader to leaf through, look up, and cross-reference.

Steven Agoratus, Hamilton NJ



Combat at Close Quarters: An illustrated History of the U.S. Navy in the Viet Nam War. By Edward J. Marolda, ed. Annapolis: Naval Institute Press, 2018. Photographs. Maps. Pp. 346. \$39.95. ISBN: 978-168247195-1

The Naval Historical Foundation-Naval History and Heritage Command published the *U.S. Navy and the Vietnam War Commemorative Series*, spanning 1945-1975. Four of these booklets comprise the current volume. Editor Marolda (co-author of three chapters) was an Army officer in Viet Nam in 1969 and 1970. His doctorate focused on the Navy's involvement in Viet Nam.

The first chapter, "Naval Air War," describes the Navy's contribution to the first concentrated bombing effort, Rolling Thunder. Co-author Norman Polmar documents the Johnson administration's plan to discourage North Viet Nam (NVN) from overthrowing South Viet Nam's (SVN) government. The plan was to start bombing along a line in NVN and continue to "roll" this line of "thunder" slowly northward. The intent to make NVN surrender and stop further destruction failed. In response, the White House took control of the air war through its rules of engagement. For three years, Rolling Thunder expended 864,000 tons of bombs and missiles with limited results. During this time, the highest number of casualties of naval and Marine aviators over the entire war occurred. When bombing was halted in 1968, naval aircraft continued reconnaissance flights over NVN.

In chapter two, co-author R. Blake Dunnavent (author of *Brown Water Warfare*, perhaps the definitive work on riverine warfare) describes how the Mekong Delta emerged as the principle waterway for transporting troops and materials into the South. Task Force 116 began patrolling these waterways with 31-ft river patrol boats (PBRs). A

Mobile Riverine Force, using US Army helicopters and PBRs, sought out and destroyed communist forces. Simultaneously, Task Force 115 started patrolling the entire SVN coastline. With no previous river experience, these task forces wrote the manual and were very successful: the enemy was forced to use the Ho Chi Minh trail for resupply. Interestingly, these tactics were later employed in Operation Iraqi Freedom.

"Nixon's Trident" describes how the new administration set about ending the war. Dr. John Sherwood has written extensively on fighter pilots' experiences in the Korean and Viet Nam wars. Bringing US forces home gave SVN forces more responsibility for their own country's defenses. To prevent the flow of supplies heading south through Laos, the USAF and Navy dropped 3 million tons of bombs. Another strategy to limit supplies coming from NVN was mining Haiphong Harbor. 1972 was the most intense year of the air war. Nixon relaxed the rules of engagement; this allowed the Navy to target areas previously off limits. Air attacks on previously untouched targets led NVN to agree to end the conflict.

"Knowing the Enemy" discusses intelligence gathering and interpretation. Co-author Richard Mobley is a military intelligence analyst. Intelligence about NVN's plans was collected through national agencies (CIA, NSA, *et al.*), theater ships and aircraft, and humans (SEALS). The 1964 Tonkin Gulf incident was used by Johnson to secure Congress's concurrence to fight in Viet Nam. Naval assets (e.g., RA-5, RF-8, and RA-3) photographed potential targets and flew bomb damage assessments. For one 54-day period, these aircraft flew 42 missions, exposing 174,000 feet of film. SEALs captured enemy commanders for their intelligence value. Intelligence was largely responsible for the operational and tactical successes throughout the war.

The authors highlight individuals along the entire chain of command and, where appropriate, criticize senior leadership (both civilian and military) and their flawed decision-making during pivotal times of the conflict.

This is a well-crafted volume with sharp, clear pictures and readable text, printed on thick paper. Each chapter offers lessons learned for the post-war future and sidebars that augment the adjacent text, providing rich descriptions of people and events. The individual booklets are also still available from the Naval History and Heritage Command website for free.

Scott R. Marquiss, docent, National Air and Space Museum, Mall and Udvar-Hazy Center



US Naval Aviation 1898-1945: The Pioneering Years to the Second World War. By Leo Marriott. Yorkshire UK and Philadelphia: Pen & Sword Aviation, 2021. Photographs. Glossary. Bibliography. Pp. 173. \$22.95 paperback. ISBN: 978-1-52678-539-8

The latest in Pen and Sword's *Images of War* series (by regular contributor Leo Marriott) takes the reader through the development of US Naval aviation up to the end of World War II. With over 200 photographs drawn chiefly from the US National Archive and Records Administration, Navy History and Information Command and Library of Congress, Marriott has once again (he has four other *Images of War* volumes to his credit, as well as several other books on naval and aviation topics) demonstrated a thorough knowledge of the subject and a keen eye for informative and seldom-seen photographs.

Each chapter begins with a short essay summarizing the specific topic. From then on, the extensively captioned photographs do an excellent job of filling in the story. The first four chapters, starting with Samuel Langley's Aerodrome (partially supported by Navy funds), cover the period up until the start of the Second World War. The remaining four cover the war itself. Chapters 2, 3 and 5 include the impact of the Washington Naval Treaty (and its expiration) on carrier design, while Chapter 4 covers lighter-than-air and flying boats. Chapter 5 addresses the early part of the war through the Battle of Midway. Chapter 6 deals with carrier and shore-based Naval aviation in the European theater, including the emergence of escort "jeep" carriers. Chapter 7 looks at the campaigns in the South Pacific from Guadalcanal until the arrival of the *Essex*-class carriers (Marriott has another *Images of War* book on the *Essex*-class carriers) and the first wartime-design aircraft. Chapter 8 covers the "end-game" period. An interesting side note of that chapter is that the jeep carrier *St. Lo*, the first ship to be sunk by kamikaze attackers, had been originally named *Midway*, though that name was changed after she first went operational. One wonders if there was a failure to perform the necessary rituals for renaming a ship.

While not pretending to be a complete history of aviation in the US Navy through World War II, this book provides a welcome chance to see the aircraft and vessels that, too often, are left only to the imagination. It's definitely worth having, both to see the evolution of naval aircraft and aircraft carriers and to have at hand while one is reading less-comprehensively illustrated books.

Jon Barrett, Collections Volunteer, National Air & Space Museum



Essex Class Aircraft Carriers, 1943-1991: Rare Photographs from Naval Archives. By Leo Marriott. Barnsley UK: Pen & Sword Maritime, 2020. Photographs. Table. Bibliography. Pp. 164. \$24.95 paperback. ISBN: 978-1-52677-214-5.

Marriott's photographic history tells the story of the 24 *Essex* Class aircraft carriers. From 1943 until the end

of World War II, these ships played a key role in every battle of the Pacific campaign from Tarawa, to the Philippines, to Okinawa and Japan. After the war, they served in Korea and Vietnam and played a role in the US space program. These ships and their crews successfully performed their assigned tasks while surviving bombs, torpedoes, kamikazes, and typhoons without one ship being lost. The text, supported by a selection of rare photographs, covers the evolution of the design from prior to the war until their retirement and looks at factors that shaped construction of this class.

The pictures show 22 of the 24 ships that served after the war (*Bunker Hill* and *Franklin* suffered heavy damage and were never returned to service). The Navy made modifications to bows, decks, electronics, and radars; removed the 5-inch gun turrets; and added steam catapults and mirror landing systems. These kept the vessels in service for decades. Four were never fully modernized but were redesignated Landing Platform Helicopter (LPH) amphibious assault ships for the USMC. They kept their original straight decks and operated only helicopters. In addition to the Korean War and Vietnam the *Essex* ships and their aircraft were involved in Cold War standoffs such as Quemoy and Matsu, the Bay of Pigs invasion, and the Cuban Missile Crisis.

There are dramatic action shots of carrier aircraft. Avengers, Hellcats and Corsairs give way to Furies, Banshees, Cougars, Skyraiders, and Savages. By the mid-to-late 1960s, Crusaders, Skyhawks, Tracers, Corsair IIs, and Skywarriors occupied the flight decks. Some ships were redesignated as anti-submarine warfare (ASW) carriers. They had Trackers, Seabat ASW helos. and Airborne Early Warning E-1Bs. For decades an *Essex*-class ship served as the Navy's training carrier: USS *Antietam* (1957-1962) and USS *Lexington* (1962-1991).

Essex carriers served as spacecraft recovery ships from 1960-1973 pulling six Mercury, eight Gemini, and seven Apollo capsules from the sea, including Apollo 11 with astronauts Neil Armstrong, Buzz Aldrin, and Mike Collins.

In summary, Marriott's words and pictures demonstrate that without the US industrial base that created this class of ship, the island-hopping campaign in the Pacific would not have been possible. In 1996, a naval historian wrote that the *Essex* class was "the most significant class of warships in American naval history," citing the large number produced and "their role in making the aircraft carrier the backbone of the US Navy." I agree and recommend this book. Perhaps it will stir the reader to visit one of these ships. Four of them (*Yorktown*, *Intrepid*, *Hornet*, and *Lexington*) have, thankfully, been preserved as museums.

Joseph D. Yount, USAF (Ret), and NASM Docent



Rear Admiral Herbert V. Wiley: A Career in Airships and Battleships. By M. Ernest Marshall. Annapolis MD: Naval Institute Press, 2019. Map. Photographs. Notes. Bibliography. Index. Pp. xii, 322. \$39.95. ISBN: 978-1-68247-318-4

Dr. Marshall is a retired MD and professor of medicine who devotes his post-professional time to researching and writing history. He has certainly found his niche for a retirement “job” if this book is any indication of his abilities. It is a top-notch biography of a naval officer who saw service in both world wars and was intimately involved with the Navy’s foray into rigid airships from almost their start through the end of that era.

Wiley is probably never going to be featured in a movie about his life. But this biography brings to light the life of a truly solid naval officer and what it was like to serve in the difficult between-the-wars years.

Without question, Wiley understood what it took for him to advance in the Navy. He made every effort to secure jobs in the surface fleet and balance these with shore-based assignments. He started in destroyers and was on a shore assignment to his alma mater, the Naval Academy, when the call went out for volunteers to serve in the new lighter-than-air (LTA) branch that was being pushed by RAdm Moffett, among others. Before the christening of the Navy’s first rigid airship, the *USS Shenandoah* (ZR 1), he was assigned to Lakehurst Naval Air Station for training. He was not aboard that airship when she crashed during a storm in Ohio in 1925. Wiley then was assigned first as executive officer and then commander of the *USS Los Angeles* (ZR-3), the airship given to the US by Germany as part of its war reparations. During this time, experiments with launching and recovering scouting aircraft were begun in preparation for the Navy’s larger, US-built rigid.

For a year, Wiley was back in the surface fleet to gain further experience and career broadening aboard the battleship *USS Tennessee* (BB 43). But he was soon back in LTA as executive officer of the new *USS Akron* (ZRS 4). When that ship crashed in the Atlantic during a storm in 1933, Wiley was one of only three survivors (and the only officer) among the 76 on board (including the great LTA proponent, Admiral Moffett).

After a short stint in a cruiser, Wiley was named skipper of the newest rigid airship, *USS Macon* (ZRS 5). He perfected the large airship’s role as a long-range search tool for the surface fleet using its Curtiss F9C Sparrowhawks, but the end was near for the big rigid airship in the US Navy when, following structural failure in a storm, Wiley had to put the airship into the waters of the Pacific off the California coast in 1935. Because of his skillful handling of the ship, only two of the crew were lost.

Wiley soon found himself back with the surface fleet. He commanded a destroyer squadron in the Asiatic Fleet when the war started, had several other jobs, and then was assigned as captain of the battleship *USS West Virginia*

(BB 48, one of the ships sunk at Pearl Harbor). He was in command when the ship sank the flagship of the Japanese fleet during the Battle of Surigao Strait and led it through Philippines operations and the invasions of Iwo Jima and Okinawa. A heart attack led to his retirement as a rear admiral in 1947 and, finally, his death in 1954.

For anyone interested in the great rigid airships of the US Navy, this is a well-written and absolute must-read book on that era of naval operations.

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



Wings for the Rising Sun: A Transnational History of Japanese Aviation. By Jurgen P Melzer. Cambridge MA: Harvard University Asia Center, 2020. Photographs. Drawings. Maps. Pp. 372. \$32.00 paperback. ISBN: 978-067424442-9

I became aware of Japanese aviation when I learned about the attack on Pearl Harbor. But I never gave much thought to how Japan managed to field such air power. Melzer’s book shows how a small, isolated, post-feudal society created a modern air force in a short time. The book is an academic thesis repackaged as a commercial offering. Its research is meticulous, although the language is a bit stilted and mechanical at times.

