

# AIR POWER

SUMMER 2015 - Volume 62, Number 2  
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# *History*





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# AIR POWER

## History

Summer 2015 - Volume 62, Number 2  
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COVER: An F-100 of the 90th TFS leaves the area after striking a suspected Viet Cong target, March 1966.



# The Air Force Historical Foundation



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As you may note from the flyers inside the front cover, and on page 4, there is a symposium upcoming on October 15 and 16 of this year, at the National Defense University, covering the air war over Vietnam. As a result, we have featured, as the third article in the magazine, a longer than normal piece on the overall USAF effort in Vietnam up until 1968. We expect to run the 1968 to 1975 part of the story in the next issue. The article began life as a pamphlet published by the Air Force History and Museums program on the occasion of the Air Force's Fiftieth Anniversary in 1997. It has not been superseded, and it provided an excellent background for the October symposium. We would love to see you all there in October.

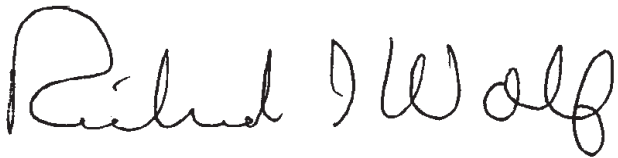
We open with a more modern piece by Dan Haulman, an excellent and frequent author in air power history, on the USAF in the air over Serbia in 1999. It seems hard to believe that the episode was more than fifteen years ago now.

Our second article is from across the pond, our English contributor, A.D. Harvey, and his reluctant debunking of the myths of Pierre Clostermann. He is considerate in his criticism of liberties taken with the historical record, and it is an interesting history.

As mentioned above, our third article is by John Schlight, retired deputy chief of the Office of Air Force History. A very fine piece of work.

Of course, we include our usual quota of book reviews, twenty-four this time, prepared under the guidance of our excellent Book Review Editor, Scott Willey. He manages to keep track of all the many volumes that come in, and we try to get each of them into our pages.

We include the normal set of Upcoming Events and impending Reunions, along with the sad passing of one of the few remaining Doolittle Raiders. Finally, we conclude with the revamped mystery of an historical nature. Enjoy.



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# 15-16 Oct. 2015

## SAVE THE DATE

Symposium Site:  
National Defense University  
Southwest Washington, D.C.



Join us for a reflective examination and discussion about the role of aircraft in the Vietnam War and the service and sacrifice of the airmen who fought. Scholars and veterans from around the country will discuss the role of air combat operations in Southeast Asia from 1964 to 1975.

Conference registration, sponsorship/display opportunities, lodging and transportation information available about **15 JUNE 2015**. For more info, go to [www.violentskies.org](http://www.violentskies.org).

For program information, contact Dr. David Winkler at [dwickler@navyhistory.org](mailto:dwickler@navyhistory.org) or email [info@violentskies.org](mailto:info@violentskies.org) for general event information.



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## From the President

Dear Foundation Members and Friends:

As always, let me thank you for the part that each of you has played in the history and legacy of *air power*, and for your generous support of our Foundation. Yet, for some time, I've expressed a deep concern about our Foundation's financial future.

It is my great pleasure to share some very good news. Recently we received a very generous bequest from one of our longtime members. This gracious gift will go a long way towards ensuring a secure financial future for your Foundation. This new circumstance will help solidify our position as an independent advocate within the *air power* community. We now have the latitude to review our programs and member services with the vision to grow our Foundation in a way that furthers our mission to "Know the past...Shape the Future." However, we must continue to: operate on a tight budget; annually raise funds through sponsorships and donations; use our new, viable status for the betterment of our Foundation; and prove worthy of future bequests and support.



Mark your calendars for the second week of this coming October. On Tuesday, October 13th we will host our annual Awards Banquet. As in past years, we will recognize two individuals who have made a lifetime of contribution to the making and documenting of Air Force history and those who authored the best historical writings of the past year. The Banquet will be held at the Army Navy Country Club in Arlington, Virginia. It will be preceded by the presentation of the Doolittle Award in an afternoon ceremony at the Air Force Memorial. This award recognizes an Air Force unit whose history exemplifies the *air power* contribution to national security, valor, esprit-de-corps, and superior mission execution exemplified by then-Lt. Col. Jimmy Doolittle, his seventy-nine fellow airmen and their 1942 bombing of Tokyo, Japan.

Additionally, on October 15th and 16th, in cooperation with our sister service historical foundations, we will co-host a joint symposium entitled "Violent Skies: The Air War over Viet Nam 1965-72." The venue for this event will be at the National Defense University at Ft. Leslie J. McNair in Washington DC. We are in the process of assembling a distinguished group of panelists and speakers. We invite your suggestions and recommendations for *air power* experts with Vietnam or research experience in the conflict to participate in the symposium. And of course, would greatly appreciate your attendance at this much anticipated event, as well as our award festivities on the 13th.

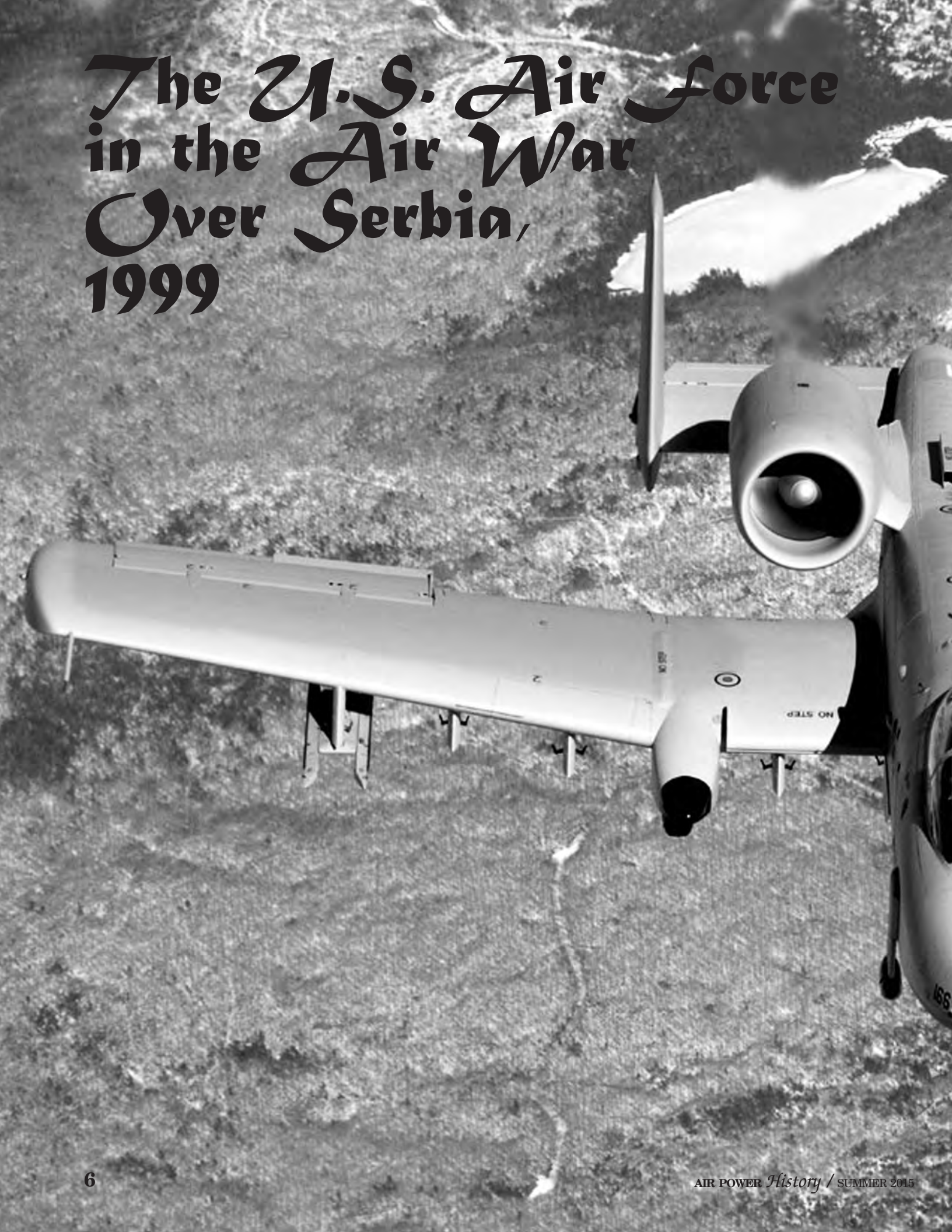
We are extremely pleased that our financial bedrock is being established. However, there is much hard work ahead of us. Not only do we need your continued financial support but your ideas as well in keeping our organization relevant and true to our mission. Our fervent bottom line: continue the tradition of preserving our legacy to educate future generations on the contributions of *air power* to our Nation. Failing to do so would mean that we won't pass on the "torch of enthusiasm" for *air power* that we inherited from our founders and those who grew our Air Force and Foundation—revered airmen like Spaatz, Vandenberg, Foulois, LeMay, Schriever, and Doolittle. Again, on behalf of the Board and our staff, thanks for your continued support. We hope to see you at our October events!

A handwritten signature in dark ink, reading "Dale W. Meyerrose". The signature is fluid and cursive, with a long horizontal line extending from the end of the name.

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



# The U.S. Air Force in the Air War Over Serbia, 1999







Daniel L. Haulman

(Overleaf) The A-10 Thunderbolt II was a major aircraft in the air war over Serbia. (All photos USAF.)

**IN EARLY 1998, VIOLENCE ERUPTED WITHIN KOSOVO BETWEEN YUGO-SLAVIAN (SERB) FORCES AND THE KOSOVO LIBERATION ARMY (KLA)**

The last major United States military operation of the twentieth century was noteworthy in a number of ways. It marked the first time NATO took part in combat operations against a sovereign nation. It was the last time manned aircraft shot down manned enemy aircraft. The operation resulted in no American casualties. It ended one of the worst instances of genocide in a century of genocide. Most importantly, it was the first air campaign that produced victory without the use of ground forces. Operation Allied Force, or the Air War Over Serbia, resulted in victory without any American or NATO “boots on the ground.”

In early 1998, violence erupted within Kosovo between Yugoslavian (Serb) forces and the Kosovo Liberation Army (KLA). As a result, a Contact Group consisting of the foreign ministers of six nations, the United States, the Russian Federation, the United Kingdom, Germany, France, and Italy met in London during March in an attempt to discuss the growing war within Kosovo. Partly in response to two statements from the Contact Group, dated March 9 and 25, the United Nations Security Council passed Resolution 1160 on March 31. It urged a political settlement of issues in Kosovo, supported greater autonomy for Kosovo within Yugoslavia, and banned arms sales and deliveries to Yugoslavia. The resolution also condemned the use of excess force by Serbian paramilitary police forces against the civilian population, and denounced any terrorist activity such as that which the Serbs claimed the KLA performed.<sup>1</sup>

In May and June, NATO leaders met in Brussels to consider military options. In June, an agreement between Yugoslav President Slobodan Milosevic and Boris Yeltsin, President of Russia, allowed the formation of a Kosovo Diplomatic Observer Mission, consisting of representatives from several nations, to report on freedom of movement and security conditions in the troubled province. The six-nation Contact Group continued to meet, and issued statements on June 12 and July 8 on the increasing deterioration of conditions in Kosovo. Serbian police security forces in Kosovo, in an effort to deprive the KLA of their civilian supporters, began to drive ethnic Albanians from their homes.

The UN Secretary-General, Kofi Annan, acknowledged “excessive and indiscriminate use of force by Serbian security forces and the Yugoslav Army which has resulted in numerous civilian casualties and...the displacement of more than 230,000 persons from their homes.” These words were incorporated into United Nations Security Council Resolution 1199 passed on September 23, that demanded a ceasefire in Kosovo, dialogue between the warring parties, the end of action by security forces against civilians, and the safe return of refugees.<sup>2</sup>

Concurrently, the North Atlantic Treaty Organization prepared to exercise air strikes, if necessary, to enforce UNSCR 1160. Dr. Javier Solana, Secretary-General of NATO, stated on September 24, the day following the passage of UNSCR 1160, that the alliance was preparing to act. Solana announced that the North Atlantic Council had just approved issuing an activation warning that increased its level of military preparedness and allowed NATO commanders to begin identifying forces required for possible air operations.<sup>3</sup>

On October 12, 1998, Richard Holbrooke, President Clinton’s special envoy to the Balkans, flew to Belgrade and warned the Yugoslavian president that if he failed to comply with UN resolutions, he risked NATO air strikes. Lt. Gen. Michael E. Short, USAF, who commanded NATO air forces in the theater, accompanied Holbrooke. He spoke personally with Milosevic, telling him essentially that the question was not whether NATO planes would be flying over Kosovo, but whether they would be taking photographs or dropping bombs. On October 13, NATO’s North Atlantic Council authorized activation orders for air strikes. United States aircraft and aircrews deployed to Europe in preparations for air strikes against Serbia.<sup>4</sup>

The threat produced diplomatic results in Belgrade. On October 15 and 16, Yugoslavian representatives signed agreements to allow a Kosovo verification mission on the ground and an air verification mission. On October 24, the United Nations Security Council passed Resolution 1203, which endorsed the verification missions. However, Milosevic, as president of Yugoslavia, had signed neither agreement, suggesting that he could later

*Daniel L. Haulman is Chief, Organizational Histories, at the Air Force Historical Research Agency, Maxwell AFB, Alabama. After earning a BA from the University of Southwestern Louisiana and an ME (Master of Education) from the University of New Orleans, he earned a Ph.D. in history from Auburn University. Dr. Haulman has authored three books, including Air Force Aerial Victory Credits, The USAF and Humanitarian Airlift Operations, and One Hundred Years of Flight: USAF Chronology of Significant Air and Space Events, 1903-2002. He has written several pamphlets, composed sections of several other USAF publications, and compiled the list of official USAF aerial victories appearing on the AFHRA’s web page. He wrote the Air Force chapter in supplement IV of A Guide to the Sources of United States Military History and completed six studies on aspects of recent USAF operations that have been used by the Air Staff and Air University. He has also written a chapter in Locating Air Force Base Sites: History’s Legacy, a book about the location of Air Force bases. The author of fifteen published articles in various journals, Dr. Haulman has presented more than twenty historical papers at historical conferences and taught history courses at Huntingdon College, Auburn University at Montgomery, and Faulkner University. He co-authored, with Joseph Caver and Jerome Ennels, the book The Tuskegee Airmen: An Illustrated History, published by New South Books in 2011. This work is extracted from another book chapter. An abridged version appeared in Air Force Magazine.*



(Near right) Slobodan Milošević was the President of Serbia from 1989-97 and President of the Federal Republic of Yugoslavia from 1997 to 2000.