The gist of Melzer’s message is Japan’s achievement was a result of identifying a clear goal, marshalling the resources required, and maintaining government and civilian support over time. That is not to say the road was smooth. The competition between the Imperial Japanese Army and Navy caused redundancy and unnecessary expense. And, for the first 20 years of the project, the Japanese were significantly dependent on foreign experts—an anathema to a culture that prizes self-dependence above all.

As early as 1910, the Japanese identified air power as a requirement of future military actions. They invited the French government to send a delegation along with aircraft, parts, machinery, and technicians to lay the foundation for Japanese air power. The mission was so successful that, by 1914, Japanese aircraft were conducting offensive operations against the German enclave in Qingdao, China. Despite this success, the relationship with the French experts soured; and the Japanese turned to Germany for technical advice. As one of the victorious allies, Japan received a large amount of German aviation equipment as reparations: 70 aircraft, 300 engines, spares, and manufacturing equipment. Given the collapse of the German aviation sector, Japan saw the opportunity to hire German engineers, technicians, and operators to use their windfall to further Japanese objectives. While this skirted the provisions of the Treaty of Versailles, the world paid no notice.

For the next decade, German experts instilled discipline and structure into the Japanese program; by 1930, Japan was able to accomplish numerous record-breaking flights. The relationship with Germany would continue through World War II.

Melzer makes clear that Britain and the US also made huge contributions to Japanese airpower in the run up to the next war. Both saw Japan as a huge commercial marketing opportunity, ignoring Japan's threat to their national interests. In fact, the Japanese discovered the advantages of reverse engineering such that many of the aircraft that attacked Pearl Harbor used derivatives of American engines, variable-pitch propellers, landing gear, and avionics and were manufacturing using American-supplied tools in copies of American-designed factories.

Melzer is dispassionately academic in telling his story until he gets to World War II. Here he becomes an apologist for the failure of Japanese self-reliance. He notes that the Japanese were designing their own rocket and jet engines and did not really need German assistance. In doing so, he dismisses the significance of the Japanese-German Technical Exchange Program. The similarity between the Ki-61 Hien and a German supplied Bf 109 E4 is not accidental. Neither is the similarity between the Ki-84 Hayate and the Fw 190 A5. The same is true of the Me 163 and J8M1 Shusui and their rocket motors. Some sources credit ten German companies with providing 30 plans or examples of aircraft, engines, and weapons. That is not to diminish Japanese accomplishment in aviation. Kawanishi H6K *Mavis* and H8K *Emily* seaplanes were world-class aircraft. Japanese aircraft consistently demonstrated longer range and greater maneuverability than their opposite, but they were also under gunned and under armored.

Melzer spends a brief time covering Japanese post-war aviation programs and the development of a "Made With Japan" vice "Made In Japan" strategy, but his conclusion lacks the depth of the early sections.

This is an excellent book that tells a fascinating story. Some of the illustrations are unique and show well. The paperback is robust and should hold up to many readings. I strongly recommend this book to any aviation historian.

Gary Connor, docent, Smithsonian National Air and Space Museum's Udvar Hazy Center



In Good Faith: A History of the Vietnam War Volume 1: 1945-65 and No Wider War: A History of the Vietnam War Volume 2: 1965-1975. By Sergio Miller. Oxford UK: Osprey, 2020/2021. Illustrations. Maps. Photographs. Glossary. Notes. Bibliography. Index. Pp. 448/528. \$20/\$35. ISBN: 978-1-913118-64-8/978-1-4728-3851 respectively

These books are a useful reference for those removed from the Vietnam War by a half century. *Volume 1* reliably

stitches together the war's roots from the French colonial phase, the Second World War, and the shaping events of the Cold War. Vietnam played a minimal role in America's national security concerns before the full blown "American War." Equally important were political developments within Vietnam, independent of external intrigues, and the White House's misleading and contradictory policies. It recapitulates US national security policy from the Roosevelt era onward in an attempt to answer how the US ended up in a conflict that was so costly for all parties involved and damaging in the long term to America's prestige. To answer that, Miller revisits the impacts that the Korean War and the fall of China had on America's post-World War II role as leader of the "Free World" and on US domestic politics.

Somewhat different from more narrowly focused works that exposed the failure of America's leaders during the Vietnam War and their deceitfulness, this volume takes a wide-brush approach to examining primarily the war's political context. All personalities on the path leading eventually to the "American" war in Vietnam appear. Of parallel importance are White House and Pentagon decisions that reveal confused policies and diametrically opposed positions held by senior leadership and principal lieutenants. Seemingly endless "factfinding" trips to Vietnam often provided misleading or politically correct findings. America was complicit in the coup and murder of South Vietnam's president and the downward spiral of the south in the aftermath. Ho Chi Minh allegedly said, "I can't scarcely believe that the Americans would be so stupid."

As one who has been doing scholarship on the war for decades, I was interested in the various positions espoused by high-level US officials. Central to the White House's inexcusably poor decision making were the self-impressed "wise men," advising the president with supposedly well-informed arguments to commit to combat against the Viet Cong/North Vietnamese. In the background were voices unequivocally stating that involvement in the war would be a monumental mistake with grave consequences for both the US and Vietnam.

The book's single most important episode is the 1964 Gulf of Tonkin Incident where an alleged attack on the destroyers *Maddox* and *Turner Joy* (located well off the North Vietnamese coast) occurred. It is important for two reasons: the attack never took place, and it became the basis for Congressional authorization to conduct combat operations against North Vietnam. This is what President Johnson badly needed to commence the Americanization of the Vietnam War.

A reader might conclude that the incredibly wrong-headed arguments leading to catastrophic US involvement (in what was, essentially, a war of choice and not necessity) are so transparently fallacious that no president would ever ignore the war's lessons and repeat such a costly error in judgement. Yet, that is exactly what happened only 35 years later in Iraq by "wise men" who should have known better than advise a president to go to war.

Volume 2 continues with the first US combat units to arrive and engage enemy forces in 1965. With the steady flow of US units came the big lie. Initially, combat troops were sent there to provide base security after a series of successful VC attacks—not to Americanize the war. However, the war quickly changed as hundreds of thousands of American troops aggressively sought out the enemy throughout South Vietnam.

Along with the buildup, there were seemingly endless engagements between American forces and the elusive North Vietnamese Army (NVA). One wonders how either side could ever have hoped to achieve a military victory. On one side, the Americans were trained for a conventional war but were thrust into the frustration of fighting an enemy who melted away into either rugged jungle terrain or the marshes of the Mekong Delta. With helicopter mobility, American generals hoped for surprise and fluidity on the battlefield where, with immense firepower resources, they could annihilate the enemy once he had been fixed in place. On the other side, NVA tenacity, endurance, and commitment to a conflict from which many would not return alive was awesome. The American war depended on “body counts” as a key metric for success; it had little impact on the outcome. The North also used “body counts” but as a political weapon to impact US public opinion and will to continue. The NVA would look for American wounded to execute, thus elevating the numbers reported in the increasingly troubling news sent back home.

General Westmoreland’s 1967 speech before a joint session of Congress reflected optimism that the US was on the road to victory. The 1968 Tet Offensive significantly altered that belief. Militarily, Tet was a North Vietnamese and Viet Cong disaster. However, it was a political victory for them because of the news images seen in American homes—images inconsistent with Westmoreland’s optimism. The US attempt to win the war militarily ended when President Nixon began “Vietnamization” of the conflict coupled with withdrawal of US forces.

Miller covers the North Vietnamese 1972 Easter Offensive; the convoluted four-year-long peace negotiations; the Christmas 1972 bombing of Hanoi; and, finally, the face-saving Paris Peace Treaty that allowed the US to extricate itself from a war it should have never entered. His history covers quite a bit of ground yet successfully captures the essence of the “American War” with all its blemishes (e.g., My Lai and a serious Army drug-addiction problem). The closing chapter recounts the sudden collapse of South Vietnamese resistance and the end of a very long war. As predicted, the South Vietnamese people then entered into a very difficult era under the North Vietnamese. Even the Viet Cong did not escape Hanoi’s wrath.

We are now some five decades from that highly destructive war that was damaging in so many ways. It would take years for the US military to recover from discipline, morale, and drug issues. Much of this is barely known or understood by many Americans today. These

books provide a handy reference to that war and how America fought it politically and militarily.

John Cirafici, Milford DE



Air War Over North Africa: USAAF Ascendant. By David Mitchellhill-Green. Barnsley UK: Pen and Sword Military. 2019. Photographs. Illustrations. Appendix. Maps. Pp. 216. \$24.95 paperback. ISBN: 978-1-47388-179-2

Australian David Mitchellhill-Green is a freelance author and photographer who, over several decades, has written a number of books in Pen and Sword’s *Images of War* series. At least five of these deal with the North African theater in World War II.

Reviewing a book in this series is like reviewing a nicely curated family album. An album where the curator has taken the time to provide a brief explanation of the photos, a number of which you have seen before. Some photos will provide an “Ah-ha” moment of remembrance or discovery, but there will be extraordinarily little new information.

Air War Over North Africa follows this format. After a brief introduction that provides a very general context for the images, the bulk of the book is dedicated to presenting over 250 images of the USAAF’s war in North Africa. Each image has a caption: some are very brief, and some a half page in length. The photographs are broken into general categories (i.e. fighters, bombers, reconnaissance, etc.), so the organization follows functional themes. Disappointingly, errors in spelling, grammar and syntax are common in the captions. Names of aircraft will be correct in one caption and misspelled in the next.

The *Images of War* series in general and *Air War Over North Africa* are useful to both the novice and experienced aviation historian. A well-chosen picture is worth a thousand words, and quality captions can build on that efficiency. Mitchellhill-Green includes enough nuggets of new information to pique the reader’s curiosity to explore further. For example, he asserts that had the P-38 Lightning been re-engineered to use the Rolls Royce Merlin, as was done with North American’s P-51 Mustang, the P-38 would have had improved performance without requiring complicated and heavy supercharger hardware. Personally, I want to do a deeper dive into other more-conventional books to see if Mitchellhill-Green’s assertion is accurate.

Gary Connor / Docent / Smithsonian National Air and Space Museum – Udvar Hazy Center



How the War was Won: Air-Sea Power and Allied Victory in World War II. By Philips Payson O’Brien. Cam-

bridge UK: Cambridge University Press, 2015. Maps. Tables. Photographs. Notes. Bibliography. Index. Pp. 626. \$29.99 paperback. ISBN: 978-1-107-01475-6

O'Brien is a professor of strategic studies at the University of St. Andrews in Fife, Scotland. Prior to this work, he focused on sea power. More recently, he has written a biography of Fleet Admiral William Leahy, chairman of the U.S. Joint Chiefs of Staff during World War II.

Combining a topical and chronological approach, O'Brien argues that production decisions emphasizing aircraft and ships were decisive in the Allied victory. Furthermore, these production decisions compounded the impact of strategic bombing and control of the sea lanes in denying the Axis powers mobility. He supports his argument with 100 sets of figures and 33 tables.

Of course, the inherent industrial advantage provided by the United States only worked as well as it did because of the correct grand strategy. Thus he weaves a narrative based on industrial production and proper employment of forces. He frequently mentions Leahy's contributions. That research undoubtedly led to his decision to produce the subsequent biography.

The introduction briefly reviews other histories of World War II. The first chapter looks at the overall impact of air and sea materiel production. The second analyzes an aspect frequently overlooked in many histories: the phases of equipment destruction. Since this work is all about the ability to bring forces to bear while denying the enemy that opportunity, production is an obvious element. O'Brien regularly cites the United States Strategic Bombing Surveys. The second element involves training personnel and deploying combat power to the operational theaters. Finally, there is the destruction of equipment whether in the air, at sea, or on the ground.

Two chapters deal with grand strategy. Six chapters break the war down on a chronological basis. One chapter considers the importance of shipping. The conclusion emphasizes the Allies' ability to deny the Axis mobility.

Without question, this book is a superb argument favoring strategic bombing. The effectiveness of striking at civilian morale is contrasted with the disruption of Germany's access to oil and destruction of its transportation network. With regard to Japan, he considers the capture of the Marianas Islands and the subsequent basing of Boeing B-29 Superfortresses there as decisive. He portrays General Douglas MacArthur's liberation of the Philippines as a strategic mistake. Some have argued, including Leahy and Army Air Forces General Henry Arnold, that dropping the atomic bombs was probably unnecessary given that Allied forces had isolated Japan through the mining of harbors and interdicting sea lanes. However, the impact of atomic weapons, an extension of strategic bombing, undoubtedly shortened the war and, in the long run, saved more lives.

The data presented are overwhelming at times. Nev-

ertheless, this work is highly recommended for specialists interested in grand strategy, strategic bombing, or war-materiel production.