(Far right) Lt. Gen. Michael E. Short, USAF, who commanded NATO air forces in the theater.



**MILOSEVIC  
RELUC-  
TANTLY  
AGREED ON  
OCTOBER 25,  
TO SIGN AN  
AGREEMENT  
TO REMOVE  
“EXCESS”  
SERB POLICE  
AND PARA-  
MILITARY  
FORCES  
FROM  
KOSOVO**

claim he had never made such a commitment himself. After intense negotiations between Milosevic and Dr. Javier Solana, the Secretary General of NATO, with NATO military leaders present to reinforce the threat of NATO air strikes, Milosevic reluctantly agreed on October 25, to sign an agreement to remove “excess” Serb police and paramilitary forces from Kosovo and allow the verification missions to proceed. Gen. Wesley K. Clark, USA, Supreme Allied Commander, Europe (SACEUR) was present at the signing.<sup>5</sup>

The aerial verification agreement allowed NATO reconnaissance aircraft such as USAF U-2s and MQ-1 Predators, to verify the removal of Serb forces from civilian areas of Kosovo. A week later, NATO formally approved aerial surveillance missions over Kosovo, Operation Eagle Eye, which began on October 29, 1998.<sup>6</sup>

Operation Eagle Eye aerial verification flights over Kosovo took place in conjunction with the ground verification mission or KVM (Kosovo Verification Mission). The Organization for Security and Cooperation in Europe (OSCE) provided approximately 1,400 personnel for that part of the verification process. The ground mission arrived in Kosovo in November under the leadership of William Walker, a former U.S. ambassador to El Salvador.<sup>7</sup>

Resolution 1203, in addition to endorsing the verification missions in Kosovo, also called for the enforcement of previous UN Security Council Resolutions 1160 and 1199. The United Nations and the North Atlantic Treaty Organization spoke with one voice on the need for Yugoslavia to reduce its military presence in Kosovo, to allow the return of refugees, and to eventually agree to greater autonomy for Kosovo and its ethnic Albanian majority. It also called “for prompt and complete investigation, including international supervision and participa-

tion, of all atrocities committed against civilians and full cooperation with the International Tribunal for the former Yugoslavia, including compliance with its orders, requests for information and investigations...”<sup>8</sup>. As a result of the resolution, an International Criminal Tribunal for the Former Yugoslavia convened, with Louise Arbour appointed as chief prosecutor.<sup>9</sup>

The crisis intensified in November and December, 1998. Milosevic forbade the entrance of United Nations war crimes investigators to determine whether ethnic cleansing and genocide had occurred in Kosovo. On November 17, the UN passed Security Resolution 1207, condemning Yugoslavia for failing to arrest and transfer three individuals indicted by the International Criminal Tribunal for the Former Yugoslavia.<sup>10</sup>

The final crisis began in January 1999. On January 8 and 10, the KLA ambushed and killed four Serbian policemen near Stimlje, Kosovo. On January 15, fighting erupted around the village of Racak, as Yugoslavian police forces advanced into the area. The KLA retreated from the town. Several people were shot and wounded during the advance. The Yugoslavian forces cornered about thirty men and boys in the cellar of a house. Letting the boys go, they took the twenty-three men elsewhere. The next day, villagers found their bodies. They had been shot at close range. The Yugoslavs had apparently targeted the men of the village, probably in retaliation for the killing of their own police earlier in the month. International investigators soon determined that forty-five persons had died in Racak, including two women and a twelve-year-old boy. Nine KLA soldiers were also found dead. Walker, head of the KVA, accused the Yugoslavian authorities of a massacre.<sup>11</sup>

International response was quick. U.S. President William “Bill” Clinton, responding quickly



**ON JANUARY 19, THE UNITED NATIONS SECURITY COUNCIL DENOUNCED THE RACAK MASSACRE AND SERBIA'S REFUSAL TO ALLOW A UN INVESTIGATION**

to Walker's report, condemned the killing of the civilians in Kosovo. Yugoslavian authorities refused to allow Arbour to investigate the killings at Racak, and demanded that Walker, head of the KVM, leave the country.<sup>12</sup> On January 19, the United Nations Security Council denounced the Racak massacre and Serbia's refusal to allow a UN investigation. At the same time, General Clark met in Belgrade with President Milosevic. Clark demanded that Milosevic pull his security forces out of Kosovo or face air strikes. Meanwhile, Yugoslavian Army and Serbian police units attacked ethnic Albanian villages around Racak for the third day. On January 30, NATO authorized its Secretary General, Solana, to launch air strikes on Serbia.<sup>13</sup>

Milosevic reacted to the pressure by agreeing to peace talks at Rambouillet, France, between representatives of Yugoslavia, the Kosovo Liberation Army, and NATO. The talks began on February 7. News reports that a bomb had exploded in downtown Pristina, capital of Kosovo, killing three ethnic Albanian civilians, soured the opening of negotiations. To stop the atrocities, NATO demanded that its troops be allowed to enter Kosovo. During February, Serbia's President Milan Milutinovic and Yugoslavia's foreign minister Zivadin Jovanovic echoed Milosevic's opposition to the possible deployment of foreign troops into Serbia. At the same time, Kosovar Albanians demanded a referendum on independence and rejected calls to disarm.<sup>14</sup>

The U.S. Air Force began extensive deployment of forces to the theater in preparation for possible war as early as February 19, the day before the original deadline set for an agreement at Rambouillet.

The Contact Group extended the deadline to February 23, the day the Kosovar Albanian delegation agreed to a NATO peace plan. The Kosovo Liberation Army officially agreed to the terms on March 8. However, Yugoslavia refused to agree to the deployment of foreign troops in Kosovo; Serbs within the province continued to force ethnic Albanians from their homes there; and the Yugoslavian army massed along the border of Kosovo in anticipation of a greater conflict.<sup>15</sup>

On March 12, while prospects for war over Kosovo escalated, Poland, the Czech Republic, and Hungary joined NATO as full members of the alliance. This demonstrated not only the increasing isolation of Yugoslavia internationally, but also the continuing decline of Russian influence in central and eastern Europe. However, Russia still supported Serbia.<sup>16</sup>

To prevent another conflict in the Balkans similar to the 1995 war in Bosnia, NATO and the parties within Kosovo met again in Paris on March 15, to follow up the Rambouillet talks. These discussions produced little success. On March 18, the Kosovar Albanian delegation to the Paris talks signed the proposed peace agreement, which would have granted them autonomy within Serbia but not full independence. However, the Yugoslavian government still refused to allow foreign troops into Kosovo, and the talks ended without a signature from the Serbian delegation.<sup>17</sup>

Yugoslavia's prolonged recalcitrance increased the likelihood of war, especially after a Finnish forensic investigation led by Helena Ranta on March 16, revealed that the more than forty ethnic Albanians killed by Serbs in Racak in January were unarmed civilians. Undeterred, the Serbs launched a new offensive in Kosovo called Operation Horseshoe on March 20, forcing thousands of ethnic Albanians from their homes northwest of Pristina in an attempt to deprive the KLA of popular support. The next day, Yugoslavian special forces killed ten ethnic Albanians in Srbica and shelled seven nearby villages. Following reports of shooting and looting by Yugoslavian security and paramilitary forces, and fearful of being captured as hostages, as happened to international peacekeepers in Bosnia-Herzegovina in 1995, international observers in the Kosovo Verification Mission evacuated from Kosovo to Macedonia. On March 24, the air verification mission, Operation Eagle Eye, also ended. The path was now clear for NATO air operations, if necessary.<sup>18</sup>

While the verification missions ended, Holbrooke returned to Belgrade for last-minute talks with Milosevic, but reported no change in the Serb leader's position. On March 22, NATO authorized Secretary General Solana to launch air strikes against Serbia. Solana then directed General Clark to initiate air operations against Yugoslavia. On March 23, the U.S. Senate passed a resolution, sponsored by Senator Joseph Biden Jr., authorizing President Clinton to conduct military air operations and missile strikes against Yugoslavia. The House of Representatives failed to pass the resolution, but by the War Powers Resolution of 1973, the



**OPERATION ALLIED FORCE BEGAN MARCH 24, 1999, AND MARKED THE FIRST TIME NATO WENT TO WAR AGAINST A SOVEREIGN COUNTRY**

President was authorized to use U.S. military forces for up to sixty days without Congressional approval. The stage was set for war over Kosovo.<sup>19</sup>

Operation Allied Force began March 24, 1999, and marked the first time NATO went to war against a sovereign country in the 50-year history of the alliance. Exclusively an air campaign, Allied Force involved the militaries of several NATO countries, but the United States provided the leadership and the majority of the forces. NATO launched the war on Serbia not for the national interest of any of its members, but to enforce United Nations resolutions and to stop an “ethnic cleansing” campaign in Kosovo that included forced evictions. However, the United Nations Security Council never directly sanctioned NATO’s military action, partly because of the opposition of Russia, a veto-carrying member. The United States called its portion of Allied Force Operation Noble Anvil.<sup>20</sup>

The two operations, one within the other, pursued common goals. General Clark served as NATO commander for Allied Force, also called the Air War Over Serbia. The campaign’s focus on air power magnified the significance of Clark’s Combined Force Air Component Commander (CFACC), General Short, who also served as commander of the Sixteenth Air Force and Allied Air Forces Southern Europe (AIRSOUTH). Short directed the air campaign from the NATO Combined Air Operations Center (CAOC) at Vicenza, Italy, although most of the combat aircraft were based elsewhere. Sixteenth Air Force had been the first to employ the expeditionary wing concept, which rotated preselected USAF organizations for more predictable deployments overseas. Allied Force’s largest footprint was in Italy. On February 19, 1999, the United States Air Forces in Europe (USAFE) activated the 16th Air and Space Expeditionary Task Force-Noble Eagle, with headquarters at Aviano, not far from Venice, to support the operation. At the same time, USAFE also activated the 16th and 31st Air Expeditionary Wings at Aviano, and the 100th Air Expeditionary Wing at RAF Mildenhall, in the United Kingdom. As the war intensified, the Air Force committed more organizations to the effort. The United States Navy deployed ships armed with Tomahawk Land Attack Cruise Missiles (TLAMs) to the Adriatic Sea, just off the western coast of Yugoslavia.<sup>21</sup>

The United States and its NATO allies employed a broad spectrum of weapons systems for the operation. On the opening night of Allied Force, March 24, 1999, the NATO CAOC managed 214 strike aircraft. They came not only from Aviano Air Base in Italy, on the Adriatic Sea, but also from as far away as Germany, the United Kingdom, and the United States. American aircraft comprised more than half of the strike aircraft on the first day. They included three types of strategic bombers, used to destroy elements of Yugoslavia’s integrated air defense system and key military command and control targets. B-52s from the 2d Expeditionary Bomb Group-NOBLE ANVIL, based at RAF Fairford, and refueled by KC-135s stationed at the same base,

launched precision cruise missiles to open the campaign. The bombers had deployed to England from the 2d and 5th Bomb Wings based in the United States. The tankers had deployed to England from the 366th Wing. B-1s that had deployed to RAF Fairford from the 28th Bomb Wing, also took part in the opening of the campaign. B-2 bombers entered combat for the first time, flying long round-trip missions from Whiteman AFB in Missouri to Yugoslavia and back, a 29-hour round trip, with numerous aerial refuelings. The B-2s belonged to the 509th Bombardment Wing, and they carried the new Joint Direct Attack Munition (JDAM) whose precision satellite guidance enabled it to hit variable targets, regardless of weather or time of day. The U.S. Navy also took part in the initial air strikes, using ship-launched Tomahawk missiles to hit similar targets. While NATO aircraft from other countries played important roles in the campaign, NATO depended more on the United States than any other country for night operations, precision-guided munitions, identification of aircraft beyond visual range, airborne command and control, and intelligence, surveillance, and reconnaissance data.<sup>22</sup>

USAF fighter aircraft, based at Aviano Air Base in Italy, also assumed prominent roles in the conflict. Among them were F-15s to counter the MiG-29s the enemy launched against the attacking aircraft. On the first night, March 24, 1999, two USAF F-15C pilots of the 493d Expeditionary Fighter Squadron each shot down one MiG-29, using AIM-120 missiles. These missiles had their own homing radar, allowing pilots to “launch and leave” instead of hanging around to provide radar guidance to the missiles. AIM-120s also had longer range than infrared-guided missiles, allowing the downing of enemy aircraft from beyond visual range. A Dutch F-16 pilot also shot down a MiG-29 that night. On the third night of Allied Force, an F-15C pilot of the 493d Expeditionary Fighter Squadron shot down two MiG-29s in aerial combat over Yugoslavia, using AIM-120 missiles. Thus, in the first three days of the conflict, NATO pilots shot down five of the best Yugoslavian fighters, with no friendly aircraft losses.<sup>23</sup>

Operation Allied Force over Serbia in 1999, had similarities and differences with Operation Desert Storm, over Iraq, eight years earlier. In both operations, the air component commander wanted to begin with the destruction of enemy command and control and communication structures in the enemy capital and deprive the enemy of his ability to counter American airpower. General Short wanted to hit Belgrade as hard as Baghdad had been hit in 1991. However, General Clark at first limited Short’s targets in the enemy’s largest city, because he wanted to limit civilian casualties. He also wanted American air power to hit the Serbian tanks in Kosovo that were threatening Albanian civilians there. As a result, Operation Allied Force at first focused more on small military targets on the ground, which were much more difficult to hit than strategic targets such as electrical power plants,

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and which required the aircraft to fly lower, making them more vulnerable to enemy anti-aircraft defenses.<sup>24</sup>

Milosevic surprised NATO and United States military leaders by not coming to terms after the first three nights of bombing, March 24 to 26. Some of those leaders suspected that Milosevic, after a gesture of defiance to placate Serbian extremists supporting him, would capitulate early. They were wrong. Despite the temptation to use radar to guide their extensive air defense network's arsenal of surface-to-air missiles (SAMs), the Serbs largely turned off the radar, knowing that NATO fighters with high-speed, anti-radiation missiles (HARMs) could zero in on them. As a result, throughout the conflict, the SAMs remained a threat. So also did anti-aircraft artillery (AAA) and shoulder-launched infrared-guided missiles, which persuaded NATO to keep its aircraft flying at an altitude of at least 15,000 feet. The higher altitude missions degraded the accuracy of air strikes, because small targets such as tanks could not be seen from high altitude.<sup>25</sup>