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



Allies in Airpower: A History of Multinational Air Operations. By Steven Paget, ed. Lexington: University Press of Kentucky, 2020. Maps. Tables. Photographs. Notes. Index. Pp. 305. \$70.00. ISBN: 978-0-8131-8032-8

Steven Paget is the director of academic support services at RAF College Cranwell and a member of the editorial board of *Air and Space Power Review*. In dissecting coalition operations, he follows an historical course that differs from what I expected. His subject matter often parallels the fringes of major events. The authorities he references definitely captured and held my attention. In this book, he ties together case studies written by ten scholars and himself regarding coalition performances of air forces around the world. The articles "predominantly focus on the experience of Western forces, not least because of the frequency with which they have engaged in multinational endeavors."

The most pragmatic chapter presents a detailed story of the Royal Australian Air Force (RAAF) Canberra bombers in Vietnam that shows the pros and cons of coalition operations. In this case, it is the RAAF cooperating with the USAF. Both forces made dramatic changes to facilitate cohesion, Paget explains. The Canberra's drawbacks of an inability to dive bomb and a complicated level bombing pattern, along with restrictions against bombing Laos or Cambodia were offset by its four hours of on-target loiter time and its ability to drop a stick of bombs as well as singly and in pairs with pinpoint accuracy. Extensive tactical revisions between RAAF Canberra pilots and USAF forward air controllers made the bombers highly desired close-support aircraft. From 1967 to 1971 in Vietnam, the RAAF also provided a squadron each of Iroquois helicopters and Caribou transports. Although dependent on the USAF for basic needs, the Australians maintained independence by paying their own way for everything: particularly rations, fuel, and bombs. Mutual respect sealed the partnership between the forces.

On the other hand, *Allies in Airpower* harks back to several less-successful cooperative endeavors: the ill-fated coalition between the British RAF and French Armée de l'Air in 1940, and the drastically one-sided pact between the Royal Hungarian Air Force and German Luftwaffe in the Second World War. Both examples again confirm that, at high levels, personalities affect relationships.

The articles concerning Desert Shield, Desert Storm, and Iraqi Freedom could serve as a training manual for

coalition operations. Their lessons, which cover both the good and the bad, seem endless. Basically, all participants in the operations had a voice and contributed the most they could. The value of combined airpower was virtually incalculable. A main point to remember, however, is “the widely differing social, cultural, and religious perspectives of various partners that colored and influenced day-to-day operations and relations” are a forever challenge in coalition warfare.

Paget’s book is a must-read on the history of coalition air operations that pooled forces of multiple nations for a common cause.

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



Last Mission to Tokyo: The Extraordinary Story of the Doolittle Raiders and Their Final Fight for Justice. By Michel Paradis. New York: Simon and Schuster, 2020. Photographs. Notes. Index. Pp. 468. \$28.00. ISBN: 978-150110471-8

The April 1942 Doolittle Raid story is iconic. Whether viewed from the lens of strategy, aviation technology, larger-than-life personalities, or war changing events, it captures the imagination. This book addresses the fates of both crewmembers who were captured, tortured, executed, or died of mistreatment and Japanese officers held accountable for their deaths.

Paradis acknowledges that he intended to write a legal analysis but became so involved in the characters that he changed to a narrative format to better tell their stories. The result is an excellent story that brings the characters to life. Paradis is as adept at explaining complex theories of legal thought as he is when writing about familial relationships. Admittedly, parts that delve into ethics, morality, and legal theory become abstract. But understanding these concepts is at the heart of understanding the legal foundation for all war-crimes trials.

From the beginning of the nation-state system, man has tried to regulate and codify behaviors. The Geneva Accords, United Nations, and International Court are all attempts to bridge cultural and behavioral differences. But without meaningful consequences to punish actions outside the norm, all these mechanisms are little more than suggestions.

Many authors have described the Pacific theater as a war between cultures. Dower’s *War Without Mercy* is a useful read on the subject. Even before the outbreak of war, the Allies and Japan had both begun a process of dehumanizing the future enemy. Japan even used this demonization to justify passing the Enemy Airman Act, directing immediate execution/murder of downed airman. Additionally, numerous captured airmen were turned over to the notorious Unit 731 for heinous “medical” experi-

ments in lieu of execution. As a reader, I was shocked by the casual manner of the mistreatment meted out by the Japanese. One officer personally responsible for the executions of three of the Doolittle raiders confiscated a murdered prisoner’s flight jacket and had an aide take it to a tailor to have it cut down for him to use as a fishing jacket. During the tribunal’s later stages, a Japanese lawyer equates this appropriation to the Roman soldiers casting lots for Christ’s robe at Golgotha (the raiders were executed by tying them to a crucifix and shooting them in the head, so the analogy was especially poignant).

The four Japanese officers tried for their role in the deaths of the raiders were involved in their capture, torture, trial, and execution. The raider’s “criminal” acts against Japan covered a range from using incendiary weapons to intentionally targeting and killing civilians. Now we know that, at the exact same time as the Doolittle Raid, Japanese *Bettys* were dropping incendiaries on Darwin, Australia, and targeting Australian civilians. Paradis focuses with greatest effect on the “Japanese Water Cure,” or what we in 21st century America have come to know as “waterboarding.” The Japanese military recognized that information gained through torture was of little value and promulgated policies intended to discontinue the practice. The Japanese military secret police, the *Kempeitai*, continued its widespread use, including on the captured raiders.

In the end, political considerations out-weighed judicial theories. MacArthur played an outsized role in the proceedings and the outcome. Paradis is a skilled writer whose outstanding book provides enough detailed notes and citations to satisfy any armchair lawyer. Any American who reads this book will be better for it.

Gary Connor, docent, Smithsonian National Air and Space Museum’s Udvar Hazy Center



Astonishing Stories Pilots Tell Pilots: Marines, Navy, Air Force, CIA, Airlines, Civilian. By Robert N. Pripps. North Branch MN: Specialty Press, 2022. Tables. Illustrations. Pp. 149. \$19.95. ISBN: 978-1-55007-280-9.

Pripps, an experienced civilian pilot, has written more than 30 books about farm tractors. His passion for flying prompted him to share numerous aviation stories that he picked up over the years. Some have been published previously, and he carefully makes that distinction. However, most appear in print for the first time.

About two-thirds of the stories involve military or Central Intelligence Agency pilots with the balance devoted to airline and civilian operations. Each story begins with a silhouette depiction of the aircraft featured in the narrative. Also included is a table describing the aircraft. Included are the nickname, crew, length, wingspan, empty weight, maximum weight, engine, maximum speed, range, and ceiling.

Most of the stories concerning military aircraft deal with jets operational from the 1950s and 1960s. However, the oldest included is the Douglas A-20, a World War II, twin-engine, light bomber. Other World War II aircraft mentioned are the Curtiss C-46 and the Focke-Wulf Fw 190. The newest are the Boeing F/A-18 and Lockheed Martin F-16. Two helicopter pilots (Boeing CH-46 and Bell UH-1) tell their stories as well.

With a couple of exceptions, most stories run 1,500 words or less. Some deal with combat operations in Korea or Vietnam, while others involve test flights or unusual circumstances.

Stories about airliners are limited to those involving Concorde, the Boeing 777, and the Lockheed L-188 Electra. Pripps also chose to include a few brief anecdotes regarding conversations between pilots and air traffic controllers.

The civilian section features tales concerning nine different aircraft. In most instances, the stories are very brief.

While a few are humorous, the stories generally reflect extreme situations where the pilot fortunately made the best decision possible and avoided catastrophic results. This book is best suited for a general audience. From a personal perspective, I gained insight into what it was like to fly some of the types of aircraft on display at the Museum of Flight in Seattle—the kinds of tales that bring life to the otherwise static artifacts.

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



The Kassel Raid. By Eric Ratcliffe. Philadelphia: Air World, 2020. Photographs. Drawings. Pp. 182. \$34.95. ISBN: 978-1-52677462-0

The main classroom complex at Undergraduate Navigator Training (UNT) had several displays memorializing missions where basic navigation errors caused failures and deaths: *Lady Be Good*, *Tidal Wave*, and *Amelia Earhart* were the biggest attention getters, but there were probably hundreds of other aircraft lost because of navigation errors. We were taught that adhering to good procedures was the best way to avoid disaster. UNT and many navigator assignments have faded away in favor of GPS, INS, and SAT-NAV hardware. But KAL007 proved that automation is no guarantee of centerline navigation.

Kassel can be added to the list of navigation cautionary tales. A missed initial point and failure to correct the navigation error all became critical links in one of the most disastrous missions in the combat history of Eighth AF and the 445th Bomb Group. Thirty-nine B-24s departed and four returned: 118 aircrew died and 121 became POWs. These losses occurred in September 1944, months after the nightmare losses of 1943. Tragically, a simple navigation error put the 445th directly in the path of 150 radar-con-

trolled Luftwaffe fighters. The bombers had no fighter escort; the navigation error spoiled their rendezvous. The B-24s were at the mercy of the Luftwaffe interceptors.

Ratcliffe well communicates the “routineness” of pre-mission activities. He overlays these with an “If they only knew” atmosphere to build the reader’s anticipation. The pantheon of names disrupts the flow of the narrative, but it serves to honor their memory.

For this raid, the lead aircraft carried three navigators equipped with standard instruments and advanced ground mapping radar. Every other aircraft carried a navigator. No one detected or reported a 70-knot tailwind that caused the formation to overfly the planned initial point by 7 minutes or 20-25 miles. When the error was discovered, the commander elected to fly to an alternative target. The 445th slowly separated from other units and assigned escort fighters and flew directly in the path of heavily armed Fw 190 and Bf 109 fighters who specialized in attacking American bomber formations. The 445th suffered huge losses to 20mm and 30mm cannons. Once again, to personalize the story, Ratcliffe fills the reader with aircrew and aircraft names and complements the narrative with personal accounts of bravery and sacrifice.

Amazingly, in the face of catastrophic losses, the 445th began receiving replacement aircrews and aircraft that same day. The next day, September 28th, it fielded ten B-24s to return to Kassel with other Eighth AF units. Much like the Ninth AF’s recovery from Operation Bodenplatte, the resilience and resources available to American airpower sent a clear message to anyone watching that victory and liberation were inevitable.

Ratcliffe has an emotional commitment to this story and to the men at its core. He probably wrote for a knowledgeable target audience having an in-depth understanding of Eighth AF and Luftwaffe operations. That makes the number of technical errors, inconsistencies, and other unfortunate self-inflicted wounds in the text puzzling. Thankfully, these do not diminish the importance of this powerful story. I wish the book had been available to the other fledgling Magellans and me 50 years ago to reinforce the cautionary tale.

Gary Connor, docent, Smithsonian National Air and Space Museum’s Udvar Hazy Center



Foreign Planes in the Service of the Luftwaffe. By Jean-Louis Roba. Barnsley UK: Pen and Sword Aviation, 2020 (reprint of 2009 publication). Photographs. Pp. 222. \$26.95 paperback. ISBN: 978-1-52679644-8

During the early European phases of World War II, when Blitzkrieg was the order of the day, German forces captured huge amounts of enemy equipment. This book focuses on the aviation bounty that came into German hands

and frequently found use in the Luftwaffe. In most cases, the numbers of individual captured types were small, and the aircraft came without spares or tools. More modern types were tested at the Luftwaffe Test Center at Rechlin. Sometimes they were offered to German allies to bolster their aviation arms. Large numbers were sent to Luftwaffe aviation-training schools. The result was that many Luftwaffe pilots earned their wings in North American Aviation-built trainers.

This publication is more of a photo album than a book. The narrative presentation is awkward. Each page has a photo and caption at the top and bottom with a small (four or five lines) space for text sandwiched between the photos. It is not unusual for a single sentence to span two to three pages. Needless to say, narrative continuity and readability suffer.

The photos depict aircraft captured by German forces during various phases of the war. Understandably, most of the photos are of poor quality. Detailed views of the aircraft are lost but the captions purport to explain technical details as well as the unique livery. Even with their poor quality, the images are curiosities which fit into a narrow niche of World War II aviation history. Photographs taken by Allied forces occupying Luftwaffe bases late in the war are of far-higher quality. Since what little narrative provided is found in captions, caption quality is a significant issue. Roba filled his captions with “probably,” “may have been,” or other non-specific disclaimers. Many other captions are comprised of generic fillers that offer little information. Roba frequently reminds the reader that he has no information other than the picture itself.

While Roba mentions that KG200 occasionally made use of captured aircraft, he makes no mention of Zirkus Rosarius (Rosarius’s Flying Circus). This group, formed in 1943, toured Luftwaffe units in captured Allied equipment allowing pilots to fly the captured opposition aircraft themselves. It is reported that the Circus was equipped with P-38s, P-39s, P-47s, P-51s, Spitfires, Typhoons, Mosquitos, and many other Allied types. Not to mention the Circus in a book on foreign planes in Luftwaffe service seems to be a glaring omission.

Evidently, the original 2009 printing had a section containing color photographs and/or drawings. This edition has the explanatory pages for those images but no images!

Foreign Planes in the Service of the Luftwaffe is a niche publication on a niche subject. The images are interesting even when lacking detailed explanation. But the book is not a tool useful to a historian doing serious work.

Gary Connor, docent, Smithsonian National Air and Space Museum’s Udvar Hazy Center



Black Tulip: The Life and Myth of Erich Hartmann, the World’s Top Fighter Ace. By Erik Schmidt. Place:

Havertown PA: Casemate, 2020. Photographs. Bibliography. Notes. Pp. 210. \$34.95 paperback. ISBN: 978-161200824-0

Erik Schmidt is a self-described researcher of complicated subjects. His subject is Luftwaffe ace Erich Hartmann, whose life is richly documented in books, articles, video interviews, and other media. Schmidt offers little new information or insight. Rather, he uses the book to take issue with how previous writers and researchers have presented Hartmann’s life and the “myth” those writers created around the man.

Hartmann spent his early childhood in China. He returned to Germany to live what was likely a typical boy’s childhood culminating in joining the Hitler Youth where he learned to fly gliders. After joining the Luftwaffe, he was trained to fly the Bf 109 fighter and spent the bulk of the war on the Eastern Front attaining spectacular success with 352 aerial victories. Hartmann spent 10 years as a POW in the Soviet Union, was repatriated in 1955, and eventually found his way to the new Luftwaffe where he was much less successful. Hartmann died in 1993.

Schmidt spends a great deal of the book addressing the degree to which Hartmann was a National Socialist—a Nazi. He notes that the adolescent Hartmann joined the Hitler Youth where his indoctrination began. Schmidt describes the Luftwaffe as the most “Nazi” of the Third Reich’s military branches and assumes Hartmann could never have achieved his success without being an ardent supporter of National Socialism. But Schmidt’s issue isn’t really with Hartmann. His issue is with Hartmann’s biographers (primarily Toliver and Constable in *Blond Knight of Germany* and *Fighter Aces of the Luftwaffe*, respectively). He charges them with creating a mythological apolitical Hartmann untainted by Hitler and the Nazi party. Schmidt fabricates a de facto biographical conspiracy by all authors to paint a picture of Hartmann that was palatable to post-war German political and military leaders as well as the general public. Schmidt equates Hartmann to the ardent National Socialist Luftwaffe pilot Hans Rudel and believes Hartmann’s biographers should describe him as such.

Schmidt’s premise feels contrived and the controversy manufactured. Undeniably, Hartmann was a National Socialist who, like millions of his generation, civilian and military, served the cause of National Socialism. He achieved notoriety and personal benefits from his success in fighting the enemies of National Socialism. He also suffered for the relationship, spending ten years in a POW camp and never seeing his only child. Schmidt could have just as easily asked if Ivan Kozhedub was member of the Communist Party, or if Charles Lindbergh was an anti-Semitic bigamist and political isolationist who accepted medals from Goring and called Hitler “a great man.” Historical figures’ political affiliations or personal beliefs are individual facets of their lives; it is the biographer’s job to place those

facets into personal and historical context. Schmidt believes other authors should have painted Hartmann as an ardent Nazi and uses *Black Tulip* to pursue a writer's disagreement—not to define Hartmann's life.

Schmidt spends most of his conclusion talking about finding "Hartmann the Man" frustrated at his failure to compartmentalize the myth from the man. Other authors have successfully taken on that task. Thomas Connelly's biography of Robert E Lee, *The Marble Man*, is an example of how compartmentalization can be done and done well. Connelly notes that "heroes are not made of nothing..." The question for the biographer to explore is "What is the substance of the man." Schmidt's work does little to answer that question for Hartmann.

Gary Connor, docent, Smithsonian National Air and Space Museum's Udvar Hazy Center



Twenty Days in the Reich: Three Downed RAF Aircrew in Germany During 1945. By Squire Scott. Barnsley UK: Pen and Sword Aviation; Illustrated Edition, 2006 (reprint 2020). Appendix. Pp. 197. \$24.95. ISBN: 978-1-52676-6-32

Flying Officer Scott was navigator of an Avro Lancaster bomber of the RAF Bomber Command's No. 9 Squadron. This, apparently, is his only publication. He died in 1992.

RAF Bomber Command played a key role in the strategic bombing of Germany in World War II. From 1942 onward, the British bombing campaign increasingly targeted industrial civilian sites essential to German war production. Almost 365,000 operational sorties were flown, and over one million tons of bombs were dropped. However, over 8300 aircraft were lost. Bomber crews suffered almost a 45% fatality rate, and over 9800 became prisoners of war.

The Avro Lancaster was the main aircraft used in the RAF night-time bombing campaigns. It had a long, unobstructed bomb bay that could accommodate the largest blockbuster bombs used by the RAF. It was one of the most heavily used of the World War II night bombers.

The navigator was responsible to the pilot to maintain route and airspeed required throughout a bombing operation to arrive on target in company with the other squadron aircraft. A navigator wore a single-winged aircrew flying badge, with a wreath containing the letter "N" on his tunic. Pilots and navigators were often commissioned officers.

On March 15, 1945, Scott and another two (of seven) crew members were ordered to bail from their crippled aircraft over the eastern Ruhr. The three crewmen landed in quiet countryside but were soon captured and imprisoned in a village "gaol." Almost immediately they were to be relocated—ostensibly to a proper POW camp. Time was of

the essence, since General Patton's US Third Army was on the move and would soon cross the Rhine in the Mainz area. Scott's story is then primarily about the almost three-week trek across the German hinterland to find a suitable camp. The transportation system was in chaos; and the three crewman, with their German Volksturm guards, traveled by foot, train, or by hitchhiking. The nights were bitterly cold; and little heating was available in the bahnhofs, trains, barns, and fields where they were forced to sleep. Rations were sparse; but, thanks to the American Red Cross and sympathetic German folk (those who had not been subject to the RAF blanket bombing), the crew managed to eat fairly well. Finally, the trekkers were overtaken and freed by Allied forces twenty days after bailing out. After another week of travel by truck and, finally, air, the crew returned safely to England.

As Scott says, this is not an escape story. It is one of the stressful experiences of a small crew of men who were prisoners of war for a short time near the end of the war. It is a very quick read and a well written, interesting narrative of what happened to a few airmen behind the German lines.

Frank Willingham, NASM docent



Heinkel He 162. By Dan Sharp. Horncastle UK: Tempest Books, 2020. Diagrams. Illustrations. Photographs. Notes. Appendices. Glossary. Bibliography. Index. Pp. 167. \$19.99 paperback. ISBN: 978-1-911658-24-5

Dan Sharp is an English journalist who turned to researching and writing about aircraft and motorcycles. The author of a number of books, his real passion seems to be researching primary sources. It shows in this book. While a number of books have been written on the Volksjaeger (People's Fighter), or Sparrow, or Salamander, this book has to stand out for the depth of the research into the conceptualization and development of the aircraft and plans for its future.

By mining the archives of the National Air and Space, Imperial War, and Deutsches museums as well as the national archives of the UK and Germany, Sharp was able to include dozens of original photographs, documents, and drawings of the 20 variants that led up to the production He 162. This constitutes an excellent study of how most aircraft have to evolve as engineers come up with better solutions to problems revealed in wind tunnels or other testing. Of course, there was also competition in the form of entries from Blohm und Voss and Arado. How these played in the relatively short development program (serious work didn't commence until July 1944) is also part of Sharp's excellent coverage.

One prominent feature of German aircraft development and procurement evident throughout the life of the

Third Reich was the combination of constant backstabbing among the various companies, political interference in programs, and fierce competition for increasingly limited resources. Sharp's text clearly shows these problems as they pertained to the twin-jet Me 262, single-jet He 162, and piston-engine Ta 152. His summary posits the question of whether the air war might have gone differently for Germany if other decisions had been made earlier in the war.

One interesting aspect of the book is its coverage of what Heinkel had on the drawing board at the end of the war. These are always fun to look at for both Germany and Japan—the “what ifs” and “if only they had . . .” types of exercises. But Heinkel had many different configurations, engines, armament, and potential missions in mind for the aircraft. Engines other than the BMW 003 were the Jumo 004, Heinkel's own HeS 011, or the Argus pulsejet. Probably the most unusual use was as the carrier and control aircraft for a Mistel combination weapon. The He 162 would be attached to an Arado E 377a turbojet-powered flying bomb as the Mistel 5. Another neat idea but, alas, one that was not to come to fruition.

The appendices are a great selection of post-war interviews and some intelligence reports that provide more insight into the aircraft and its acquisition. I think it is unfortunate that there is nothing on the limited operations of the type. It would be great to see what the latest scholarship says about what the plane actually did. But for the story of the Volksjaeger's development, this is THE book to read.

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



Air Defence Artillery in Combat, 1972 to the Present: The Age of Surface-to-Air Missiles. By Mandeep Singh. Yorkshire: Pen & Sword Air World, 2020. Tables. Photographs. Notes. Bibliography. Index. Pp. xvi, 240. \$28.95 paperback. ISBN: 978-1-52676-204-7

Singh brings strong credentials to this book. A 33-year air defense veteran, he is a frequent contributor to professional journals and is well qualified to analyze and evaluate the use of SAMs in the 60-plus years since they were first used in combat. He presents detailed discussions of numerous wars or campaigns, from the 1970s to the present day. Two chapters provide representative samples of the work.

The 1973 Yom Kippur War, in which Egypt and Syria launched an unexpected attack on Israel, was unique from an air defense perspective: it was the first time in the SAM era that an attacking force developed a war plan that relied entirely on its ability to provide air defense cover over its ground forces. From the outset, Egypt and Syria limited infantry and armor formations to move at a rate no faster

than air defense elements could support. Collectively, they deployed more than 210 SAM batteries in a 14-mile strip along the Suez Canal. Israel won the overall military victory, which was what the attackers had anticipated. But Egypt and Syria achieved their goal of inflicting serious damage on Israel in a somewhat limited war, and the effective employment of SAM units played a key role in that success.

Throughout the Soviet Union's nine-year war with Afghanistan, helicopters were their most important asset. The most valuable was the Mi-24 *Hind* gunship. For at least the first seven years of the war, the *Hind* controlled the air. The arrival of the US-supplied, man-portable Stinger missile in 1986 is often cited as a dramatic game-changer, and the missile is given much of the credit for the Soviet decision to leave Afghanistan in 1989. The Stinger accomplished two things: it downed a significant number of helicopters, and avoiding the low-altitude threat caused pilots to dramatically alter tactics. *Hind* lost much of its effectiveness.

Singh challenges both of these ideas. While acknowledging Stinger's successes, he cites data that show the rate of helicopter kills by all weapons remained steady throughout the war, rather than spiking with the arrival of Stinger. And he asserts that the *Hind's* reduced impact after 1986 was not caused by the change in tactics spurred by the Stinger but, rather, was the result of a Soviet decision to begin turning the war over to the Afghan government. I wasn't convinced by Singh's argument, but he presents a view that is worth considering.

Singh concludes with his view of the future of SAMs. He expects the proliferation of man-portable missiles, among both state and non-state players, to continue, presenting an increasing threat to all air forces. He also sees challenges for SAM operators. Chief among these are the increasing application of stealth technology and employment of “swarming” attacks, which can saturate an air defense system with overwhelming numbers of drones or cruise missiles. Not surprisingly, he expects that dealing with these challenges will make SAMs more expensive and much more complex.

All in all, this is a well-researched book that will be of interest to current or former air defenders and to pilots who fly against SAMs.

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



The Dauntless in Battle: The Douglas SBD Dauntless Dive-Bomber in the Pacific 1941-1945. By Peter C. Smith. Philadelphia: Pen and Sword Aviation, 2019. Maps. Tables. Illustrations. Photographs. Notes. Appendix. Glossary. Bibliography. Index. Pp. xvi, 240. \$34.95. ISBN: 978-1-52670-460-3

In this book Peter Smith, a noted military aviation author, tells the history of the Douglas SBD Dauntless, from its development in the 1930s through its service in World War II.

“SBD” identified the airplane as a scout bomber designed and built by Douglas, but most aviators knew by its unofficial nickname, “slow but deadly.” The “deadly” part of the title was accurate, as dive bombers were much more likely to deliver effective blows to their targets than were their companion torpedo bombers. This fact was recognized by all three major naval powers beginning in the 1920s, as the US, UK, and Japan focused on dive bombers and the aircraft carriers from which they would operate. Smith provides a good background and also presents an excellent discussion of dive bomber development in the 1920s and 1930s.