Besides F-16s from such organizations as the 31st Air Expeditionary Wing based at Aviano Air Base, a host of other USAF aircraft types participated in Operation Allied Force. Among them were A-10 aircraft, more effective than faster lesser-armored aircraft against ground forces, and as a result, General Short made plans to deploy more A-10s to the theater. Additionally, EC-130s served as Airborne Battlefield Command and Control Center (ABCCC) aircraft. Unmanned and unarmed RQ-1 Predator reconnaissance and surveillance aircraft, based at Tazsar, Hungary, assisted the A-10 pilots in locating and destroying small enemy targets such as enemy artillery pieces. The Predator allowed real time intelligence to enable air strikes to be more effective against moving targets such as the Yugoslavian Third Army in Kosovo.<sup>26</sup> The C-17 also took part in the Air War over Serbia. Having completed its testing less than four years earlier, it was the only USAF transport capable of carrying outsize cargo into certain airfields, such as Tuzla Air Base in Bosnia.<sup>27</sup>

By the end of March, NATO aircraft and missile strikes had hit more than fifty targets in Yugoslavia. With portions of the Yugoslavian air defense system crippled, NATO launched air strikes in daylight for the first time. Russia, with close political ties to Serbia, requested that the United Nations halt the NATO airstrikes, but the Security Council voted down the resolution by an overwhelming 12 to 3 vote.<sup>28</sup>

The NATO air campaign against Yugoslavia proceeded remarkably well, in terms of attrition, until March 27, the fourth night of the operation, when Serbian SA-3 surface to air missiles took down a USAF F-117 Nighthawk. General Short had anticipated some air losses, but not this particular aircraft type, a stealth fighter famous for its ability to avoid significant radar detection and its virtual invisibility at night. The Serbs fired two SAMs and only one struck its target. SAM fire had

succeeded despite the enemy's limited use of radar to guide it. Analysts later speculated how the Serbs had been able to down the venerable F-117: it had flown a somewhat predictable path; it could have been detected when it became more visible on radar as it opened its weapons-bay doors; the aircraft might have become more observable when it banked, increasing its radar cross section momentarily; the RC-135 Rivet Joint aircraft might have failed to locate a key SA-3 battery; the F-16CJs carrying HARMs had left the area, temporarily removing the threat to enemy radar equipment; the EA-6B aircraft might not have been in the best position to jam enemy radar.<sup>29</sup>

In light of the shootdown, there was some positive news. A USAF A-10 pilot from the 81st Expeditionary Fighter Squadron located the downed pilot and vectored a helicopter rescue team to save him within a few hours of his ejection. The effort involved the cooperative efforts of A-10, MC-130, MH-53, and MH-60 pilots and crews. F-16 pilots covering the mission, sustained by KC-135 tankers, remained airborne for more than nine hours. The A-10 pilot, the pilot of the lead MH-53, and the MH-60 pilot who carried out the rescue all earned the Silver Star that day. Notably, this incident demonstrated the progress made since the 1995 downing of Captain Scott O'Grady over Bosnia, who had to evade enemy forces for six days before he was rescued.<sup>30</sup>

Despite extensive NATO air strikes over Kosovo and the rest of Serbia, the Yugoslavian "ethnic cleansing" campaign intensified at the end of March. Large columns of refugees migrated out of the besieged province into Albania, Macedonia, and Montenegro, and the Serbian forces burned the homes of the refugees to discourage them from returning. In the course of five days, some 50,000 Kosovar civilians fled their homes.<sup>31</sup>

By the end of March, a week into the air campaign, Milosevic showed no signs of capitulating, and actually intensified his ground campaign in Kosovo, forcing ever increasing numbers of refugees to flee to neighboring states. Between March 24 and 31, more than 100,000 people fled Kosovo to Albania, Macedonia, and Montenegro. As a result of Milosevic's intransigence, NATO members expanded the target list to include sites in the central part of the Serbian capital, and on March 31, NATO aircraft struck the headquarters of the Yugoslavian Army's Special Unit Corps in downtown Belgrade.<sup>32</sup>

The expanding NATO target list grew to include not only more sites in Belgrade but also Serbian fielded forces in Kosovo. On March 30, General Short launched the Combined Air Interdiction of Fielded Forces (CAIFF), a new stage of the air campaign designed specifically to cripple or destroy Milosevic's ground troops in Kosovo, but it was initially limited to a ten-mile penetration of the province. Clouds and bad weather challenged the early missions, hindering NATO's ability to destroy its relatively small targets effectively and mount a steadily increasing pressure on the enemy.





A C-5 Galaxy transport aircraft prepares to launch from Aviano Air Base, Italy. The C-5 was one of the many aircraft at Aviano supporting NATO's Operation Allied Force.

A-10s served well for combat search and rescue, but after their first successful attack against a Serbian truck park on April 6, the armored attack aircraft proved especially useful against enemy ground forces in Kosovo.<sup>33</sup>

On April 1, Yugoslavian forces captured three U.S. soldiers on patrol near the border of Kosovo and Macedonia and sought to use the hostages as leverage to restrict the air campaign, as Serbs had done with United Nations personnel in Bosnia in 1995. This time the tactic did not work. Generals Clark and Short did not want to reward hostage-taking, and European allies did not pressure them to do so because this time, the hostages were Americans. The campaign continued without diminution.<sup>34</sup>

Since March 1998, more than a half million people had been displaced from their homes in Kosovo, a fifth of them in the last week of March 1999. Without reducing the air campaign, NATO and the United States inaugurated an additional operation called Sustain Hope to airlift humanitarian supplies to the refugees in Albania. The United States called its part of the new operation Shining Hope. On April 4, a USAF C-17 airlifted relief supplies from Dover Air Force Base, Delaware, to Tirana, Albania. The 86th Contingency Response Group deployed to Tirana, where they increased the airfield capacity to allow more than 400 daily take-offs and landings where earlier there had been only ten. For Joint Task Force Shining Hope, the USAF provided 930 airmen, two-thirds of the total personnel. In the first month of Operation Sustain Hope, allied transports that included USAF C-5s, C-17s, and C-130s airlifted more than 3,000 tons of food, medicine, tents, supplies, cots, blankets, sleeping bags, and other relief cargo for refugees in camps located outside of Kosovo. Major General William S. Hinton, Jr., USAF, commanded the operation. On April 10, NATO approved Operation Allied Harbor, an additional humanitarian effort to aid refugees from Kosovo.<sup>35</sup>

Meanwhile, NATO airstrikes on Belgrade continued, and were not limited to aircraft. On April 3, NATO missiles struck central Belgrade for the first time, destroying the Yugoslavian and Serbian interior ministries. Some of these missiles were

Tomahawk Land Attack Missiles (TLAMs), launched from U.S. Navy ships in the Adriatic. On the same day, B-1s deployed from the United States to RAF Fairford, where they were equipped with conventional air-launched cruise missiles (CALCMs) for additional attacks on Belgrade. On April 8, a NATO cruise missile destroyed the main telecommunications building in Pristina, the capital of Kosovo, which had been used to help coordinate Serbian ground operations in the province.<sup>36</sup>

Strategic debates accompanied tactical success. General Clark and his air component commander, General Short, disagreed on the operation's most important target set. General Clark insisted that the "jewel in the crown" was the Yugoslavia's tanks and troops in Kosovo. But General Short "never felt that the Third Army in Kosovo was a center of gravity."<sup>37</sup> He preferred to strike key fixed electrical, communication, transportation, and industrial structures in Belgrade than tanks, vehicle-drawn artillery pieces, and troops hidden in the forests of Kosovo. Spotting small moving targets under trees and behind hills was especially difficult for USAF and other NATO pilots who flew at altitudes high enough to erase the effectiveness of shoulder-launched missiles and AAA. Clark continued to focus on the destruction of fielded military forces in Kosovo, using F-16s, F-15s, and A-10s, but he allowed Short to use his B-2s and F-117s, along with the Navy's TLAMs, to strike Belgrade. Clark was caught between two extremes: U.S. Air Force officers who wanted to attack more targets in the Yugoslavian capital, and certain NATO allies in Europe who wanted to severely limit the targets struck there. General Clark later wrote, "no single target or set of targets was more important than NATO cohesion."<sup>38</sup>

While General Clark overruled General Short by insisting the air forces strike the Yugoslavian Third Army in Kosovo, and not focus on targets in Belgrade, the Pentagon did not permit him to add a ground campaign that would concentrate Serb fielded forces in Kosovo, making them more vulnerable to NATO air strikes. This concept included using U.S. Army Apache attack helicopters in Task Force Hawk. Although the helicopter task force existed, NATO leaders would not authorize a ground campaign, and the U.S. Secretary of Defense would not allow the use of the helicopters over Kosovo, where they would be more vulnerable than the fighters to ground fire. As a result, Clark kept his operation focused on an air campaign that would not include attack helicopters except as a possible future threat. General Clark listed some of the likely problems planning or launching a major ground campaign would engender: a longer war; more casualties; increased cost; unpredictable consequences; lack of detailed planning; perceived admission that the air campaign failed; limited personnel; and difficulty maintaining public support.<sup>39</sup>

Like other generals in the U.S. Army, General Clark doubted that an air campaign could ever succeed without an accompanying ground campaign. He remembered that the Soviet Union, despite air

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supremacy, had failed to keep Afghanistan under control during its failed long-term occupation in the 1980s. He recalled that the United States and its coalition partners forced Iraqi troops out of Kuwait only after a weeks-long air campaign was capped by a short but intense Allied invasion involving “boots on the ground.” He knew that NATO air power worked in 1995 against the Bosnian Serbs partly because it had been accompanied by a Croatian ground offensive. There was no such offensive in Kosovo. The closest thing to it was the resistance of the Kosovo Liberation Army within Kosovo itself.<sup>40</sup>

Three weeks into Allied Force, Serbian troops remained deeply entrenched in Kosovo, and Milosevic showed no sign of relenting. To apply more pressure, General Clark called for a significant increase in the number of aircraft devoted to the operation. When the campaign opened on March 24, only 430 NATO aircraft were committed to the war. Within a few weeks, that number more than doubled.<sup>41</sup>

Air raids against Serbian ground forces in Kosovo intensified during April. On the 14th, the Air Force assigned five new air expeditionary wings, the 48th, 52nd, 60th, 86th, and 92nd, to join the three (the 16th, 31st, and 100th) that already served the 16th Air and Space Expeditionary Task Force-Noble Anvil. The aircraft types available to these eight wings, deployed from stateside bases with their crews, included F-16, F-15, and F-117 fighters, A-10s attack airplanes, and E-8s and EC-130s for communications. A-10 pilots, support personnel, and aircraft deployed from the 74th Fighter Squadron at Pope AFB, North Carolina, to serve with the 81st Expeditionary Fighter Squadron of the 40th Expeditionary Operations Group. On April 11, the 81st moved from Aviano Air Base, in northern Italy, to Gioia del Colle in extreme southern Italy, where it could more effectively to strike targets in Kosovo. At the same time, Macedonia, a country that had itself declared independence from Serbian-dominated Yugoslavia in 1991, allowed NATO to use its air space for flights against Serbian forces. NATO attack aircraft could now enter Serbia and attack its targets in Kosovo more easily.<sup>42</sup>

The first Allied Force NATO air raid that caused significant civilian casualties occurred on April 12, when an F-15 dropped precision-guided munitions to destroy a railroad bridge near Lekovac. Unfortunately a passenger train was crossing at the time, and about thirty civilians lost their lives.<sup>43</sup>

When fighters attacked ground targets among the trees and villages of Kosovo, they did not always hit them. Flying at high altitudes to reduce the chances of being hit by ground fire, pilots sometimes misidentified moving objects on the surface. In one notable case on April 14, NATO fighters that included an F-16 and a French Jaguar accidentally hit two refugee convoys because the pilots confused the long column of tractors and other vehicles as enemy tanks. General Short subsequently decided

to allow certain aircraft to fly in at lower altitudes for target identification.<sup>44</sup>

While air raids on fielded Serbian forces in Kosovo continued, NATO gradually shifted more of its weight to the bombardment of Belgrade's leadership and command, control, and communication systems. On April 21, cruise missiles struck radio and television stations in the Serbian capital, as well as the political offices of Milosevic, crippling his ability to control and disseminate propaganda. NATO later used the 4,700-pound GBU “bunker-busting” bomb to damage Milosevic's huge national command center, some of which was buried 100 feet below the ground.<sup>45</sup>

During April, General Clark prepared his attack helicopters for possible use against Serbian fielded forces in Kosovo. He deployed Task Force Hawk, which included twenty-four U.S. Army Apaches, from Germany to Albania. In an unusual move, Air Mobility Command temporarily relinquished operational control of its deployed C-17s in the theater to the United States Air Forces in Europe. The Air Force flew 737 C-17 missions to deliver twenty-four Army helicopters and their associated resources, including 7,745 passengers and 22,937 short tons of cargo. As a result, Task Force Hawk tied up crucial air space over southern Europe needed for Operations Noble Anvil and Shining Hope.<sup>46</sup>

As NATO's air campaign continued, international pressure against Milosevic to cease his Kosovo ground offensive intensified. On April 21, the European Union stopped delivery of petroleum product deliveries to Yugoslavia. On the same day, NATO missiles struck the headquarters of Milosevic's Serbian Socialist Party and his private residence in Belgrade, as well as radio and television stations in the enemy capital. On April 23, at a NATO summit meeting in Washington, D.C., NATO revised its objectives and on May 1, the North Atlantic Council approved an expanded the target list which included more infrastructure facilities. Further, Turkey and Hungary approved the basing of NATO strike aircraft on their territories to allow them to attack targets in Serbia around the clock. Eventually NATO aircraft flew combat missions from bases in fifteen countries.<sup>47</sup>

By May, the air campaign against Serbia had become a long-term commitment, and the Air Force mobilized Air Force Reserve Command units to support Operation Allied Force, eventually calling six tanker wings and one rescue wing to active duty. USAF aircraft devoted to the Noble Anvil campaign more than doubled, from 203 to 514 (the total number of NATO aircraft was higher, but the USAF continued to furnish a majority of the almost 1,000 NATO airplanes eventually devoted to Allied Force). USAF aircraft eventually flew 150 strike sorties per day. Targets ultimately included refineries, communication lines, electrical power grids, and dual-use communication structures; however NATO maintained strict control over which targets could be hit and which were off limits. General Short could generate 1,000 strike sorties a day by



An F-16 Fighting Falcon from Shaw Air Force Base, S.C., takes off from Aviano. The F-16 is one of more than 170 aircraft deployed to Italy in support of NATO's Operation Allied Force.