Douglas’ lead designer, Ed Heinemann, applied innovative techniques to create the SBD-1 in 1939. Compared with previous dive bombers, this airplane had a modified wing, fully retractable landing gear, greater fuel capacity, improved armament, and perforated dive brakes. The SBD-1 evolved into the SBD-2 and SBD-3, with self-sealing fuel tanks, crew armor, and improved range. When flown as a pure dive bomber, the Dauntless carried a 1000-lb. bomb. As a scout it carried a lighter 500-lb. bomb to give it increased range.

Dauntlesses saw action in all major operations during the war in the Pacific, including the days and weeks immediately following the attack on Pearl Harbor; the Doolittle raid; and the battles of the Coral Sea, Midway, Guadalcanal, and the Philippine Sea. For a nation eager to hear good news in the early days of the war, Dauntlesses registered notable “firsts”: a few days after Pearl Harbor, Dauntlesses were credited with the first sinking of a full-size Japanese submarine, and in the Marshall Islands they dropped the first bombs to strike Japanese-held territory.

In describing these actions, Smith provides a squadron-by-squadron—and in many cases a plane-by-plane—account of the operation. The book is filled with tables that identify the participating squadrons, aircraft, and individual crew members involved. And this was Smith’s objective. He explains that the book is an updated or expanded version of a book he wrote 22 years earlier, with the goal of presenting a deeper dive into the squadrons and men who flew the airplane. Without question, he achieved his objective. Whether this is good or bad depends largely on the reader. For someone who has in-depth knowledge of the engagements at the Coral Sea and Midway but wants to see more details, this might be a useful read. But someone with less extensive prior knowledge might very well find himself lost in the details and unable to grasp the big picture. I am reasonably well-versed in the major naval engagements of the Pacific War, and I frequently found myself lost in the weeds. It’s also worth noting that the book desperately needs more maps and diagrams to supplement the narrative. Even for someone who wants the level of de-

tail Smith provides, additional maps are needed to give the reader an essential visual picture of the combat operations being described.

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



Stuka Spearhead: The Lightning War from Poland to Dunkirk, 1939-1940. By Peter C. Smith. Barnsley: Pen & Sword, 2015. Photographs. Pp. 72. \$19.95 paperback. ISBN: 1-84832799-4 and **Stukas over the Steppe: The Blitzkrieg in the East, 1941-1945.** By Peter C. Smith. Barnsley: Pen & Sword, 2015. Photographs. Pp: 72. \$19.95 paperback. ISBN: 1-84832801-X

These two reprints (from among Smith’s 82 published books) maintain the fearsome reputation established by the Junkers Ju87 Stuka dive bomber for the Luftwaffe in the Second World War. Smith tells the story of the aircraft and its pilots in campaigns across Europe from 1939-1945 through text and captions for over 200 photographs.

Smith is enamored with the Stuka culture. His collection of photographs resembles a yearbook for a successful organization with a highly specialized task. About half of the pictures show aircraft in various pre-mission configurations as well as those battle damaged. Photographs of the pilots and maintenance men show them standing tall for their commander, Hermann Goring; bombing the British at Dunkirk; celebrating their hundred-thousandth mission; dining with their families; and other activities of their lives.

At the slightest opportunity, Smith highlights the creativity of the Stuka fliers. For example, he credits them with originating the painting of a shark mouth on the front of an airplane. Likewise, he champions their flexibility in altering their mission from dive bombing to that of “tank-buster *par excellence*” after improved anti-aircraft fire mauled low-flying planes.

In *Stuka Spearhead*, Smith explains that the Stuka perfectly complemented Adolph Hitler’s “limited but annihilating campaigns of short duration” in 1939-1940. The Stuka committed its total effort to aiding the army in land battles. Its interdiction and destruction of vital objectives well behind the front lines made it a perfect partner with tanks for blitzkrieg warfare.

Smith ridicules the American and British preference for heavy bombers in comparison to the less-expensive, far-more-accurate, tactically oriented Stuka. He says, “What the Stuka achieved, when it had air superiority, was the transformation of air and land warfare, with countries falling in days and weeks rather than after campaigns that lasted for years.” Several debatable reasons comprise his foundation for the argument. Granted, the Stuka was a perfect weapon for its time and place—close range warfare

in an arena of limited size. However, Andy Saunders in *Stuka Attack: The Dive-Bombing Assault on England During the Battle of Britain* presents the shortfalls of the Stuka in 1940-1941 operations when confronted by the obstacle of a 21-mile-wide English Channel. Without tanks to follow up an attack, Stuka pinpoint bombing became less valuable. Slow speed and limited range handicapped the Stuka over England and reduced its mission to bombing RAF bases and shipping.

And then in 1941, along came Russia. *Stukas over the Steppe* further extols the Stuka while highlighting the predicaments it—and everything else—encountered when temperatures in Russia dropped to -50 C. Furthermore, the thousand-mile-long battlefield of the Eastern Front demanded more aircraft with greater flexibility than the small Stuka force could provide.

Nevertheless, these books are interesting because of the insight, respect, and good fellowship with which Smith leads the reader through the inner sanctum of Stuka operations to recreate a world that otherwise might be forgotten. Stuka pilots were noble men amid a misdirected cause.

Henry Zeybel, Lt Col, USAF (Ret), Austin TX



Shot Down: The True Story of Pilot Howard Snyder and the Crew of the B-17 Susan Ruth. By Steve Snyder. Seal Beach CA: Sea Breeze Publishing, 2015. Photographs. Maps. Pp. 360. \$27.95. ISBN: 978-0-9860760-0-8

After a 40-year professional career, Steve Snyder chose to chronicle his father's World War II experiences as a retirement project. He had accompanied his parents to reunions on both sides of the Atlantic and got hooked! Reading his parents' letters, attending their reunions, and corresponding with his father's crew convinced him that he should write this book.

Howard Snyder, Jr. was born in 1915 in Norfolk NE. He moved to Glendale CA when 13 because of his father's poor health. While attending a church summer camp a decade later, he would meet Ruth Hempel. They married in July 1941—about the same time the Army drafted him. With a baby on the way and realizing an enlisted man does not make much, he volunteered for the Army Air Corps and was commissioned in April 1943. He learned to fly a B-17 and was assigned to the Eighth Air Force. Snyder named his B-17 *Susan Ruth* after his first born.

The crew of *Susan Ruth* was assigned to the 306BG located in Thurlleigh, England, in October 1943. The following month, their first combat mission was bombing Wilhelmshaven's naval base. On February 9, 1944, returning home on its fourth mission (Frankfurt), *Susan Ruth* was attacked by two Fw 190s. Two crewmembers were killed, and Snyder ordered everyone to bail out. Upon land-

ing, the survivors were picked up, separated, and hidden by the Belgium resistance in local villages along with other American airman. Almost three months later, the Gestapo surrounded one of the huts; and they were arrested—just prior to beginning their escape to the Pyrenees. Others were more fortunate and escaped only to be captured later and interned for the remainder of the war.

But not Howard Snyder. Crossing into France and aborting several attempts to proceed south, he joined the French Maquis, a group of French guerilla fighters. In early September 1944, near Trelon, France, he made contact with Patton's Third Army and was sent to England to re-join the 306th. Seven months after leaving English soil, he had returned. His crewmates soon followed after the Allies liberated POW camps throughout Germany.

A concluding chapter chronicles the Snyder family returning to Belgium in the 1980s to attend several reunions and remembrances ceremonies.

Steve Snyder has written a terrific book, expertly weaving background material with the experiences of his father, told via the letters sent home to his wife. He covers aircrew life, training in the US and UK, and experiences while deployed. He also describes Eighth Air Force tactics and the B-17 itself. During his research, he even found the Luftwaffe pilot who shot his father's plane down!

A reader knowledgeable about the European Theatre will not learn much from the first half of the book. But from the attack of the Fw 190s through the liberation in France, the book reads like a World War II action thriller. I wish Snyder had included more of his father's experiences evading capture. Unfortunately, a reader must endure over half of the book before the "Shot Down" is covered.

The book is lavishly illustrated throughout with photos, drawings, Howard's handwritten diary entries, and maps. These add greatly to the accompanying text. However, some of these illustrations are of such low resolution, that they are virtually useless.

If interested in learning about one Eighth AF pilot's unique experiences, this work will do nicely. In the preface, Snyder wrote that "truth is stranger than fiction. You can't make this stuff up." For Howard Snyder, truer words have never been spoken.

Scott Marquiss, docent, National Air and Space Museum's Mall and Udvar-Hazy facilities



Minuteman: A Technical History of the Missile That Defined American Nuclear Warfare. By David K. Stumpf. Fayetteville AR: University of Arkansas Press, 2020. Maps, Tables, Diagrams, Illustrations, Photographs. Notes. Bibliography. Index. Pp. xxxv, 556. \$39.95. ISBN 978-1-68226-154-6

The Minuteman weapon system is well known as the

backbone of our nuclear deterrence. What isn't as well known is how this remarkable system was conceived, developed, continuously tested, and modified. Some 60 years after it was first fielded, it remains a powerful weapon system and a cornerstone of our nation's nuclear triad.

Stumpf knows his way around nuclear missiles. His first book on such systems, *Titan II, A History of a Cold War Missile Program*, provided a template for his history of the Minuteman.

While this book gives an excellent history of Minuteman, it also can be used as a reference and encyclopedia. Its level of detail is quite astounding. But to categorize the volume as just a reference book is to not understand the true value of Stumpf's work.

While there were many brilliant people who brought the Minuteman system into being, it was Col Edward N. Hall (who worked for then Maj Gen Bernard Schriever at the Western Development Division, in Los Angeles) who led the charge for a solid-fueled ICBM. He favored these because they solved many of the issues found in liquid-propellant systems (e.g., long response times and poor reliability). Schriever and Hall briefed the Minuteman concept to Secretary of Defense Neil McElroy on Feb 8, 1958. Less than three weeks later, on Feb 28, the Air Force authorized the start of R&D. Boeing won the contract on October 9, 1958 for the Minuteman missile system; construction for the first Minuteman wing began at Malmstrom AFB MT in Mar 1961. Given that propulsion, guidance, and the reentry vehicle all had to be designed and developed from scratch, Minuteman is a remarkable story.

Stumpf describes the scale of the program and the speed at which it was developed. It took less than five years (Oct 1962 to May 1967) to field 1000 missiles. Four different Minuteman versions (1A, 1B, II, III) were created and fielded; six separate missile wings were sited and constructed; and an airborne launch system was developed. At one point in the Minuteman I guidance-system development, the program absorbed over 90 percent of all transistor production in the United States.

Documenting the continuous improvement of the weapon system is one of the key aspects of the book. Part of this was the desire to show that the system could be launched from an operational silo. The most impressive attempt was the Giant Patriot, a launch from an operational silo at Malmstrom AFB to a Pacific Ocean target. The empty 4,800-pound first stage would impact near the Montana-Idaho border. I was on Combat Crew duty at Malmstrom when this was being planned in 1974. There were actual billboard signs on Montana highways that said, "Caution, Missile Crossing"! For many reasons, this test did not occur.

For those who were part of the Minuteman weapon system, this book will provide many surprising details. For students of history, this extremely detailed book provides the story of how one of the most successful nuclear weapon systems was developed and fielded with remarkable speed

and, today, still provides nuclear deterrence for the US.

Col Richard W. McKinney, USAF (Ret.), NASM docent, Alexandria VA



Headhunter: 5-73 CAV and Their Fight for Iraq's Diyala River Valley. By Peter C. Svoboda. Philadelphia: Casemate, 2020. Map. Photographs. Appendix. Endnotes. Index. Pp. 228. \$22.99. ISBN:978-1-61200-927-8

In 2006, the 5th Squadron, 73rd Cavalry Regiment, 82nd Airborne Division—better known as 5-73 CAV or Headhunter—deployed to eastern Iraq for 15 violent months of fighting *Al Qaeda* insurgents. America aimed to eliminate the militant infrastructure that attempted to rule the nation from a capital in the Diyala River Valley. LTC Andrew Poppas, commander of 5-73, and Command Sergeant Major Ray Edgar handpicked 400 soldiers for the task. Poppas structured and employed the force according to his design.

Svoboda tells a spellbinding tale of the deployment. Inspired by his father's service as an 82nd paratrooper, Svoboda interviewed 99 people associated with the 5-73 campaign in Iraq. Their stories formed a foundation for the history of eleven large scale operations by 5-73 against *Al Qaeda*. Svoboda packed the book with suspenseful and thought-provoking scenarios.

The book prompts reminiscences of the Vietnam War. In Iraq, 5-73 conducted search and destroy missions by looking for the enemy and his supplies in small towns, bunker systems with tunnels, spider holes, caches, and culverts alongside canals, frequently in dense foliage and at night. In response, *Al Qaeda* relied on ambushes supplemented with land mines, improvised explosive devices (IED), and suicide bombers.

Firepower distinctly favored the Americans. When 5-73 wanted to soften a site prior to attacking it or found itself stymied, it called on artillery, helicopters, F-16s, B-1s, and Predator drones. As a result, *Al Qaeda* troops worked as close as they could get to their opponents.

Counterinsurgency was the heart of the mission for 5-73. In the beginning, the theory "seemed to be in a state of flux, with the approach of 'clear, hold, build' still in its infancy." Nevertheless, the longer the Headhunters were in country, the three-step program improved, especially when fortified with continuous patrolling. Christmas 2006 was the only day 5-73 stood down during its tour.

Svoboda's descriptions of IED effects were fascinating. Based on eyewitness accounts, they are highly personalized. *Al Qaeda* bomb makers perfected their trade to a horrifying degree. Tricks like wiring three 155mm artillery shells together created inescapable destruction. IEDs caused most of the squadron's 22 deaths. One out of four 5-73 soldiers suffered wounds. *Al Qaeda* also experienced heavy casualties.

Equally challenging for Americans was *Al Qaeda* fanaticism. The valley teemed with jihadists who had dominated the region by driving away their neighbors; now they wanted to kill 5-73 paratroops and their Iraqi partners. By isolating the valley, 5-73 dismantled *Al Qaeda*'s structure. Mistrust persisted between Iraqi administrators, however; and 5-73 assumed temporary responsibility for providing jobs, electricity, water, and food for the valley residents. With the situation "now in jeopardy of being lost," a sweep by Americans and 150 Iraqi soldiers brought a semblance of balance to the area.

Headhunter opens one's eyes to problems associated with intervening in Middle East politics and deepens understanding of the difficulties of pursuing counterinsurgency tactics. Its graphic portrayal of the brutality of jihadist warfare on soldiers and civilians should be mandatory reading for leaders at our highest levels of government.

Henry Zeybel, Lt Col, USAF (Ret), Austin TX



Air Wars Between Ecuador and Peru: Volume 1: The July 1941 War and Volume 2: Falso Paquisha! Aerial Operations over the Condor Mountain Range, 1981.

By Amaru Tincopa. Warwick UK: Helion & Company, 2019 and 2020. Maps. Tables. Illustrations. Photographs. Notes. Glossary. Bibliography. Pp. 64 each. \$29.95 each, paperback. ISBN: 978-1-911628-67-5 and 978-1-913118-70-9

A Peruvian by birth, Tincopa is a lawyer who has been fascinated with history since childhood and has written a great deal about Peruvian and Latin American military history.

These two monographs present wars fought four decades apart but whose origins go back to the early nineteenth century. Tincopa does an excellent job of summarizing more than a century of political and military clashes over one section of the Peru-Ecuador border. Unstable political conditions in many of the South American countries led to almost constant problems between Peru, Columbia, Chile, and other nations.

The story of these wars has been buried under the far-larger clashes of the great powers. The July 1941 War began after several months of Ecuadoran infiltration into Peruvian territory. The first shots were fired on 5 July. Peru's overwhelming strength drove the Ecuadorans back across the border and continued into Ecuadoran territory. A cease-fire went into effect on 31 July, and the dispute ended in early 1942 with the original border intact. What ought to be most fascinating to anyone interested in military aviation, however, is the aircraft used. Most readers will be unfamiliar with many of the types. As with Dan Hagedorn's great books on Latin American airpower, readers will find aircraft produced during the dark economic

days of the 1930s where a large production run was a couple dozen aircraft. Douglas 8A-3P, Caproni Ca.114, Curtiss-Wright CW-16E, Waco YKS, and many other more-or-less obscure models were flown by both sides in the border dispute and are well shown in both photos and illustrations. The Peruvian Air Force conducted armed reconnaissance, air patrols, and air-to-ground attack missions that supported the ground troops. They even had a paratroop operation. Because of this war, airpower became an integral part of military planning and operations in this part of the world.

Step ahead 40 years into Volume 2, and we have another war—no, just another episode in the long-drawn-out border dispute. This time, the aircraft were far more modern: Russian, American, French, and British. There must have been a tremendous logistics problem on both sides. One of the many excellent pictures shows the ramp at a Peruvian AF base. On it are 23 Sukhoi Su-22s, 12 Dassault Mirage 5s, 10 Cessna A-37s, 4 Mil Mi-6s, and 3 Mi-8s! Canberras, Grumman S-2s, Antonov An-26s, C-130s, DHC-5 Buffalos, and several different types of SAM systems also participated. In addition to air-to-ground attacks and reconnaissance, this war also had a little air-to-air action. What began on 27 January was over by 22 February. While occasional border violence continued through 1998, the dispute was "finally" settled diplomatically.

As it generally seems to do, Helion has again published two excellent monographs. These are full of tables that list orders of battle, participants, and the like; excellent photos on glossy paper; beautifully done illustrations of many of the participating aircraft; and a glossary to follow the alphabet soup. While the language of most of the authors of these monographs are not native English speakers, Helion must have an excellent editorial staff, because they are well written and generally free of errors. For those interested in airpower other than Messerschmitts, F-4s, Zeros, F-86s, and B-17s, these are two very excellent monographs worth reading.

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



Twilight of the Gods: War in the Western Pacific, 1944-45.

By Ian W. Toll. New York: W.W. Norton & Co., 2020. Maps. Photographs. Notes. Bibliography. Pp xv, 879 (advance-review copy). \$40.00 ISBN: 978-0-393-08065

Toll's final volume in his trilogy on the Pacific Theater of World War II begins in July 1944 and concludes with the Japanese surrender and the return to civilian life of hundreds of thousands of American veterans. He covers the gamut from grand strategy to tactical ground and naval operations. Deftly switching back and forth between land and sea, he illuminates the key decision makers such as

Army General Douglas MacArthur and Navy Admiral Chester Nimitz. Besides contrasting their personalities, he turns a similar trick with Admirals William “Bull” Halsey and Raymond Spruance. The pair alternated in commanding the American fleet carriers with vastly different approaches.

For the most part, Toll proceeds chronologically. He details the major land battles: Pelelieu (perhaps one of the most unnecessary and frustrating battles ever undertaken by American forces—on a par with the Army’s struggles in Germany’s Huertgen Forest which, ironically, was waged simultaneously); the liberation of the Philippines and the Japanese atrocities in Manila; the capture of Iwo Jima; and, finally, Okinawa. Interspersed are naval actions—particularly the Battle of Leyte Gulf and the submarine campaign.

Providing context for the subs, he returns to 1943. In the second half of 1944, the Boeing B-29 bomber force had expanded and moved to the Mariana Islands from China. The bombers became increasingly effective at aerial mining, which, combined with the subs, virtually choked off Japan from essential natural resources.

The *kamikaze* attacks, which began in October and reached their peak in the spring of 1945 off Okinawa, are covered in considerable detail. The firebombing of Tokyo and other cities is discussed as well, as are various naval aviation operations. However, tactical land-based air and fighter operations are largely ignored. Fans of the Army Air Forces’ two leading aces, Richard Bong and Thomas McGuire, will be disappointed by their omission.

The final chapters deal with the development and deployment of the two atomic bombs and the aftermath. When appropriate, considerable space is devoted to the Japanese point of view, particularly with regard to life in Japan at the end of the war and how the path to surrender occurred.

The epilogue discusses the status of American servicemen in the Pacific Theater after the formal surrender and the changed world these men encountered after returning home.

While I missed the first two volumes, this work is highly recommended to anyone at all interested in the Pacific War. An easy read, it provides an excellent foundation for exploring various topics in more detail. Anyone teaching a class about the Pacific portion of World War II should consider this trilogy as required reading. The extensive bibliography and notes offer insight into Toll’s outstanding research effort. I suspect that an index that was omitted from the advance-review copy will be included in the version sold to the public.

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



The Red Baron: A Photographic Album of the First World War’s Greatest Ace, Manfred von Richthofen. By Terry C Treadwell. Philadelphia: Air World, Pen & Sword Books, 2021. Photographs. Illustrations. Glossary. Appendices. Pp. 157. \$34.95 paperback. ISBN: 978-1-52678-132-1

The title says it all. This book is an annotated photo album, featuring Manfred von Richthofen, the Red Baron. Von Richthofen is the most recognizable character to emerge from the horror of World War I. Today the Red Baron can be found in comic strips, pizza boxes, and entire libraries of books. This fame, or infamy, is as much a product of the German propaganda machine as his aviation prowess. In World War II, the world would see the same machine raise Hans Marseilles and “Bubi” Hartmann to similar heights of public recognition.

The majority of the images show uniformed personnel in both casual and formal settings. Although in black and white, figure modelers might find such photos a useful reference. Many figures are in a dizzying array of flight clothing. Obviously, the Red Baron is centermost in the photographs; many casual and candid images showing a young, animated, gregarious, and charismatic aviator. Books on von Richthofen talk about his growing introversion and anti-social behavior, especially after his first wound. But one sees none of that reclusion in these photos.

Aircraft are the second most featured attraction in the album. Due to the extensive research on von Richthofen, aircraft associated with him have been extensively documented. Tail numbers, paint schemes, and service histories are available and included in the appropriate annotations. Once again, black-and-white images deny the reader the impact of the colorful “Flying Circus” and its leader. Especially evocative are the images of the stripped and scavenged wreckage of the Fokker Dr.I that carried the Red Baron on his final sortie.

The first 130 pages of the book contain truly little narrative. But the final few pages contain a lengthy discussion addressing the numerous post-mortems conducted on von Richthofen’s body. Unfortunately, the Red Baron did not rest in peace. His burial is the subject of a large number of images, some of which show the vandalism perpetrated by villagers who “protested” his interment in “their” churchyard. Treadwell documents a half dozen exhumations and re-interments before von Richthofen’s “final” burial.

Treadwell’s book carries something of interest for most aviation historians. The images are interesting, and the brief captions advance the narrative. There is one facet of von Richthofen’s career that Treadwell completely ignores: the Red Baron’s silver cup collection. The ace of aces had a silver cup engraved to document each aerial victory. Occasionally, images of individual cups appear on the internet, many for sale at significant prices. But the fate of von Richthofen’s silver cups remains unknown. That said, this

book is much easier to find than the cups and is a worthwhile addition to one's library.

Gary Connor, docent, Smithsonian's National Air and Space Museum Udvar-Hazy Center



Strike from the Air: The Early Years of the of the US Air Forces. By Terry C. Treadwell. South Yorkshire UK. Air World, 2020. Photographs. Appendices. Bibliography. Index. Pp. 320. \$34.95. ISBN: 978-1-52677-645-7

This book's title is something of a misnomer. It is more a catalogue of the experiences of American airmen who served in the US Army, Navy, and Marine Corps, and with foreign military services from the Civil War to the Polish-Soviet war in 1919-1920. Treadwell's fascination with this subject is evident. Unfortunately, as a history, his book leaves much to be desired.

Treadwell is British. He spent his career working in telecommunications and served as European Correspondent for *Naval Aviation News* and *Wings of Gold* magazine. He does not explain how he came to have such a strong interest in early American airmen or how he came to write this book, which is, apparently, his first effort.

He begins with the experiences of using balloons in the Civil War and then moves to the early experiments with balloons and airplanes in the Army and Navy before America's entry into World War I. These early chapters cover the Navy's use of airplanes at Veracruz in 1914 and the 1st Aero Squadron's participation in the Pershing Expedition against Poncho Villa in 1916. The bulk of the book covers American airmen who participated in World War I, beginning with the Americans who joined the French Lafayette Escadrille. With America's entry into the war, the book moves on to describe America's efforts to build up air units and train pilots to fight in Europe looking at the efforts in the Army, Navy, and Marine Corps. He then follows the separate services to England, France, and Italy, recording the experiences of individual pilots and squadrons supporting the American Expeditionary Force's fighting in France. He concludes the book with a chapter on the American pilots who volunteered to fight in Poland's war against the Soviet Union in 1919-1920 as members of the Kosciuszko Squadron. Much of what Treadwell covers is already well-known from other sources. The most interesting part of his book is the final chapter which includes 26 reports from American pilots who were shot down and captured, documenting their experiences as prisoners of war of the Germans and in some cases, their successful escapes from captivity.