early May and could destroy targets more quickly than they could be approved by the leaders of the various nations in the alliance. NATO approval of certain targets sometimes took as long as two weeks, and there were two air tasking orders, one for NATO, and one for the U.S. only, which hindered the effectiveness of the operation.<sup>48</sup>

The increased pressure began to have an effect on the Serbian leader. Milosevic agreed on May 1, to release the three U.S. soldiers his forces had captured near Kosovo's border with Macedonia a month earlier. By releasing the hostages to U.S. civil rights activist Reverend Jesse Jackson, Milosevic likely sought some political advantage, but probably realized that holding the hostages would not diminish the intensifying air campaign.<sup>49</sup>

Serbian surface-to-air missiles and antiaircraft artillery failed to down a single NATO aircraft during the entire month of April, but on the night of May 2, 1999, Serbian forces celebrated their shooting down of a second USAF airplane by an SA-3 missile. This time it was an F-16CG piloted by Lt. Col. David Goldfein (call sign HAMMER 34), commander of the 555th Fighter Squadron, who had just finished an air strike against Serbian surface-to-air missile sites near Novi Sad. Like the F-117 pilot shot down earlier, Goldfein did not stay in enemy territory very long. Within hours, an MH-60 Pave Hawk helicopter crew rescued him. Lt. Col. Steve Laushine, who had commanded the rescue of the F-117 pilot in March, also led this mission, flying in one of two MH-53 Pave Low helicopters that escorted the MH-60. Four A-10s of the 40th Expeditionary Operations Group covered the three helicopters.<sup>50</sup>

The Serbs had little time to celebrate. The next day, May 3, USAF F-117s dropped BLU-114 submunitions on five transformer yards of Belgrade's

electrical power grid, cutting off electricity to seventy percent of Yugoslavia and threatening communications with headquarters of the Yugoslav 3rd Army in Kosovo. Subsequent air strikes, using the same weapon, took out most of the electrical power again in later days, preventing its permanent restoration. Air strikes also destroyed a sizable vehicle and munitions factory in the enemy capital, significantly reducing Serbia's industrial production and depriving thousands of workers of employment.<sup>51</sup>

Unlike ground fire, Serbian aircraft failed to down a single NATO aircraft during the campaign. In fact, the opposite happened. On May 4, F-16CG pilot Lieutenant Colonel Michael H. Geczy of the 78th Expeditionary Fighter Squadron shot down another Yugoslavian MIG-29 over Kosovo, the fifth and final USAF aerial victory of Operation Allied Force, and the sixth such victory by NATO pilots. Like the other four aerial victories of USAF pilots over MIG-29s in 1999, the AIM-120 missile proved it could hit an enemy aircraft from beyond visual range, despite the fact that this incident occurred during daylight hours. At first, Geczy could see the enemy aircraft only on radar, but he also saw the fireball that resulted from his missile's impact.<sup>52</sup>

Although much of the air campaign focused on enemy ground troops and their vehicles in Kosovo, General Short continued air strikes on Belgrade. Mistargeting curtailed the latter part of Allied Force on May 7, when a B-2 dropped a Joint Direct Attack Munition (JDAM) on the Chinese Embassy in the Yugoslavian capital, killing three and wounding twenty persons. President Clinton called the attack a "tragic mistake." Air campaign planners using faulty maps had identified the building as the Federal Directorate for Supply and Procurement. The resultant political furor forced

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An A-10 rolls down the pavement in Yugoslavia during Operation Allied Force.

**A COMBINATION OF MILITARY AND DIPLOMATIC PRESSURE ULTIMATELY SUCCEEDED IN CONVINCING MILOSEVIC TO ACCEPT A PEACE DEAL**

General Clark to draw a five-mile-radius circle in central Belgrade within which NATO airplanes were forbidden to strike for almost two weeks. The accident and subsequent bombing restrictions gave Milosevic a break and more time to resist capitulation.<sup>53</sup>

As an almost inevitable result of its intensified bombing campaign over Serbia, NATO munitions sometimes struck civilians accidentally. For example, on May 14, bombs struck Korisa, a village in southern Kosovo, killing seventy-nine people and wounding fifty-eight. A few days later, a NATO bomb killed inmates in a jail in the town of Istok near Pristina in Kosovo. NATO believed the facility was no longer being used as a prison but as an enemy command center. Later, on May 22, NATO admitted to have accidentally bombed the Kosare area after Kosovo Liberation Army forces took it, killing seven and injuring fifteen to twenty-five KLA soldiers. One of the KLA leaders, Hashim Thaqi, called the bombing a technical mistake, since Serbian forces had been in control of the area, and urged continued and even more intense NATO airstrikes.<sup>54</sup>

On May 12, Joint Task Force Shining Hope, the humanitarian counterpart of Operation Allied Force, opened Camp Hope, the first of three camps for assisting Kosovar Albanian refugees. The goal of the simultaneous operations was the same: to save ethnic Albanians threatened with the loss of their lives or homes as a result of a Serbian military offensive in Kosovo.<sup>55</sup>

The NATO air campaign against Serbia continued throughout May, showing no signs of diminishing or ending without a reversal of Yugoslavian policy. In fact, the United States Air Forces in Europe activated two additional air expeditionary wings in

Turkey during the month, bringing the wing total to ten.<sup>56</sup> Diplomatic pressure on Milosevic also intensified. On May 22, the United Nations International Criminal Tribunal for the former Yugoslavia indicted Milosevic and four other Serbian leaders for crimes against humanity, which threatened the popularity of their cause. The next day, NATO resumed bombing the Yugoslavian electricity grid, depriving much of the country of power. On May 21, the 104th Expeditionary Operations Group began flying A-10 missions from Trapani Air Base in Sicily, just two days after its arrival. The increasing A-10 attacks became more effective than earlier ones because a ground offensive by the Kosovo Liberation Army, launched on May 25, forced the Serb forces to mass, making them more vulnerable to air attack. By the end of the month, NATO strike aircraft flew more than 250 sorties per day. Unfortunately, the KLA offensive (Operation Arrow) did not last long and bogged down after only three days.<sup>57</sup>

At the same time, air attacks on infrastructure in Belgrade intensified. On May 24, precision-guided weapons destroyed much of the Serbian capital's electrical power grid, even more effectively than the May 3 attacks. Without electricity, Serbian military leaders were hard-pressed to maintain communications with their forces in Kosovo. The absence of electrical power likely increased popular pressure against Milosevic, partly by crippling his telecommunications propaganda machine and ruining the computer connections of the banking industry. More significantly for the NATO air warriors, the attacks on the Belgrade electrical grid largely paralyzed what remained of the Serbian air defense network.<sup>58</sup>

A combination of military and diplomatic pressure ultimately succeeded in convincing Milosevic to accept a peace deal. On June 2, 1999, Viktor Chernomyrdin, representing Russia, and Finland's President Martti Ahtisaari, representing the European Union, flew to Belgrade to pressure the Serbian leader into an agreement. The next day Milosevic finally approved talks between senior Yugoslavian and NATO officers, which began on June 5.<sup>59</sup>

When the talks temporarily collapsed on June 7, General Clark disagreed with critics who charged that Allied bombing discouraged negotiations. In fact, he believed that the continued bombing increased the likelihood of restarting negotiations. With NATO authorization, he approved air strikes on Batanjica airfield and an oil refinery at Novi Sad. On June 7, two B-52s and one B-1 dropped eighty-six MK 82 munitions and cluster bombs on Serbian troops in Kosovo, effectively ending the Serbian offensive against the KLA. On June 9, Serbia agreed to all NATO terms, including immediate withdrawal from Kosovo. The next day, the withdrawal began. Milosevic also agreed to allow multinational peacekeeping forces into Kosovo and permitted the return of refugees. His only consolation was that Kosovo would remain part of Serbia and not all the peacekeepers would



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OPERATION  
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CONCLUDED  
ON JULY 1

be from NATO (Russian forces would also take part).<sup>60</sup>

On June 10, 1999, after seventy-eight days of bombing, NATO suspended air strikes. However, General Clark remained vigilant, and remained ready to resume them if the Serbs had shown any signs of noncompliance. Concurrently, the UN Security Council passed Resolution 1244. The vote was 14-0, with China abstaining. The resolution called for an end of violence and repression in Kosovo; return of refugees; withdrawal of all Yugoslav military, police, and paramilitary forces from the province; and the deployment of an international peacekeeping force of some 50,000 troops, which were almost identical to the NATO conditions. Milosevic more willingly allowed international peacekeeping forces in Serbia's Kosovo province if under the auspices of the UN rather than NATO, and was more cooperative when some of the troops were Russian. Kosovo came under temporary international civilian control, but remained, at least temporarily, part of Serbia.<sup>61</sup>

On June 11, NATO inaugurated Joint Guardian, a peacekeeping operation in Kosovo. The United States portion of the new operation was called Operation Decisive Guardian. Three days later, the Joint Chiefs of Staff directed Gen. Wesley Clark to suspend construction of two refugee camps in Albania because the Kosovars could now return to their homes within Serbia. By June 20, Milosevic and the Serbs had demonstrated compliance with NATO and UN demands, and Operation Allied Force formally ended. Operation Sustain Hope (Shining Hope) concluded on July 1. During that operation, USAF C-17s and C-130s flew 1176 airlift missions to deliver well over 3,000 tons of humanitarian cargo, including some 4,000 tents, 476,000 rations, and 5,000 blankets.<sup>62</sup>

The air campaign had intensified tremendously between March 24 and June 20. The number of air expeditionary wings committed to Operation Noble Anvil, the U.S. portion of Allied Force, had expanded from three to ten. The number of USAF aircraft deployed had doubled, and by the end of the operation, 13,850 USAF airmen were deployed at twenty-four locations. What was originally conceived to be a contingency operation to force Milosevic's compliance with NATO demands morphed into a major theater war, with more than a third of the USAF front-line fighters involved.<sup>63</sup>

During Allied Force in 1999, B-2 bombers based in the United States flew extremely long-range missions to destroy key facilities in Serbia, using precision-guided munitions. Targets included airfields, army bases, munitions storage facilities, engineer depots, arms and heavy equipment factories, petroleum storage facilities, smelters, and an aviation repair base. One B-2 dropping precision-guided weapons could destroy 16 different targets on only one sortie, although such a sortie from Missouri to Serbia and back was an extremely long one, requiring multiple aerial refuelings on the way. Still, the cost would be considerably less than the

use of sixteen non-recyclable cruise missiles such as TLAMs.<sup>64</sup>

Air Force Special Operations Command personnel and aircraft flew important missions during Operation Allied Force (Noble Eagle). Contributing organizations included the 16th Special Operations Wing, the 352d Special Operations Group, and the 720th Special Tactics Group. Four AC-130s from the 4th Special Operations Squadron flew 124 armed reconnaissance and battlefield air interdiction sorties from Brindisi. Four MC-130s from the 67th and 9th Special Operations Squadrons flew a total of seventy-five combat sorties, also from Brindisi, mostly to refuel nine MH-53 helicopters from the 20th and 21st Special Operations Squadrons. These aircraft proved instrumental in combat search and rescue operations, especially after the downing of the F-117 and F-16 aircraft during the operation. Four additional helicopters, MH-60s from the 55th Special Operations Squadron, performed additional combat search and rescue sorties. The special operations helicopters flew a combined total of 481 sorties out of Brindisi, Italy. Two additional MC-130s from the 7th Special Operations Squadron at RAF Mildenhall flew seventy-three combat sorties to drop psychological warfare leaflets over Serbia, having picked them up at Ramstein. Supplementing the leaflets were radio broadcasts from a pair of 193rd Special Operations Wing EC-130s that flew eighty-one combat sorties from their deployed base at Ramstein.<sup>65</sup>

During Operation Allied Force, organizations of the Air Mobility Command flew 2,130 airlift missions. Between mid-February and into July 1999, they carried more than 32,000 passengers and 52,645 short tons of cargo to from, and within southeastern Europe. During the same operation, Air Mobility Command tankers refueled a great variety of aircraft flying to and within the combat zone. They included fighters, bombers, and transports, not only from the U.S. Air Force, but also from other services and allied nations. Between the beginning of air strikes on March 24 and the conclusion of hostilities on June 9, USAF KC-10s and KC-135s flew 9,000 missions and transferred 348.5 million pounds of fuel to receiving aircraft. Without aerial refueling, the non-stop B-2 missions from Whiteman Air Force Base, Missouri, to Yugoslavia, and back would have been impossible. By the end of Operation Allied Force, NATO marshaled 175 tankers based at twelve operating locations.<sup>66</sup>

Operation Allied Force lasted for seventy-eight days and involved approximately 38,000 NATO sorties. The Air War Over Serbia proved historic for many reasons. It was the first major USAF air campaign in which no friendly air crews were killed or taken prisoner; in fact, there were no NATO casualties. USAF pilots shot down five enemy MIG-29 aircraft, while the Serbs shot down only two manned USAF aircraft, using surface-to-air missiles, and both the downed F-117 and F-16 pilots were rescued within hours. Only two of the many USAF A-10s involved in the operation received any battle damage. Allied Force saw the first combat use of the



A B-2 Spirit prepares to receive fuel from a KC-135 during a mission in the European Theater supporting NATO Operation Allied Force.

**FOR THE FIRST TIME, NATO WENT TO WAR AGAINST A SOVEREIGN NATION AND CONDUCTED AN AIR CAMPAIGN WITHOUT AN ACCOMPANYING MAJOR GROUND OFFENSIVE**

B-2 Spirit “flying wing” stealth bomber. Never before had the Air Force employed all three of its strategic bombers of the late twentieth century, the B-52, B-1, and B-2, in the same combat operation. C-17s, the Air Force’s latest transport aircraft type, flew their initial combat missions. For the first time, USAF Predator unmanned aerial vehicles helped locate enemy targets for destruction.<sup>67</sup>

More significantly, air power had achieved something new. For the first time, NATO went to war against a sovereign nation and conducted an air campaign without an accompanying major ground offensive. When reporters asked General John Jumper, commander of the United States Air Forces in Europe, how many tanks NATO aircraft had destroyed, he responded, “enough.” He and General Short knew that destroying tanks was not the primary objective, because the most important target was the will of Slobodan Milosevic, making the strikes on Belgrade more decisive. John Keegan, the military historian, noted that the Air War Over Serbia in 1999 “proved that a war could be won by air power alone.” John A. Tirpak, editor of *Air Force Magazine*, held a similar opinion. He noted “For the first time in history, the application of air power alone forced the wholesale withdrawal of a military force from a disputed piece of real estate.” General Wesley K. Clark, overall commander of the operation, addressed the claim in his book *Waging Modern War*, admitting that his own efforts to organize a NATO ground campaign came to nothing. What remained was air power alone. Clark himself was amazed that there was not a single Allied combat casualty in what proved to be a victorious war.<sup>68</sup>

The United States dominated the NATO operation, not only providing its leadership but also the majority of its aircraft and the leading technology. The USAF furnished 29,552 of the 38,004 NATO sorties, and over 400 aircraft, including:

## USAF Aircraft and Sorties

214 fighters	8,889 sorties
18 bombers	322 sorties
175 tankers	6,959 sorties
43 transports	11,480 sorties
	1,038 ISR sorties
	834 special ops sorties
	496 UAV sorties

Air Mobility Command aircraft flew 2,130 airlift missions that transported 32,111 passengers and 52,645 short tons of cargo. USAF KC-135 and KC-10 tankers flew some 9,000 missions and transferred more than 348 million pounds of fuel while airborne. Other USAF aircraft included RQ-1 Predators, E-3 AWACS, E-8 JOINT STARS, RC-135s, U-2s, and EC-130s. Among the special operations and rescue aircraft and crews taking part were AC-130, MC-130, EC-130, and HC-130 aircraft, as well as MH-53, HH-60, MH-60, and HH-60 helicopters. Of the 28,018 munitions expended by NATO, the USAF delivered 21,120. The U.S. Air Force dropped more than 650 of the new Joint Direct Attack Munitions (JDAMs), which proved to be more accurate than traditional bombs because GPS satellite signals guided them. In foggy or cloudy weather, they were even more accurate than laser-guided or television-guided bombs. But the percentage of precision-guided weapons in Allied Force was lower than that for Operation Deliberate Force four years earlier. The U.S. Air Force expended a total of 8,618 tons of munitions. Finally, U.S. intelligence sources provided 99 percent of target nominations for the air campaign, because NATO depended almost entirely on United States technology to link intelligence information with operations.<sup>69</sup>

The legacy of the successful air campaign continued into the twenty-first century. Hundreds of thousands of ethnic Albanian Kosovars safely returned to their homes within Serbia, guarded from the threat of Serbian military and paramilitary forces, which had withdrawn from the province, by thousands of international peacekeepers. On October 6, 2000, Milosevic lost reelection in Serbia, and on February 12, 2002, he faced the United Nations War Crimes Tribunal at The Hague, Netherlands, for the first international trial of a head of state for war crimes. Operation Allied Force demonstrated that nations determined to use airpower effectively in the name of humanity could stop genocide. The operation allowed the people of Kosovo to regain their sense of peace and security at home, and contributed eventually to its full independence from Serbia in 2008. More importantly, in a military sense, Operation Allied Force proved that an air campaign could succeed in winning a war without a significant ground campaign, and with very few casualties. The experience of Allied Force reinforced the fact that military forces can be most effective tools for the accomplishment of political foreign policy objectives. In this case, the tool was air power.<sup>70</sup> ■



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69. Air War Over Serbia Fact Sheet, contained in Testimony, CSAF to SASC/HASC on Readiness (AFHRA IRIS no. 01149329) tab 4; Gen. Wesley K. Clark, *Waging Modern War* (New York: Public Affairs, 2001), p. 427; "Refueling Highlights, 1992-2007," published by the Air Mobility Command history office in 2008; Roy Handsel, "Talking Paper on B-2 Participation in Operation Allied Force," given to author during his visit to Eglin Air Force Base, Fla., home of the 678th Armament Systems Squadron; Col. Mark D. Shakelford and others, "The Materiel Solution," in *Air War Over Serbia: Aerospace Power in Operation Allied Force*, vol. II (2.1.0.3) (Wright-Patterson AFB, OH, 2000), p. 29.
70. HQ USAF The Air War Over Serbia Initial Report, Sep. 30, 1999 (AFHRA IRIS no. 01149318), p. 24; Col. Christopher E. Haave, USAF, and Lt. Col. Phil M. Haun, USAF, editors, *A-10s Over Kosovo* (Maxwell AFB, Ala.: Air University Press, 2003), p. xxxiv.

# Pierre Clostermann Tells It H





# How It Wasn't



A. D. Harvey

(Overleaf) Focke-Wulf Fw 190D-9 at the National Museum of the United States Air Force.

**PIERRE CLOSTERMANN WAS A PROMINENT FIGURE IN FRENCH PUBLIC LIFE... BUT WILL ALMOST CERTAINLY BE REMEMBERED MAINLY FOR HIS CAREER IN EXILE**

**T**he *Big Show*, French fighter ace Pierre Clostermann's memoirs of his service with the British Royal Air Force during the years 1942-1945, is without doubt the outstanding personal account of combat in World War II.<sup>1</sup>

By turns shocking, terrifying, reflective, sensitive and provocative, and always astonishingly vivid, the book has been translated into at least thirty-four languages. The youngest deputy ever elected to the French *Chambre* and re-elected eight times, and a veteran of the war in Algeria, Pierre Clostermann (1921-2006) was a prominent figure in French public life during the era of Charles De Gaulle but will almost certainly be remembered mainly for his career in wartime exile and the book he wrote about it.

In his preface Clostermann explained its origins:<sup>2</sup>

*For four years my parents and I—their only child—were separated by many thousands of miles.... to make my father and mother understand this new life and the mingled feelings it aroused.... every evening I used to write down for them the events of the day in a fat Air Ministry notebook, stamped 'G.R.'.... It is precisely because they are true, because they were written in the flush of action, that I have made no attempt to re-touch these notes.*

Britain's National Archives at Kew, in the outskirts of London, preserve a number—not it seems all—of the combat reports written down by an Intelligence Officer while “debriefing” Clostermann after his return from a mission, and signed by Clostermann himself at the conclusion of the “debriefing” session. These combat reports must have been set down on paper in a matter of a few hours before Clostermann, according to what he himself claimed in his Preface, wrote his own ver-

sion in his private notebook. It turns out, however, that the version in his official report and the version written for his parents a few hours later, or at least the version published in *The Big Show*, were not at all in agreement as to detail.

On July 27, 1943 Clostermann shot down his first Focke-Wulf Fw 190 and reported, “Giving him three short bursts using from 30-10 degrees deflection from 300-200 yards, I saw strikes all round the cockpit.... the Boche went down in a dive upside down completely out of control.” In *The Big Show* this becomes “.... at less than 200 yards range.... I squeezed the firing button. Whoopee! Flashes all over his fuselage. My first burst had struck home and no mistake .... The German pilot threw his plane into a desperate turn. Two slender white trails formed in the air. Suddenly the Focke-Wulf exploded like a grenade. A blinding flash, a black cloud, then debris fluttered round my aircraft. The engine dropped like a ball of fire. One of the wings, torn off in the flames, dropped more slowly, like a dead leaf, showing its pale yellow under-surface and its olive green upper-surface alternately.”<sup>3</sup>

On August 27, 1943 he fired at another Focke-Wulf Fw 190 and according to the official report, “Strikes were seen on the port wing and fuselage .... it crashed in flames near a small wood.” In *The Big Show* this becomes “Three explosions on the right wing between the fuselage and the black crosses.... the Focke-Wulf, still on its back, hit the ground and slid, scattering incandescent fragments everywhere, leaving a trail of blazing fuel, hurtled through two hedges and crashed against a road bank in a dazzling shower of sparks.”<sup>4</sup>

On January 7, 1944 Clostermann was with a formation of Spitfires which had a rendezvous with American bombers near Cambrai, but finding himself short of fuel he had to return home via

Hawker Tempest V. This was the type of aircraft flown by Clostermann in 1945.



Since 1990 A. D. Harvey has contributed more than a dozen articles on air warfare to publications such as *Journal of Contemporary History*, *War in History*, *RUSI Journal*, *Air Power History*, and *BBC History Magazine*. Various aspects of air warfare are also discussed in his two books *Collision of Empires: Britain in Three World Wars 1793-1945* (1992) and *Arnhem* (2001).





Pierre Clostermann in French uniform with his medals.

IT TURNS OUT HOWEVER THAT THE VERSION IN HIS OFFICIAL REPORT AND THE VERSION WRITTEN FOR HIS PARENTS A FEW HOURS LATER, ... WERE NOT AT ALL IN AGREEMENT

Abbeville. According to *The Big Show* the rendezvous was at Rheims, seventy miles—more than ten minutes flying time—south-east of Cambrai and he was present when a seriously damaged American B-24 bomber exploded over Dieppe, forty miles south-west of Abbeville, though he does not explain why the B-24, struggling on two out of four motors, chose to fly from Rheims to Dieppe, where the English Channel is seventy mile wide, instead of heading to Étapes, the same distance from Rheims but much closer to the safety of the English coast.<sup>5</sup>

On April 20, 1945, during a dusk patrol, Clostermann encountered a half dozen Focke-Wulf Fw 190s which were strafing an Allied armoured column. During a dog fight in which he shot down a Fw 190, six others arrived. A little later he found a lone and unsuspecting Fw 190 and shot it down from a distance of four hundred yards. In the *The Big Show* there were thirty Focke-Wulfs “like a shoal of fish passing under a skiff,” and these were soon joined by another twelve, and he shot down the solitary Focke-Wulf despite its violent evasive maneuvering, “at less than two hundred yards range.”<sup>6</sup>

On May 3, 1945 Clostermann led a squadron attack on a German seaplane base, damaging two Blohm und Voss Bv 138 flying boats and a Dornier Do 24 flying boat on a slipway: “The DO 24 fell off

into the water and was wrecked. I then sank a DO 24 at it's [sic] moorings.” He then attacked the adjacent airfield. “I obtained strikes on two AR 232s and from very short range on a JU 352. The ju 352 broke in half and the port wing broke off.” Thus the official report. According to *The Big Show* he had to detach most of the aircraft under his command to deal with “about 100 enemy fighters” in separate groups at 1,500, 3,000, 4,500 and 10,000 feet. (These are not mentioned in his official report, though one notes that only one other pilot in the squadron who was flying in close formation with Clostermann reported having hit any German aircraft on the ground.) Clostermann himself fired at a Blohm und Voss Bv 138 in a wheeled cradle on a launching ramp: “The moorings of the cradle snapped and I passed over the enormous smoking mass as it tipped up on the slope, fell into the sea, and began to sink.” He next fired at “an enormous Ju 252 which had just taken off and was already getting alarmingly big in my gunsight”, and saw it “with two engines ablaze and the tailplane sheared off by my shells, bounce on the sea and explode.” Meanwhile a torpedo boat in the harbor fired at him with all its anti-aircraft guns, and “mowed down a flock of seagulls, which fell into the sea on all sides, panic-stricken and bleeding.” Next he attacked three Dornier Do 24 flying boats which had just taken off, shooting down two of them into the water. Returning to the airfield, he then strafed “a row of enormous transport Arado 232s”—there were “more than 100 enormous transport planes” on the airfield, “theoretically my primary objective.” One cannot but be puzzled, not only at the difference in the sequence of events in the two accounts, but by the way the Junkers Ju 352 of the official report becomes a Junkers Ju 252, an almost identical aircraft but with metal rather than wood in its construction, and impossible to tell apart from its stable mate when glimpsed in the heat of action at high speed. One would have also liked to have known more about the “more than 100 enormous transport planes”, seeing that the Blohm und Voss Bv 138 was a maritime bomber and patrol plane and Dornier Do 24, originally designed for the same role, was almost exclusively employed in air/sea rescue duties: the combined production of the Junkers Ju 252, Junkers Ju 352 and Arado Ar 232 was eighty-five.<sup>7</sup>

It is not suggested for a moment that Clostermann did not shoot down an impressive number of German aircraft. It is not even suggested that he did not write up his notebook every evening. But it does seem that he was incapable of resisting the temptation to embroider his text.

In the original French edition—not in most English editions—he printed what he claims to be a translation of four of his official combat reports. Two of these are to be found in the British National Archives at Kew and seem to be approximately—not completely—accurate renderings except that “after attacking some more Met & a 1000 [i.e. mechanical transport etc. at 1000 feet] I set course for base” becomes “I set course for the base and



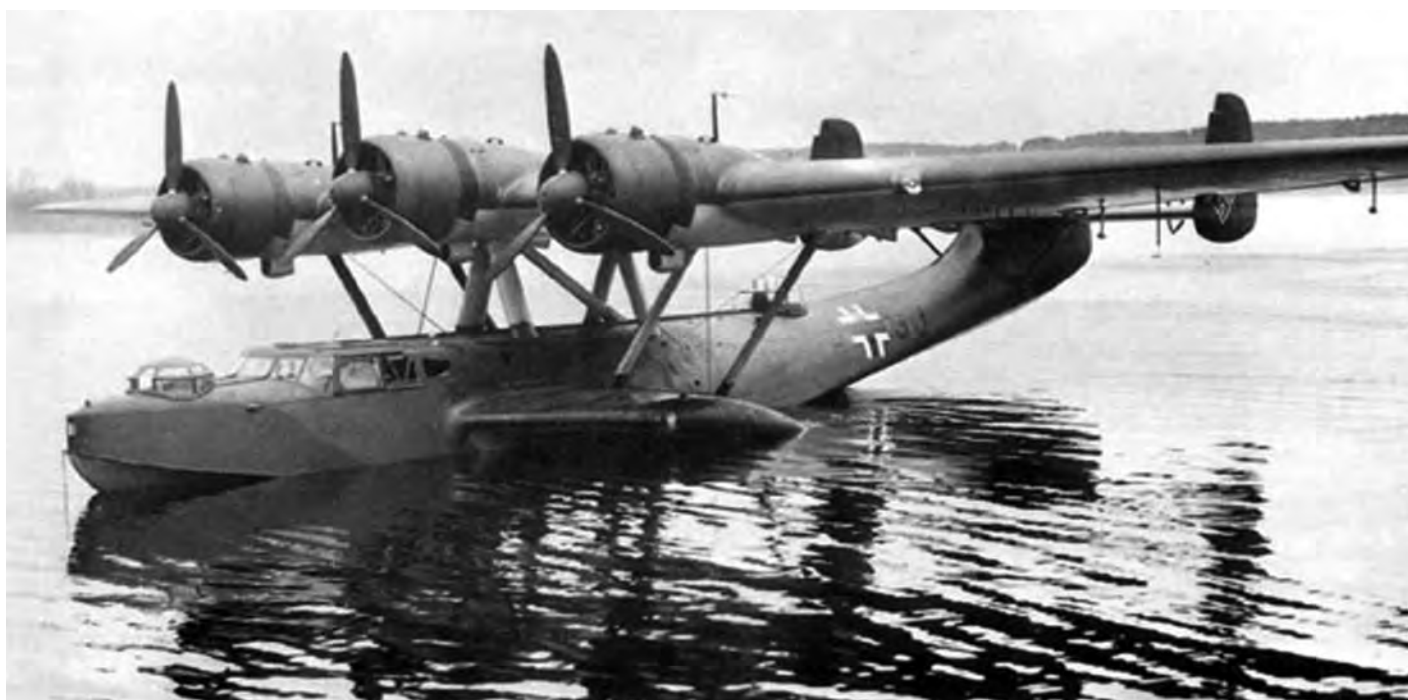
(Above) The Fieseler Storch Fi 156.