Treadwell is to be commended for attempting to include the experiences of American aviators from all three services in one volume; but, in following a chronological order, he often jumps between units and services seemingly

at random. This is confusing to the reader. A more thematic approach, describing the contribution of each service in separate chapters, might have served him better. The book includes some excellent photographs of airplanes and pilots; but, frustratingly, Treadwell does not cite his references; and his bibliography lists only eleven sources. The book is perhaps appropriate for the general reader. Those who want more information on the period would be better served by turning to Herbert Johnson's *Wingless Eagles: U.S. Army Aviation through World War I*; James Hudson's *Hostile Skies: A Combat History of the American Air Service in World War I*; Geoffrey Rossano and Thomas Wildenberg's *Striking the Hornet's Nest: Naval Aviation and the Origins of Strategic Bombing in World War I*; and, for the Marine Corps, Wray Johnson's *Biplanes at War: U.S. Marine Corps Aviation in the Small Wars Era, 1915-1934*.

Edward M. Young, PhD, volunteer, Museum of Flight, Seattle



Against All Odds: Pakistan Air Force in the 1971 India-Pakistan War. By Air Commodore Kaiser Tufail. Warwick UK: Helion & Company, 2020. Illustrations. Maps. Photographs. Glossary. Bibliography. Pp. 88. \$20. ISBN: 978-1-913118-64-8

Not all readers will recall the 1971 India-Pakistan War or recognize its importance. The outcome reshaped the political map of South Asia: India emerged as the region's preeminent power, and Bangladesh became independent. Tufail, a former air commodore of the Pakistani Air Force (PAF) and an historian has made abundant use of official PAF war records and India's official history of the war in writing this monograph and has drawn on memoirs of participants.

Recognizing that readers may be unaware of the causes of the war and what was at stake for the warring parties, Tufail first provides an informative backdrop. He briefly describes the process leading to the creation of Pakistan in 1947—a state that in the beginning comprised two very different entities separated by a thousand miles, properly known as East and West Pakistan. The cultural, linguistic, economic, and political differences almost from the beginning doomed the union. It was a marriage based solely on an imperfect division along religious lines of the formerly British-ruled India with most Muslim dominated areas forming a separate, independent state with two non-contiguous parts. In 1971, the differences between the two parts precipitated a move for independence by East Pakistan. West Pakistan responded with military action and occupation. India, which until this time had to contend with a hostile neighbor flanking it on both sides, soon supported the East Pakistan (Bangladesh) separatist effort. Consequently, the rebellion escalated into a war between

India and Pakistan. While Pakistan lacked the resources that could deliver victory, there existed the possibility of gaining leverage by threatening India in the west. With some degree of success it could offset probable defeat in the east by trading Bangladesh for the Indian-controlled portion of Kashmir.

Tufail focuses on Pakistan's use of airpower. The PAF was to fly close air support for the army, attack Indian air bases, fly counter-air sorties, and protect its own bases—a daunting task, as it was burdened by inadequate assets and outnumbered by its opponent.

Once hostilities began, the PAF strove to deny opportunities to the enemy while taking the war into India to limit the Indian Air Force's use of its airfields. Two senior PAF officers recently told me about flying highly dangerous C-130 bombing missions as young pilots. They courageously, and perhaps recklessly, flew their Hercules into India and flew the length of runways while dropping bombs out the rear of their transport's cargo bay! Unfortunately for Pakistan, any tactical successes were never enough to deny India's rapid victory along both its east and west fronts and at sea.

This is a detailed document with knowledgeable discussions of participating Pakistani and Indian aircraft, numbers, capabilities, armament, and limitations. Easy-to-read tables illustrate orders of battle, missions flown, and a summary of the PAF's war effort. Tufail's action-filled accounts of dogfights and raids further enrich the fact-filled text and give a very human side to the air war. As in all Helion books, abundant illustrations of aircraft are detailed and pleasing to the eye. Accompanying photos and maps amplify the text.

This is an informative and easily read reference that will be welcomed by both aircraft buffs and students of events that have shaped South Asia in recent history.

John Cirafici, Milford DE



Selling Schweinfurt: Targeting, Assessment, and Marketing in the Air Campaign Against German Industry. By Brian D. Vlaun. Annapolis: Naval Institute Press, 2020. Illustrations. Photographs. Notes. Bibliography. Index. Pp. xiii, 303. \$45. ISBN: 978-1-6824-7536-2

This book is part of a “series designed to explore previously ignored facets of the history of airpower.” The facet here is the intelligence organizations that supported USAAF bombing against Germany and how they attempted to justify decisions, influence perceptions, and ultimately affect execution. There are three main themes. The first discusses Air Corps Tactical School (ACTS) development of daylight precision bombing doctrine. Vlaun argues the doctrine's lack of a scientific, data-driven rationale made wartime assessment problematic. The second theme is the heart of the book's originality. It introduces the con-

cept of a marketing role for air intelligence. Finally, competing intelligence entities with different motivations and answering to different decision makers attempted to influence the course of events. Who would control the narrative? He argues Arnold's focus on creating conditions favorable to result in an independent Air Force subordinated all others (short of winning the war).

Vlaun has done his homework, discussing a fascinating list of players and organizations, both American and British. Chief among these are Gen Arnold and his Committee of Operations Analysts (COA—industry experts commissioned and positioned at USAAF HQ), and Gen Eaker's Enemy Objectives Unit (EOU—economists in theater). These didn't agree on goals, methods, or outcomes resulting in a constant struggle to control and direct bombing efforts.

In explaining an often chaotic and convoluted environment, Vlaun excels. The key conflict resulted from Arnold's micromanaging his commanders and the resulting disagreements on methods and interpretation between the COA and EOU. Each group sought to justify itself and its conclusions while failing to recognize or acknowledge its own internal bias. Analysts tended to see what they wanted to see in bomb-damage assessment, and this lack of objectivity led to often unjustifiably positive assessments of bombing results. Vlaun's final assessment is that previous conclusions about USAAF leadership's use of ACTS doctrine as a single decision-making framework in the struggle for an independent Air Force are incomplete. He argues that Arnold's single-mindedness and the multiplicity of organizations with competing priorities, agendas, and unacknowledged biases combined with adherence to precision bombardment theory created a situation where marketing the campaign's success became as important as the campaign itself.

Vlaun's most important contribution is his assessment of these issues and recommendations for future leaders and intelligence professionals. He argues that intelligence organizations focused as much on marketing strategic bombing to justify a separate Air Force as they did on validating ACTS theory or finding viable alternatives. His central conclusion is that the key to success of intelligence efforts is the importance of guarding against and counteracting bias. This may seem obvious but, as he demonstrates, isn't as simple as it appears. Success in an air campaign hinges on targeting and assessment; lack of objectivity can mean the difference between success, wasted effort, or even defeat.

I wholeheartedly recommend this book to history buffs and military professionals alike. The writing style is clear and easy to follow, the arguments thoughtful and well crafted, and the conclusions sound and logical. Vlaun pulls no punches in his assessments of people or organizations and provides an interesting and useful perspective on an important topic.

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



Educating Air Forces: Global Perspectives on Airpower Learning. By Randall Wakelam, David Varey, and Emanuele Sica, eds. Lexington: University Press of Kentucky, 2020. Notes. Index. Pp. 260. \$70.00. ISBN: 978-0-8131-8024-3

In *Educating Air Forces*, three editors—Randall Wakelam, David Varey, and Emanuele Sica—consolidate the writing of a dozen eminent international military leaders and scholars. Their thesis contends that “an understanding of airpower education would enhance aviators’ abilities to develop the intellectual capability and capacity of their particular service.”

The three possess a wealth of university teaching experience. They present concise “histories of past and present education philosophy and practice” predicated on events from the interwar years, Cold War, and post-Cold War periods. By citing experts, they solidify the “logical link between education programs and the development and transmission of airpower concepts and practices to members of the profession.” They admit to relying only on findings from European and English-speaking nations; hence, the book fails to reference experts from such nations as Russia, China, and Vietnam.

Educating Air Forces presents lessons that broadened my education, as they will for many readers. From the traditional thinking of “Giulio Douhet and the Influence of Airpower Education in Interwar Italy” to the revolutionary reasoning of “Square Pegs in a Round Hole: John Boyd, John Warden, and Airpower in Small Wars,” I enjoyed every argument the book offered. New wars and new weapons demand rethinking of policies we too frequently accept without question.

The experts begin by examining the early development of military-run schools in the United Kingdom, Italy, and France. They then determined that secret German Luftwaffe programs and training that stressed joint operations were the best teaching approach. These led to the highly successful Stuka-Panzer blitzkrieg of World War II. English, Canadian, and Australian air force leaders also describe their evolutionary approaches to education across the years.

The book emphasizes the United States’ delays in forging air education schools because of struggles between generals and differences of opinions between politicians. Today, the USAF has an array of sophisticated schools for officers of all ranks. The book makes a good case for civilian-run schools that teach graduate-level military history courses to investigate “war and society.”

Naturally, the book examines the two classic issues of “strategic versus tactical employment of forces” and the differences between “large and small wars.” The arguments come full circle by emphasizing “Billy” Mitchell’s idea that “the airplane’s role in war is the product of decision-making peculiar to each state.”

In the end, *Educating Air Forces* left me with the impression that, after a century of military air operations, the

best approach to teaching their history is still highly debatable. Separating theory and practice is often a formidable task. In the early 1960s, I was both a student and faculty member at both Squadron Officer School and Air Command and Staff College. Many times, I questioned exactly what we were teaching our students and why. This collection of educated opinions shows that there is no clear answer to those questions.

Henry Zeybel, Lt Col, USAF (Ret), Austin TX



Stealth: The Secret Contest to Invent an Invisible Airplane. By Peter Westwick, New York: Oxford University Press, 2020. Photographs. Illustrations. Notes. Index. Glossary. Pp. 233. \$27.95. ISBN: 978-019067744-2 (reviewed advance proof titled **Stealth: The Secret Race . . .**)

In only 198 pages of engaging text, Westwick not only devote substantial discussion to various types of stealth aircraft but also interweaves a number of important themes. *Stealth* integrates arguments about strategy, technology, class, and even the culture of Southern California into the development of Have Blue (F-117 predecessor), the F-117, Tacit Blue (a stealthy predecessor of JSTARS that the Air Force cancelled), and the B-2. It also briefly touches upon subsequent successes and failures in stealth aircraft.

Perhaps most impressively, Westwick makes a nuanced argument for the range of people who developed stealth aircraft. He does not focus on the superstars (e.g., Kelly Johnson receives only about two pages in the book). Even more controversially, Westwick says that the “invention of Stealth occurred as much in spite of the Skunk Works as because of it.” It had experienced so much success, that it had foreshortened its vision and creativity: the challenge to develop stealth required a significant change in mindset.

The work begins with the birth of radar and its key contributions to Allied victory in World War II. Radar helped the defender, and Allied and Axis air forces sought to use radar-absorbing materials on their aircraft. The best option for stealth centered on reducing radar cross section, but this required meeting the seemingly ludicrous goal of diminishing it by a factor of 10,000.

With its many highly qualified scientists in important positions, the Carter administration proved a boon for stealth. But this is no top-down history. Westwick repeatedly highlights the contributions of engineers and mid-level military officers, although he focusses more on the former than the latter. He also points out that stealth involved machine tools as well as computers and drafting tables, and blue collars as well as white collars. He further expands the story to incorporate an underappreciated Soviet physicist’s contributions to stealth technology—once

the US stumbled upon and translated his work on radar scattering. Ironically, that Soviet physicist worked for Northrop many years later developing the B-2.

Another key theme is how Lockheed and Northrop developed such different types of stealth aircraft. This difference comes to life in the charming anecdote of a Northrop engineer who took some clay out of his pocket while waiting for his children to finish their ride on the Tea Cups at Disneyland (a ride partially developed by a Lockheed engineer). The engineer used the clay to play with ideas about the appropriate wing for a stealth aircraft. Similarly, he charts different paths for the companies' increasing understanding of stealth—one by designing other aircraft, the other by designing spacecraft. Testing the Snark cruise missile, for example, Northrop found that its radar could not track it. While 1/10th smaller than the B-52, moreover, it had 1/20th of its radar signature. This discovery set in motion subsequent investigation and discoveries.

Westwick also avoids a teleological march of progress through the history of technology by highlighting how Northrop's failure to get the Air Force to sign onto one aircraft resulted in a subsequent success. Tacit Blue established the foundation for the B-2. In the process of making it work, engineers ransacked aviation history as far back as the Wright Brothers: old ideas provided as many solutions as cutting-edge technology. Northrop's flying wing from 1947 might work for Tacit Blue. That connection proved critical for Northrop's subsequent success in getting the contract to build B-2s, but Westwick insists that this story is more complicated than is commonly told. Success was achieved by combining esoteric physical theory and nuts-and-bolts airplane building. B-2 development at times suffered from the fact that high security classifications stovepiped some of those processes.