(Below) The Dornier Do 24.

destroyed three lorries and trailers on the way back".<sup>8</sup>

Clostermann also included in the original French edition a "Tableau de Chasse" listing thirty-three confirmed aerial victories and a further twenty-four aircraft destroyed or put out of action in the course of strafing attacks on aerodromes. The

listing of aerial victories includes the two Dornier Do 24s and the Junkers Ju 252 which in his book he claimed to have shot down on May 3, and which in the official report are stated to be among those encountered "On Ground & Water" and also a Fieseler Fi 156, a light aircraft used for liaison purposes, an unusual antagonist for a combat aircraft





IT DOES  
SEEM THAT  
ITS TRUTH TO  
LIFE IS MORE  
ALONG THE  
LINES OF  
VINCENT VAN  
GOGH THAN  
OF VERMEER



that weighed four times as much and flew at four times the speed: this must be the Fi 156 “parked between 2 houses on the edge of a large grass field”, which he left in flames on March 28, 1945, since it is the only Fi 156 listed on his “Tableau de Chasse”.<sup>9</sup> Since it was parked it can hardly be counted as an aerial victory. In any case according

to *The Big Show*, Clostermann was in hospital with a minor wound between March 24 and 30, 1945.<sup>10</sup>

*The Big Show* is nevertheless a marvelous book: it really does give a pretty authentic picture of the experiences of a fighter pilot—but it does seem that its truth to life is more along the lines of Vincent van Gogh than of Vermeer. ■

## NOTES

1. *The Big Show*—originally published in French as *Le Grand Cirque* in 1948—appeared in Oliver Berthoud’s remarkably faithful English translation in 1951, but citations below are from the frequently reprinted Penguin paperback edition of 1958.

2. Despite its fidelity to the original French text in the main part of the book, the English translation omits several passages in the “Avant-Propos”. Clostermann went on to say, “Certain reflection and descriptions will perhaps shock by their frankness or their cruelty.... Obviously I hesitated a long time over certain pages, out of a kind of private shame — but the truth would have suffered from these suppressions.” (My translation.)

In Britain, government-issue items like official notebooks are customarily stamped with the royal cipher or monogram, in this instance G.R. for *Georgius Rex*, i.e. King George VI.

3. The National Archives, AIR 50/132/6, cf. *The Big Show* p. 41.

4. The National Archives, AIR 50/132/21, cf. *The Big Show* pp. 49-50.

5. The National Archives, AIR 50/426/86, cf. *The Big Show* pp. 90, 93.

6. The National Archives, AIR 50/4/210, cf. *The Big Show* pp. 220, 223.

7. The National Archives, AIR 50/4/136, cf. *The Big Show* pp. 242-5. The official report states that all the aircraft Clostermann claimed to have destroyed or damaged were “On Ground & Water”—*The Big Show* indicates that three were airborne—and that his squadron suffered no losses—*The Big Show* seems to suggest that he was leading two squadrons which suffered the loss of up to eleven aircraft out of twenty-four (p. 247). One might mention that the large trimotor

landplane he destroyed is just as likely to have been an Italian-built Savoia-Marchetti S. 82, which was employed by the *Luftwaffe* in much larger numbers than the Junkers Ju 252 and Ju 352.

In the passage quoted from the official report the Arado transports are actually referred to as “AR 234s”, which is clearly a mistake: the Ar 234 was a jet bomber. The summary of aircraft claimed destroyed or damaged however correctly identifies the aircraft as Ar 232s.

8. The National Archives, AIR 50/22, report dated Apr. 2, 1945, cf. *Le Grand Cirque* (Paris, 1948) p. 288. Clostermann at this stage flying with No. 56 Squadron, R.A.F., also says that he was leading a section designated “Filmstar Yellow”, “Filmstar” being the call-sign for No. 3 Squadron to which he transferred a short time later; he was in fact number 2 in a section designated “Nalگو Yellow”, “Nalگو” being No. 56 Squadron’s call-sign. The combat reports in *Le Grand Cirque* are included in an edition of *The Big Show* published in 2004, at p.331-4. See also AIR 50/22, report dated Apr. 5, 1945.

9. The National Archives, AIR 50/22, report Mar. 28, 1945. Clostermann’s thirty-three confirmed aerial victories (*victoires homologuées en combat aérien*) listed in *Le Grand Cirque* (Paris, 1948) p. 286 is generally accepted in France: his official score according to Royal Air Force reckoning is only fourteen individual victories in the air, the others being shared or unconfirmed. Most experts would now accept that Marcel Albert who shot down twenty-three German aircraft, all but one of them while serving with the Normandie-Niemen Regiment on the Eastern Front, was the highest scoring French aviator of World War II.

10. *The Big Show*, p. 207.

# A War Too Long: Part I







John S. Schlight

(Overleaf) Flying under radar control with a B-66 Destroyer, Air Force F-105 Thunderchief pilots bomb a military target through low clouds over the southern panhandle of North Vietnam, June 14, 1966.

**THE UNITED STATES AND ITS AIR FORCE EXPERIENCED A DECADE OF FRUSTRATION MADE MORE PAINFUL BY THE LOSSES OF ITS PERSONNEL KILLED, WOUNDED, OR TAKEN PRISONER**

The Air Force instinctively disliked the slow, gradual way the United States prosecuted its war against the Vietnamese communists. While Americans undoubtedly delayed a communist victory in South Vietnam, Laos and Cambodia long enough to spare Thailand and other Southeast Asian countries a similar fate, the American public grew very tired of this war years before its dismal conclusion. Due to questionable political policies and decision-making, only sporadic and relatively ineffective use had been made of air power's ability to bring great force to bear quickly and decisively. The United States and its Air Force experienced a decade of frustration made more painful by the losses of its personnel killed, wounded, or taken prisoner. Fighting resolutely and courageously, the Air Force played the decisive role in forcing North Vietnam to the peace table in 1973. The demands of the Vietnam War forced new developments such as laser-guided bombs that would eventually radically transform the shape of air warfare.

When President John F. Kennedy took office in January 1961, communist-led wars of national liberation loomed on the horizon. Earlier that month, Nikita S. Khrushchev, the Soviet leader, had endorsed this kind of warfare before a world communist conference in Moscow, and Kennedy interpreted the speech as a warning to the West and a definitive statement of Soviet policy. Consequently, the new Chief Executive could not help but be concerned about the attempt of one communist faction, the Pathet Lao, to seize control of the kingdom of Laos and the attempt of another communist force, the Viet Cong, to overthrow the government headed by Ngo Dinh Diem in the Republic of Vietnam, also called South Vietnam. Although warned by his predecessor, Dwight D. Eisenhower, that Laos held the key to control of Southeast Asia, Kennedy soon became convinced otherwise, for close study revealed that the kingdom was sorely divided with no strong anticommunist leadership. He quickly concluded that the best the United States could hope for in Laos was neutrality, however fragile, in which the communist and noncommunist factions offset each other politically and militarily.

Kennedy and his advisers concluded that, in comparison to Laos, South Vietnam afforded a more favorable battleground in what they viewed as a worldwide struggle against communist-inspired insurrections. President Diem, despite challenges by armed political factions and mutinous army officers, had remained in power since 1954 as prime minister or president, and American military advisers already were in place with the South Vietnamese armed forces. Moreover, Kennedy believed, incorrectly as was soon revealed, the

Southeast Asia Treaty Organization had a special interest in the independence of the Republic of Vietnam. Logic therefore persuaded the youthful Kennedy to choose the more stable nation of South Vietnam as the site of a major American effort to contain communism.

Although the Diem regime seemed strong in comparison to the government of Laos, the Viet Cong posed a far greater threat than the Pathet Lao. Like the Kennedy administration in the United States, the leadership of the Democratic Republic of Vietnam, or North Vietnam, nudged Laos into the wings and thrust South Vietnam to center stage for the next act of a drama that began in 1946 with the uprising against the French. The North Vietnamese intended to unite all of Vietnam under the control of the communist regime at Hanoi, thus winning the victory denied them by the Geneva Conference of 1954, which resulted in two Vietnams, North and South. North Vietnam's principal instrument for that purpose was the Viet Cong, the name a contraction of a term that meant Vietnamese communists. Originally composed mainly of South Vietnamese, some trained in the North, the nature of the revolutionary forces changed over time, for the Hanoi government in the spring and summer of 1959 established routes of supply by sea along the coast and overland through southern Laos to sustain the war. The maze of roads and trails in Laos came to be called the Ho Chi Minh Trail, after the leader of North Vietnam, and served not only to supply and reinforce the Viet Cong, but also, later in the war, to introduce combat units of the North Vietnamese Army into the South. The North Vietnamese, however, had not yet taken over the fighting; during 1960 the Viet Cong waged war with perhaps 4,000 full-time soldiers backed by twice as many part-time guerrillas, but the numbers were increasing.

The presence of so large a force, and its ability to carry out ambushes and assassinations with near impunity, testified to a deep-rooted dissatisfaction with the Diem government. To a typical peasant, the Saigon regime seemed a far-off entity that imposed taxes and enforced arbitrary rules, but failed to address issues, like the ownership of land, that were truly vital to rural villagers. However stable it might appear in comparison to Laos, Diem's Republic of Vietnam was beset by rivalries—the landless against those who owned the land, Catholics (among them Diem) against the more numerous Buddhists, persons who had fled the communist North against natives of the South, and finally Diem's family (his brother Ngo Dinh Nhu and Nhu's wife) against the nation's politicians and the American diplomats and military advisers in

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## NOT EVEN CRISES OF THE MAGNITUDE OF THE SOVIET THREAT TO FORCE THE WEST FROM BERLIN OBSCURED THE SERIOUS SHORTCOMINGS DIEM AND HIS GOVERNMENT DISPLAYED

what became a struggle for the ear of an increasingly suspicious and arbitrary ruler.

Whatever his failings, Diem headed a functioning government, and this fact helped South Vietnam obtain the support of an American administration that had twenty Vietnams a day to handle, according to Attorney General Robert Kennedy, the President's brother. Nonetheless, not even crises of the magnitude of the Soviet threat to force the West from Berlin obscured the serious shortcomings Diem and his government displayed in their struggle against an insurgency sustained from the North. In fact, as early as 1961, Gen. Maxwell D. Taylor (at the time, military adviser to the President, but subsequently Chairman, Joint Chiefs of Staff, and U.S. Ambassador to the Republic of Vietnam) argued for sending American ground troops, but Kennedy chose not to involve the United States to that extent. The President believed that Diem, with American advice, backed by economic aid and military assistance, could defeat the Viet Cong in battle and embark on programs to improve

the lot of the peasants, winning their loyalty by providing them both land and security. This executive decision represented a middle course: the President did not want to risk charges that he was losing Vietnam, as President Harry S. Truman allegedly lost China; neither did he want a major war in Southeast Asia when Khrushchev was exerting pressure elsewhere and America's general purpose forces were not yet fully organized, trained, or equipped in accordance with the doctrine of flexible response.

The activity of the U.S. Air Force in what became South Vietnam began during France's struggle to retain control of Indochina. In return for active French participation in the North Atlantic Treaty Organization, the United States supported France's ambitions in Southeast Asia, sending munitions, aircraft, and mechanics and other technicians to repair and maintain the American-supplied equipment. In 1955, after the victory of the communist Viet Minh and the division of Vietnam into North and South, the U.S. Military Assistance Advisory Group, Indochina, active since 1950, and its air section, formed in 1951, became the Military Assistance Advisory Group, Vietnam. Thus, since the departure of the French advisers, a comparative handful of Air Force officers and enlisted men had worked to strengthen the South Vietnamese Air Force. By early 1961, six squadrons were ready for combat—one fighter, two transport, two liaison craft, and one helicopter. Meanwhile, people and supplies moved down the Ho Chi Minh Trail; and as many as 15,000 Viet Cong were armed, supplied, and active in the vicinity of Saigon, the capital city, and elsewhere in the South. By this time, the armed forces of the Republic of Vietnam resembled their American models with ground, sea, and (as the existence of the six squadrons testified) air components, but the Viet Cong still fought exclusively as a guerrilla army, organized and trained to strike swiftly, preferably from ambush, and to engage in calculated acts of terrorism.

General Taylor conceded that his recommendation to send combat troops carried the risk of depleting the Army's strategic reserve and setting the nation on a course of action with an unpredictable outcome. Consequently, the Kennedy administration chose to encourage the development of a stable society and a self-sustaining economy as prerequisites for the defeat of communism in South Vietnam, but took a few military measures in 1961 to signal American support for the Diem government, to increase the effectiveness of the South Vietnamese armed forces, and to lay the foundation for future American deployments, should they become necessary. Among these measures, a Combat Development and Test Center at Saigon evaluated equipment and techniques for counterinsurgency and some 400 soldiers of the Special Forces, the Army's counterinsurgency arm, built defensive outposts along the border with Laos to challenge the infiltration of men and supplies over the Ho Chi Minh Trail.

The Air Force buildup during 1961 had the



**THE ASSIGNMENT OF ADVISERS AND THE VARIOUS OTHER MEASURES TAKEN IN SUPPORT OF THE REPUBLIC OF VIETNAM HAD LITTLE MILITARY EFFECT**

same basic purposes of symbolizing American concern, improving the military skills of the South Vietnamese, and preparing for a possibly greater involvement by the U.S. Air Force. In September, the first permanent unit, a combat reporting post, with sixty-seven officers and airmen assigned, installed radars at Tan Son Nhut Air Base, which also served as Saigon's airport, and began monitoring air traffic and training South Vietnamese to operate and service the equipment. This organization formed the nucleus of what became a tactical air control system for a vast fleet of South Vietnamese and American aircraft. During the following month, four RF-101s and a photo processing unit joined the combat reporting post, with the reconnaissance craft flying photographic missions over South Vietnam and Laos within a few days of their arrival. The aircraft soon began working with a similar photo reconnaissance detachment based at Bangkok, Thailand.

The assignment of advisers and the various other measures taken in support of the Republic of Vietnam had little military effect. Clashes with the Viet Cong became more frequent, and the enemy began using battalions in pitched battles instead of dispatching small raiding parties or lashing out from ambush. Consequently, the American involvement in South Vietnam changed from giving advice and technical assistance to serving as a partner in prosecuting the war. The President demonstrated this limited partnership in October 1961 when he sent a special Air Force detachment to South Vietnam that flew combat missions even as it trained Diem's air arm. By mid-November this Air Force counterinsurgency unit, called Farm Gate, had assembled a collection of elderly C-47s, T-28s, and B-26s at Bien Hoa Air Base near Saigon. The

transports conducted reconnaissance or psychological warfare missions; the bombers and armed trainers attacked the Viet Cong, ostensibly to train South Vietnamese airmen. Soon, U.S. Army helicopters carried South Vietnamese troops into action, as American door gunners fired at the enemy and Farm Gate bombed and strafed in support of the operation.

The Kennedy administration was not yet ready, however, to acknowledge how rapidly the American share in the partnership was expanding. Besides being limited, with comparatively few Americans performing certain carefully defined duties, the new activity was deniable. Until forced to do so by casualties and reports in the press, spokesmen for the administration refused to acknowledge that Americans were fighting the Viet Cong except unavoidably and in the course of their training duties. To preserve the illusion that combat was somehow a by-product of the training function, Farm Gate aircraft wore South Vietnamese insignia and usually carried a South Vietnamese, nominally a trainee, when conducting strikes or other combat missions. Moreover, Farm Gate received instructions to undertake only those combat operations beyond the ability of the South Vietnamese Air Force with its C-47s and T-28s supplied by the U.S. Air Force or Douglas AD6 attack bombers (later redesignated A-1Hs) obtained from the Navy. Separate organizations directed Farm Gate's two missions. The Air Force section of the Military Assistance Advisory Group, Vietnam, supervised the training function, while the 2d Advance Echelon, organizationally an element of the headquarters of the Thirteenth Air Force, controlled combat operations. In November 1961, Brig. Gen. Rollen



GEN. CURTIS E. LEMAY, GREW SKEPTICAL OF EXISTING POLICY, QUESTIONING THE EFFECTIVENESS OF THE EXISTING PARTNERSHIP IN A WAR BEING FOUGHT EXCLUSIVELY AGAINST THE VIET CONG

H. Anthis, vice commander of the Thirteenth Air Force, became the first head of the 2d Advance Echelon.

Following the creation during February 1962 of an American unified command, the U.S. Military Assistance Command, Vietnam, under Gen. Paul D. Harkins of the Army, Anthis became the air commander in Vietnam as well as the representative of the Pacific Air Forces for all Air Force matters throughout Southeast Asia. Despite the increased responsibilities given Anthis, the strong Army orientation of the staff of the new assistance command upset Air Force leaders at every level and presaged difficulties for the Air Force in its future efforts to organize air power in Southeast Asia in the way that it considered most efficient.

Shortly after these organizational changes in South Vietnam, the major powers concerned with the fate of Laos the United States, the Soviet Union, and the People's Republic of China agreed at Geneva, in July 1962, to respect the neutrality of the kingdom, damping the violence there. In the future, however, warfare would erupt in northern Laos, where neither the United States nor the Democratic Republic of Vietnam chose to invest the resources necessary for a clear-cut victory, and in the southern part of the country, where the Ho Chi Minh Trail came under sustained attack as an extension of the fighting in South Vietnam.

Despite the neutralization of Laos and encouraging reports from South Vietnam, the new Air Force Chief of Staff, Gen. Curtis E. LeMay, grew skeptical of existing policy, questioning the effectiveness of the existing partnership in a war being fought exclusively against the Viet Cong. He believed that the limited scope of the fighting and the emphasis on economic and political reform represented a quick fix, which merely postponed the day of reckoning. In contrast to Taylor, who proposed sending ground forces into South Vietnam, the Air Force officer argued that the war in the South could be won and the tensions in Laos resolved only through prompt and firm military action directed against North Vietnam. Reversing the frequently heard argument that political and economic reform in the Republic of Vietnam would provide the foundation for a military victory there, LeMay maintained that only the removal of the threat from the North could produce the conditions that would result in stability, prosperity, and assured independence.

During January 1962, as LeMay offered this approach to the war, a detachment of a dozen Fairchild C-123 transports arrived in South Vietnam to deliver supplies to distant outposts, like those established by the Army Special Forces along the border with Laos, and to drop South Vietnamese parachute troops in operations against the Viet Cong. Called Mule Train, the unit operated ten C-123s from Tan Son Nhut Air Base and two from Da Nang. In March, however, control of the detachment's aircraft passed to the recently formed assistance command, and a combination of factors altered the original mission. The head of the assis-

tance command, General Harkins, preferred the Army's newer but slightly smaller de Havilland CV-2 Caribou transports for supplying distant outposts, taking one of Mule Train's jobs. The other mission, dropping paratroops, was important at first but faded as the helicopter replaced the parachute as the preferred method of airborne attack. For a time, five of Mule Train's C-123s, six C-47s flown by Americans, and 500 South Vietnamese paratroops formed a task force for immediate employment by an air operations center of the tactical air control system, but this fire brigade had disbanded by the time the detachment made its first drops in December 1962 and January 1963. Meanwhile, Viet Cong ambushes disrupted travel by highway, so the C-123s inherited the vital task of carrying passengers and cargo throughout the country. By June 1962, when a second detachment of Air Force transports arrived at Tan Son Nhut, the number of monthly sorties had risen to more than 1,100 from the 296 of January, almost a fourfold increase since Mule Train first went into action.

Three C-123s equipped for defoliation missions using herbicides believed to be harmless to people and animals had accompanied the original Mule Train detachment. In January 1962, the aircraft tried unsuccessfully to destroy the foliage along a highway near Bien Hoa Air Base that might conceal Viet Cong ambush parties. During the following month, one of these aircraft crashed while on a training mission, causing the first Air Force fatalities of the war Capt. Fergus C. Groves II, Capt. Robert D. Larson, and SSgt. Milo B. Coghill. In the meantime, investigations determined that the Bien Hoa mission had failed because the herbicide was effective only during the growing season. The schedule for spraying was revised accordingly, and a second test, conducted during September and October in the Ca Mau peninsula, killed ninety percent of the vegetation along a waterway. President Kennedy thereupon approved aerial spraying of herbicides to deprive the enemy of concealment, but he prohibited the aircraft from attacking the Viet Cong's food crops, which were believed also to feed peasants whose loyalty might yet be gained by the government at Saigon. Before the defoliation missions ended in 1971, crops, too, were sprayed in both Laos and South Vietnam, and a bitter controversy had begun concerning the effects of the most widely used defoliant, agent orange, on human beings.

With the proliferation of aircraft during 1962, the Air Force attempted to bring them all under its tactical air control system. From the viewpoint of the Air Force, the most efficient use of aircraft, conventional and helicopters, was with a single operations center that shifted them around to keep pace with a changing situation; the least efficient was assigning them permanently to a unit or geographic area. In January of that year, the 2d Advance Echelon (which became the 2d Air Division in October) opened an air operations center at Tan Son Nhut and ancillary air support operations centers at Da Nang and Pleiku. Theoretically, the Vietnamese, with American assistance, were to

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learn to run the centers, which were capable of scheduling, directing, and monitoring all flights in the country, but attempts to encourage Vietnamese participation encountered obstacles. President Diem, who had thwarted a military coup in 1960 and survived a 1962 bombing attack on the presidential palace by dissident members of his air force, insisted on a decentralized military structure with loyal officers in key positions to prevent a coordinated uprising by the military. He parceled out control of South Vietnamese aircraft among the four corps commanders, who grew used to having their own air support and resisted centralization. With the corps commanders inserted into the control mechanism, the comparatively junior officers of the South Vietnamese Air Force dared not alter the system. As a result, the Americans simply took over the control centers, imposing on their own initiative the slight degree of centralized control, mainly over air traffic rather than air strikes, that did exist. The actual direction of air strikes was the job of South Vietnamese forward air controllers, but they, too, were junior officers hesitant to give advice to the more senior ground commanders. Moreover, the communications network that held the tactical air control system together was at first inadequate; not until late 1962 did the Americans install truly reliable radio and teletype links.

The U.S. Military Assistance Command opposed placing the Army's helicopters and other aircraft under a control system operated by the Air Force. Basically, General Harkins rejected centralized control for the same reason that General Anthis recommended it to promote efficiency and effectiveness. Air Force officers tended to think of these qualities in terms of the ability to manipulate scarce resources to meet changing needs, but for an Army officer, placing the necessary tools, including helicopters, in the hands of the troop commander who would use them increased efficiency and effectiveness. Acting consistently with his service's doctrine, Harkins assigned his helicopters to the senior Army officer in each corps area.

Throughout 1962 the Air Force supported the South Vietnamese by attacking Viet Cong training areas, troop concentrations, supply depots, and sampans; by bombing and strafing in support of ground operations; and by improving aerial reconnaissance. The Department of State vetoed plans to provide South Vietnam with a few jet reconnaissance craft, viewing the move as a violation of a prohibition in the Geneva Accords of 1954 against South Vietnam's acquiring jet aircraft. In retrospect, given the buildup that occurred later, this concern seems trivial, but in 1962, the United States was moving slowly into the unknown, gradually strengthening its commitment, and seeking to justify its every act. Opposition from the diplomats prevailed, and the South Vietnamese air force began to activate a reconnaissance squadron of modified C-47s at Tan Son Nhut. During the two years that passed before the converted transports became fully operational, the U.S. Air Force filled the gap with its own RF-101s.

When 1962 ended, more than 11,000 Americans served in South Vietnam, a third of them members of the Air Force, and during the first seven months of 1963, several additional Air Force units entered the country. In April, for instance, a third Mule Train unit of C-123s began flying out of Da Nang, and in July, a new tactical air support squadron at Bien Hoa began training South Vietnamese forward air controllers in Cessna O-1 observation craft. At midyear, roughly 5,000 Air Force personnel were in South Vietnam, about a third of the total American military strength in the country, the same ratio as in December of the previous year. In May, however, as the total number of Americans approached 15,000, Secretary of Defense Robert S. McNamara announced that some advisers would leave South Vietnam by the end of that year.

As plans proceeded for at least token reductions, the Air Force contingent reorganized. Initially, most Air Force units sent to South Vietnam were ad hoc detachments like Farm Gate or Mule Train, borrowed from regularly constituted outfits in the United States or elsewhere. As commander of the 2d Air Division, General Anthis dealt with over a dozen separate major units. To remedy this, the detachments were converted in July 1963 into squadrons and assigned to a small number of groups. Farm Gate became the 1st Air Commando squadron, a component of the Pacific Air Forces. The three Mule Train units at Tan Son Nhut and Da Nang became troop carrier squadrons assigned to a troop carrier group newly established at Tan Son Nhut. The 33d Tactical Group at Tan Son Nhut and the 34th at Bien Hoa performed administrative and maintenance tasks and set up detachments at smaller, outlying airfields, the 33d assuming responsibility for Can Tho and Nha Trang and the 34th for Soc Trang and Pleiku. The 23d Air Base Group performed the same duties at Da Nang, reported directly to the 2d Air Division, and placed a detachment at Qui Nhon.

The 1963 National Campaign Plan, drafted by the military assistance command and approved by Diem, called for operations that would provide a wedge for breaking the Viet Cong resistance in subsequent years. In general, the document all but ignored aviation and emphasized rooting out the Viet Cong through many small, locally controlled ground operations. Although the plan called for closer cooperation between the military assistance command and the South Vietnamese Joint General Staff, it did not place the 2d Air Division in charge of all aerial operations in the country. In July 1963, disregarding requests from the headquarters of the Pacific Air Forces in Hawaii to bring Army aviation under Air Force control, Harkins created his own air operations section to supervise Army and Marine Corps aviation, mainly helicopters. Two separate air control systems now existed, one for the Army and Marine Corps and the other for the Air Force. Even though the South Vietnamese air arm was theoretically subject to the Air Force system, the Vietnamese corps commanders frustrated efforts to exert centralized control. For example, the Air Force generally could not employ South Vietnamese air-



**BY THE SUMMER OF 1963, THE KENNEDY ADMINISTRATION HAD DISCOVERED THAT DIEM POSSESSED AN ALMOST LIMITLESS CAPACITY TO DISAPPOINT**



craft for interdiction strikes against base areas because these missions tended to clash with the individual interests of the largely independent corps commanders.

By the summer of 1963, the Kennedy administration had discovered that Diem possessed an almost limitless capacity to disappoint. Instead of demanding a vigorous campaign against the Viet Cong, he rewarded commanders whose units suffered the fewest casualties, a move designed to maintain his popularity by shielding the populace from one of the effects of the war. Yet, even as he courted popularity in this fashion, he deepened the divisions within the country by using the armed forces to suppress the Buddhists. Worse, he pushed stubbornly ahead with a program of involuntary resettlement that failed utterly to provide land ownership or security for the peasants uprooted from their villages and collected in supposedly more defensible hamlets. In November of that year, a group of army officers, with the tacit approval of the American government, overthrew Diem. President Kennedy, who had hoped, perhaps believed, that the coup would result in exile or possibly a formal trial for Diem and his brother, was shocked when the successful plotters killed the two men.

Within the eight months following the murder of Diem and Nhu on November 2, 1963, the entire South Vietnamese and American leadership changed. In the United States, President Kennedy was assassinated on November 22, and responsibility for American policy in Southeast Asia devolved on the former Vice President, Lyndon B. Johnson. In January 1964, Maj. Gen. Joseph H. Moore became the new commander of the 2d Air Division. Gen. William C. Westmoreland, advancing from the grade of lieutenant general and the post of deputy

commander, took over the U.S. Military Assistance Command in June, and General Taylor stepped down as Chairman, Joint Chiefs of Staff, replacing Henry Cabot Lodge as ambassador to the Saigon government. During February, Adm. U. S. Grant Sharp assumed command of the Pacific Command, the parent organization of Westmoreland's military assistance command. Although the United States continued to support South Vietnam throughout these changes, the prospects of achieving stability and security by means of a partnership faded as the junta that had toppled Diem collapsed and one government succeeded another in dismaying succession at Saigon.