Likewise, stealth did not result from garnering only high-tech solutions. For example, one person came up with the clever idea to place a nail in a wooden model stealth aircraft in order to determine how different radii on a curving wing best shed radar. This emphasis on low-cost and effective solutions supports Westwick's largely positive view of the innovation that the military-industrial complex enabled.

Another theme is that of strategy. Despite US efforts to preserve secrecy, Westwick explains that the Soviets learned about the stealth program from a careful reading of *Aviation Week* and similar publications, but that this knowledge served US interests because it significantly scared the Soviets. With the ability to drop a conventional bomb close to the target, the US no longer needed to rely on nuclear weapons. What had begun as a capability to tactically defeat Soviet air defenses in the event of a conventional invasion of Western Europe had developed into something with far more strategic implications. Some historians might counter that this development scared the Soviets so much that they began reconsidering the use of tactical nuclear weapons.

In a relatively short work, Westwick brings complexity to the development of stealth aircraft. Above all else, he highlights how Lockheed and Northrop took two different paths to Stealth in order to demonstrate that there was no magic formula, just a lot of hard work by tens of thousands of people committed to a cause.

Dr. Heather Venable, Air Command and Staff College



Extremes of Fortune: From Great War to Great Escape: The Story of Herbert Martin Massey CBE, DSO, MG. By Andrew White. Hitchin UK: Flying High Publishing, 2020. Photographs. Notes. Appendices. Index. Pp xvii, 184. 19.95 pounds. ISBN: 978-1-9998128-8-1.

White, a retired Royal Air Force (RAF) intelligence officer, previously published *Fire-Step to Fokker Fodder*. This work detailed the experiences of Jack Lidsey, a World War I soldier and pilot, based on his letters and journals. Lidsey included references to fellow pilots in No. 16 Squadron. Among them was Herbert Martin Massey. Checking further, White discovered that Massey's career had many dimensions worthy of a biography.

Aside from detailing Massey's formative years and his life after leaving the RAF, White focuses on Massey's many military experiences. Born in 1898, he entered the Royal Military Academy at Sandhurst in 1915. By 1916, he was piloting Royal Flying Corps aircraft. When Massey joined No. 16 Squadron, the unit was flying the Royal Aircraft Factory B.E.2 two-seat observation biplane. Considered one of the most unsuitable combat aircraft ever deployed in significant numbers, it stood little chance of surviving attacks by the far-more-nimble German pursuit aircraft. German ace Werner Voss downed Massey's aircraft in February 1917. Despite severe burns and a serious foot injury, Massey managed to land the aircraft near friendly lines. His observer died as a result of the combat.

For the next few years, Massey endured a painful convalescence. By October 1921, he had regained flying status. From then until the early 1930s, he served with various domestic units in a variety of roles before going overseas to the Middle East. While serving as commander of the Hawker Hart-equipped No. 6 Squadron, he once again was wounded, this time by ground fire.

Returning to Britain, Massey spent the next five years training Bomber Command crews. The RAF selected Manning to join a delegation headed for the United States in 1942 to learn more about the Boeing B-17 and Consolidated B-24 bombers. To prepare himself, Massey successfully lobbied to fly on a mission in June 1942.

A German night fighter shot down his aircraft. He eventually became a prisoner in Stalag Luft III. About one third of the book details Massey's efforts as the Allies' camp leader and his return to Britain. Stalag Luft III is best re-

membered as the site of the Great Escape. Because that event has received so much notoriety, White wisely avoided wading into the details, with the exception of the execution of 50 of the re-captured prisoners. In Britain, authorities questioned whether Massey, who approved the escape, recklessly risked the lives of those executed.

This work is best suited for readers interested in the RAF's evolution as experienced by one officer. Prisoner-of-war specialists, especially those fascinated by the Great Escape, will find this a valuable addition to their collections. Aside from placing the subject on a pedestal, as many biographers do, the absence of a bibliography is all that prevents this from being a complete effort.

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



Fleet Air Arm Legends 1: Supermarine Seafire. Mathew Willis. Horncastle UK: Tempest Books, 2019. Photographs. Notes. Appendix. Pp. 114. \$19.99 paperback. ISBN: 978-1-911658-29-0

September 1941 was a time of a grim realization for the Royal Navy. The Fleet Air Arm (FAA) desperately needed aircraft. It had too few aircraft; the Sea Hurricanes it did have were obsolete; and the American-provided Martlets (Grumman Wildcats) were arriving in too few numbers. With the commissioning of HMS *Indomitable*, Winston Churchill directed the transfer of 200 fighters from the RAF to the FAA. Rather than transfer more Hurricanes, the RAF began to transfer Spitfires: the Supermarine Spitfire was finally going to sea.

As often is the case, aircraft not designed from the ground up for carrier operations have suitability problems with carrier operations. The Seafire squarely resided in this camp. The initial Seafire Mk 1b was essentially a Spitfire with a tailhook attached and a few additional minor modifications. Not until the Seafire Mk III did the FAA have a fully navalized version capable of folding its wings for better storage.

Throughout its life the Seafire would be mired with several significant flaws. Early aircraft had poor range (about 460 miles) and only 85 minutes of flight endurance. Later models never reached 700 miles range. It was tricky to land on an aircraft carrier: the sleek wings didn't have the space for the beefed-up landing gear typically found on carrier aircraft. And its long nose gave the pilot very poor forward visibility for landing.

Despite these shortcomings, Seafires served in the Atlantic, Pacific, Mediterranean, and Indian theaters during the war. Willis details Seafire operations to include stories of individual combat sorties. Unfortunately, his coverage of post-World War II use is sparse. Only one photograph and one illustration provide any mention that the aircraft flew

with the French Navy. There is no mention of other nations (Canada and Ireland) that operated the Seafire.

The book is well appointed with sharp and well-captioned photographs throughout that help tell the story. Willis also includes modern color images of a restored Seafire. The photos along with a set of profile illustrations highlighting the various Seafire paint schemes (including that of the French Navy) are strong points of the book.

A three-page data appendix gives technical details of the eight different Seafire variants (Mk 1b through Mk 47). Regrettably, dates that each variant was operational and how many of each variant were produced are lacking. Over 2500 Seafires were eventually produced.

This book fills in a historical gap regarding FAA aircraft during the Second World War. Ultimately, the Spitfire design that had performed so well during the Battle of Britain proved to be not as capable when modified and redesigned for carrier operations. In that respect, Willis does not pull any punches. Simply put, the Supermarine Seafire was not the star of carrier operations. The book is an easy, quick read with considerable text focusing on the aircraft's development. Fans of the Supermarine Spitfire/Seafire and British carrier operations will most certainly find this book fascinating.

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



Fighter Aces of the Great War. By Stephan Wynn and Tanya Wynn. Place: Great Britain. Publisher: Pen and Sword Military, 2020. Photographs. Pp. 176. \$37.95 paperback. ISBN: 978-1-47383520-7

I was well into *Fighter Aces of the Great War* when I began to feel a nostalgic sense of familiarity in its style and substance. After a few more chapters, it came to me. This book felt very much like books written for young adults in the 1940s and 1950s. Aviation books of that time had a style that was casual and simplistic. The emphasis was on plenty of "facts" and stories that allowed the book to be broken into small chunks suitable for shorter attention spans. And complex themes were avoided in favor of simple ideas and concepts. That is not to disparage books targeting young adult audiences. Rather, in today's multi-media world, exposing young people to the simple pleasures reading offers is to be commended.

Unfortunately, even the young novice armchair aviation historian is going to be disappointed in this book. The brief biographies of select aces offer little that is new to the knowledgeable reader and frequently include conflicting information. In one paragraph, a French aviator is described as "... a very serious individual, quite withdrawn by nature and not a natural socializer, which was unusual for a Frenchman." But in the next paragraph we learn his colleagues disliked his "Look at me, aren't I brilliant" atti-

tude. The Wynns do note the extreme youth of the pilots of the period, pointing out that many aces were extremely poor aviators who attained success through undisciplined aggression and good marksmanship. Sadly, they do not elaborate on that complex dichotomy of characteristics.

The images included in the book are unremarkable. One image shows a crashed aircraft with the bodies of the crew clearly visible. Images showing this content were quite common during the war and its immediate aftermath. Today, I found it unsettling and somewhat out of context with the rest of the book.

I would not hesitate to give this book to one of my grandchildren to read and then talk about later over refreshments. And, maybe, a visit to a nearby aviation museum or road trip to Old Rhinebeck to add the color, smell and sounds that bring this era to life.

Gary Connor, docent, Smithsonian National Air and Space Museum's Udvar Hazy Center



The Aztec Eagles: The Forgotten Allies of the Second World War. By Walter S Zapotoczny, Jr. Stroud UK: Fonthill Media, 2020. Photographs. Notes. Maps. Bibliography. Appendices. Pp. 218. \$35.00 paperback. ISBN: 978-178155747-1 and **Mexicans At War: Mexican Military Aviation in the Second World War 1941-1945.** By Santiago A. Flores. Warwick UK: Helion and Company, 2018. Photographs. Maps. Appendices. Bibliography. Pp. 216. \$35.00 paperback. ISBN: 978-191239006-9

In December 1941, the world was divided into three groups: Allies, Axis, and neutral countries. The Allies and Axis were further divided into major and minor partners. As a result of bilateral agreements with the United States, Mexico was considered a minor ally after February 1942. These two books describe the Mexican experience in World War II.

Flores' *Mexicans At War* is number 9 of a 14-volume series on Latin America at war. While numerous authors have described the service of the Mexican 201st Fighter Squadron in World War II, Flores takes the reader on a deeper dive to the very foundation of aviation in Mexico. As a result, his work provides a context for the relatively brief Mexican combat aviation experience. Writing in a brisk but readable pace, Flores introduces us to characters such as Ralph O'Neill, the Mexican-born American World War I ace and colleague of Jimmy Meissner in the 147th Pursuit Squadron. He describes the broad scope of O'Neill's contributions to Mexican military and commercial aviation. The narrative flows smoothly into the World War II era and Mexico's first combat operations: anti-U-Boat patrols to protect oil supplies serving the American war machine. By this time, Mexico had a small, but experienced, professional aviation cadre capable of the full range of

training and operational missions. The only deficiency came in acquiring modern state-of-the-art equipment. Flores firmly demonstrates that, while the 201st was unique, it was the natural evolution of Mexico's aviation heritage. This volume is an outstanding foundation for the historian seeking to understand the depth and breadth of Mexican aviation history. I strongly recommend this volume to anyone curious to learn more about the roots of Mexican military aviation.

Zapotoczny's *The Aztec Eagles* nominally tells the story of the 201st Fighter Squadron of the Mexican Expeditionary Air Force, the only unit of the Mexican military to be deployed overseas and to see combat action. But the author paints with an overly broad brush and includes large segments on Mexican-American relations, Mexican military history and organization, and anti-Mexican attitudes in the United States military. He blames American racial attitudes for the limited role played in the 201st's two-month combat experience. The 201st was assigned to the USAAF's 58th Fighter Group in the Philippines. It received all logistics support, operational training, and technical and tactical advice from its American partners. The 58th was a combat-hardened unit with almost 18 months of combat experience. The 201st was designed to serve as a fourth combat squadron to reduce the strain on the 58th. But the 201st could perform only basic ground attack and reconnaissance missions, and even these tasks resulted in 20% losses of aircraft and aircrew. The situation became so dysfunctional that when the 58th moved forward to Okinawa for the final phases of the war, the Aztec Eagles remained in the Philippines. All of that said, the Mexicans did deploy a combat force, fought bravely, and returned home heroes.

I cannot recommend *The Aztec Eagles*. The book is repetitive and rife with filler. Zapotoczny casually blames shortcomings of Mexican personnel on the racial biases of American instructors and partners, rather than demonstrating the difficulty in preparing a force to operate complex modern weapon systems in a modern war. He never explains why, with a cadre of combat experienced aviators, the Mexican military chose to build a combat unit from the ground up, with all the inefficiencies that decision carries. Instead, he stresses the unfairness of forcing the Mexicans to learn English as a requirement of training; then blames an aircraft accident which resulted in the death of the pilot on a language misunderstanding. His editors overlooked numerous spelling and grammatical errors, compounding factual errors in dates and events. For the reader interested in Mexico's aviation role in the Second World War, Flores' book is by far the better of these two.

Gary Connor, docent, Smithsonian National Air and Space Museum's Udvar Hazy Center





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