In March 1964, the Pathet Lao overran the Plain of Jars in the northern part of Laos, shattering the calm that had settled on the country after the Geneva conference of 1962. In reaction, the Johnson administration transferred some T-28s to the Royal Laotian Air Force and established an Air Force detachment at Udorn in Thailand, some forty-five miles south of Vientiane, the administrative capital of Laos, to train Laotian pilots and maintain their aircraft. After Pathet Lao gunners downed an U.S. Navy reconnaissance jet in June, eight F-100s struck an antiaircraft position on the Plain of Jars, opening a second Air Force war in Southeast Asia, although one that never achieved the importance of the fighting in South Vietnam.

Within South Vietnam, the early months of 1964 were a time of expansion, training, and comparative quiet. By mid-year, the South Vietnamese Air Force had grown to thirteen squadrons: four fighter, four observation, three helicopter, and two C-47 transport. The South Vietnamese followed the practice of the U.S. Air Force, organizing the squadrons into wings, with one wing located in



each of the four corps tactical zones at Can Tho, Tan Son Nhut, Pleiku, and Da Nang. In response to the desire of his American air advisers for centralized control, Col. Nguyen Cao Ky, commander of the South Vietnamese Air Force, assigned the wings to geographical areas rather than to individual corps commanders, thereby retaining some measure of influence over their use without alienating the ground generals. The increase in the number of aircraft available to Ky was somewhat deceiving, however, for difficulty in training South Vietnamese pilots, the worn-out condition of the fighters, and the inefficiency of the air request net limited strikes to about half the number actually requested by the ground forces. The situation brightened somewhat after midyear, when A-1 Skyraiders replaced the combat-weary T-28s and B-26s in both the U.S. and South Vietnamese Air Forces. Reaction times improved with the streamlining of the air request net to reduce the number of echelons that had to approve immediate air strikes, those delivered to meet emergencies on the battlefield.

While the South Vietnamese Air Force modernized and increased in size, the unsuccessful National Campaign Plan of 1963 gave way to the following year's National Pacification Plan, designed to extend security by working outward from the areas held by the government. General LeMay, impatient with yet another slow and limited strategy, still preferred immediate interdiction strikes in South Vietnam, air attacks on the guerrillas in Laos, and the bombing of North Vietnam and the mining of its harbors. As the latest scheme for pacification lost momentum and the South Vietnamese encountered stronger resistance, the administration gave ideas like LeMay's more consideration.

In July 1964, planners from the Joint Chiefs of Staff and the Hawaiian headquarters of the Pacific Command prepared a three-phase contingency plan for aerial attacks on North Vietnam. Although the United States continued to emphasize operations on the ground, the plan for air action was ready if needed. Under the plan, the Commander in Chief, Pacific, would direct the air war against the North from Hawaii rather than the Commander, U.S. Military Assistance Command, Vietnam. That contingency planning of this sort seemed necessary reflected a growing American conviction that the partnership with the armed forces of South Vietnam was not winning on the battlefield.

During the months immediately following the murder of Diem, no strong leader emerged from among the various military men trying unsuccessfully to unite the populace and govern the country. As a consequence of the recurring political upheaval, the tempo of the war against the Viet Cong slowed, but the enemy could not take full advantage of the chaos, for the overthrow of Diem and the collapse of the resettlement program satisfied the grievances that had motivated many peasants to support the insurgency. Ho Chi Minh and his advisers became convinced that if South Vietnam were to be absorbed quickly into the North, regulars from the North Vietnamese Army would have to march south and reinforce the Viet Cong, interjecting discipline and improving effectiveness. At almost the same time that North Vietnam considered escalating the conflict, the Johnson administration lost patience with South Vietnamese progress and started to search for a means to shore up the government at Saigon or, failing that, for some unilateral means to confront Ho Chi Minh and make him blink, as Khrushchev had blinked at the height of the Cuban missile crisis.

**DURING THE MONTHS IMMEDIATELY FOLLOWING THE MURDER OF DIEM, NO STRONG LEADER EMERGED**



The summer of 1964, however, seemed a poor time to take independent action against North Vietnam. The President, who faced an election in November, had cast himself as advocate of peace in contrast to his probable Republican opponent, Senator Barry M. Goldwater of Arizona, who was both a major general in the Air Force Reserve and a vocal advocate of stronger military action in Southeast Asia. Like President Kennedy, who had wanted neither the blame for losing Vietnam nor a major war on his hands, Johnson sought to contain communism without becoming involved in a conflict that drained the treasury and crippled the social programs he intended as his legacy to the nation. Moreover, the exact scope of the struggle for Southeast Asia defied prediction, especially since the administration was largely unaware of either the widening fissure in what was still described as the Sino-Soviet bloc or the historic rivalry between China and Vietnam. Therefore, the President and his advisers, both military and diplomatic, remained wary lest China, if the survival of North Vietnam were threatened, intervene as it had in Korea in 1950. Johnson hoped for a national consensus about America's role in Southeast Asia, a widely shared support for a manageable course of military action that would serve as a deterrent to Hanoi. Ironically, the navy of North Vietnam inadvertently helped shape public opinion much as Johnson desired.

Attitudes among voters toward the nation's involvement in Southeast Asia became more supportive after North Vietnam unexpectedly challenged the presence of American warships in waters off its coast. The North Vietnamese Navy reacted as an American destroyer, the USS *Maddox*, conducted a routine reconnaissance mission at the same time that South Vietnamese naval craft were harassing installations on the coast of North Vietnam. On the afternoon of August 2, 1964, three torpedo boats attacked the *Maddox*, scoring a hit with a single machinegun bullet, but missing with torpedoes. Gunfire from the destroyer and attacks by aircraft from the aircraft carrier *Ticonderoga* sank one of the boats and badly damaged another. After this action, the *Maddox* joined another destroyer, the USS *C. Turner Joy*, and resumed the patrol, both to obtain intelligence and to demonstrate American insistence on the right of free passage in international waters. At no time did any American reconnaissance ship steam closer than five miles to North Vietnamese territory, a distance significant because the French, when they ruled the area, had claimed territorial waters extending just three miles, and North Vietnam had not announced different restrictions. On the night of August 4, as the two destroyers continued the patrol, torpedo boats again appeared, shadowed the American warships, then closed at high speed.

In a confused action that lasted beyond midnight, two of the attacking boats were believed sunk and one badly damaged, but both destroyers emerged unscathed. Besides ordering carrier aircraft to bomb the bases used by the torpedo boats,

President Johnson, in the event of future attacks by North Vietnam, obtained congressional authorization for appropriate retaliation in the Tonkin Gulf Resolution, which passed the House of Representatives unanimously and encountered only two dissenting votes in the Senate on August 10, 1964. He also ordered a force of Air Force jets into Southeast Asia in the event of a North Vietnamese or Chinese response to the carrier raids. The actions in the Gulf of Tonkin and their immediate political consequences did not at once change the course of the war; indeed, events unfolded so slowly and logically that only in retrospect can the resolution be seen as a major turning point, a grant of authority that made the President solely responsible for the conduct of American policy in Southeast Asia and enabled him, as long as the North persisted in trying to conquer the South, to use force as he saw fit.

The aircraft dispatched by the Air Force as part of the American reaction to the fighting in the Gulf of Tonkin reached their new bases quickly. Within the space of days, twelve F-102s arrived in South Vietnam, their number divided between Tan Son Nhut and at Da Nang; eight F-100s joined the F-102s at Da Nang, and two squadrons of B-57 bombers landed at Bien Hoa. More aircraft flew to other locations in Southeast Asia and the western Pacific: in Thailand, ten F-100s went to Takhli Air Base and eight F-105s to Korat; F-100s arrived in the Philippines; RF-101s deployed to Okinawa; forty-eight C-130 transports were apportioned between Okinawa and the Philippines; and the Strategic Air Command flew forty-eight KC-135 tankers from Hawaii to Guam to refuel the jet fighters should they go into action.

Despite the arrival of reinforcements in the Far East, combat operations remained restricted to South Vietnam, carried out by air commandos in propeller-driven aircraft well suited for fighting insurgents. The deployment of the jets served, therefore, as a demonstration of American resolve, not unlike the reinforcement of tactical aviation units in Europe at the time of the Berlin crisis. Of greater tactical importance was the arrival a squadron of twenty-five A-1Hs, obtained by the Air Force from the Navy, which joined the original Farm Gate detachment at Bien Hoa, and the deployment of another squadron of sixteen C-123s to Tan Son Nhut.

Whatever their immediate military value, the B-57s deployed to Bien Hoa afforded a tempting target. On November 1, 1964, Viet Cong guerrillas with mortars infiltrated the base during darkness, killed four American servicemen, wounded seventy-two, and destroyed five and damaged thirteen of the eighteen B-57s located there. Ambassador Taylor called for prompt retaliation, though not necessarily for the kind of sustained bombing campaign outlined during July in Hawaii, for he worried that such an air offensive might well trigger a communist offensive on the ground that would overwhelm the feeble South Vietnamese government. Unlike an extended air campaign, a sharp retaliatory blow might serve as a warning to the

**THE ADMINISTRATION'S PROPOSED COURSE OF ACTION REPRESENTED A MEAN BETWEEN TWO UNDESIRABLE EXTREMES.**

North without undue risk to the South as well as a prod to move the Saigon regime toward greater cohesiveness and efficiency. In short, the United States might attack the North to retaliate for the assault on Bien Hoa and then promise continued bombing in return for political, economic, and military reforms on the part of the leadership at Saigon. The Joint Chiefs of Staff, however, disagreed with Taylor and recommended a series of strong and immediate actions to increase American participation in the war. Their recommendations included air attacks against the infiltration route through southern Laos; strikes by carrier aircraft, Air Force fighter-bombers, and B-52s against airfields, the oil storage tanks at Hanoi and Haiphong, and then, in rapid succession, the remainder of a list of ninety-four North Vietnamese targets identified by American planners; and the immediate deployment of marines and soldiers to defend Da Nang, Tan Son Nhut, and Bien Hoa against future hit-and-run attacks. Since the Presidential election would take place on November 3, Johnson chose to do nothing. Although he had retaliated after the Tonkin Gulf incident, a response to the attack on Bien Hoa could have suggested further involvement, defaced his image as a man of peace, and reinforced Goldwater's claims that the United States was already in a shooting war and should do whatever was necessary to win.

Once reelected, Johnson initiated planning for a tougher program of gradually escalating military action to begin, if necessary, early in 1965. As was so often the case, the administration's proposed course of action represented a mean between two undesirable extremes. Just as Kennedy had chosen assistance to the South Vietnamese as a compromise between sending American ground forces and losing the country to the Viet Cong, Johnson now tried to find a middle way between mobilizing the United States and intervening with every conventional weapon available to the general purpose forces (a worst-case scenario far beyond what the Joint Chiefs of Staff recommended) and withdrawing from South Vietnam, an alternative that no recent administration had seriously entertained. Moreover, the threat of escalation had worked during the Cuban missile crisis. Although the announcement and enforcement of a quarantine had been enough, a succession of other options remained, but Khrushchev blinked before it became necessary to bomb the missile sites, invade Cuba, or, if missiles actually were launched from the island, to retaliate with nuclear weapons against the Soviet Union.

When President Johnson at last approved action to discourage the increasing aggressiveness of the communist forces in the South, he authorized an aerial attack against the Ho Chi Minh Trail to signal Hanoi of America's determination to sustain South Vietnamese independence. On December 14, some six weeks after the attack at Bien Hoa, F-100s, RF-101s, and F-105s based in Thailand hit the infiltration route in a section of the Laotian panhandle nicknamed Barrel Roll, but the bridge that

the fifteen aircraft tried to destroy escaped damage. The Air Force had now embarked on its third air war in Southeast Asia; bombing in the southern panhandle of Laos, essentially an extension of the fighting in South Vietnam, joined the air wars in South Vietnam and northern Laos.

Attacks against Americans in South Vietnam continued. On Christmas Eve 1964, the bombing of a residence for American officers at Saigon brought the United States again to the brink of bombing the North. Taylor's deputy ambassador, U. Alexis Johnson, joined Westmoreland in urging retaliation despite the obvious weakness of the South Vietnamese government, but once more the President demurred. He agreed, however, that Air Force jets, either based in South Vietnam or rotating to airfields in Thailand, could carry out strikes within South Vietnam (heretofore they had attacked only in Laos), provided that Ambassador Taylor approved each mission and the South Vietnamese could not hit the particular target.

The administration's reluctance to engage the North ended on February 7, 1965, when the Viet Cong attacked an American detachment near Pleiku, killing eight and wounding 104 American soldiers. Johnson removed all remaining restrictions on the use of jets in South Vietnam and ended the requirement, dating from the time of Farm Gate, that a South Vietnamese observer or trainee must be on board an aircraft during combat operations. More important, when Air Force and Navy aircraft bombed North Vietnamese military installations on the 7th and 8th, the United States at last retaliated directly against North Vietnam for an attack in the south. On February 10, terrorists killed 23 Americans when they blew up a barracks at Qui Nhon, triggering a second wave of bombing against the North. Finally, on the 13th, President Johnson approved an operation called Rolling Thunder, a limited and carefully paced program of air strikes that more closely resembled the graduated response to the presence of Soviet missiles in Cuba than the current recommendations of the Joint Chiefs of Staff for a vigorous and extensive bombardment. Despite the reliance on gradual escalation, the Johnson administration struck directly at the North in an attempt to save South Vietnam unilaterally, regardless of the weakness or incompetence of the government at Saigon, abandoning a policy of partnership with the South Vietnamese that worked toward political stability and economic progress as conditions leading to a military victory in the South. The Air Force now had four distinct air wars on the mainland of Southeast Asia, as the offensive against North Vietnam took its place alongside the attacks in South Vietnam and in northern and southern Laos.

The air war inside South Vietnam, the oldest of the four, changed dramatically in the spring of 1965 when American ground troops began to enter the country. These troops would soon clash with the recently arrived North Vietnamese regulars of the people's army, who had gone into action in late December 1964, defeating the South Vietnamese at



F-105Ds of the 34th Tactical Fighter Squadron unload their bombs on Vietnam.



## THE ADMINISTRATION BELIEVED THAT SOUTH VIETNAM COULD BE SAVED IN SPITE OF ITS WEAKNESS

Binh Gia. The government in Hanoi had not reacted to the initial bombing of military targets in the North as Johnson had expected, for instead of blinking, Ho Chi Minh continued to infiltrate men and supplies into the South and exerted increasing pressure against the Saigon regime. Nevertheless, the administration believed that South Vietnam could be saved in spite of its weakness; the means of salvation would be gradual intensification of the air war against the North and introducing American soldiers and marines into the South.

The first American troops to land were marines who came ashore in March; but this contingent was soon reinforced, and the first Army unit, an airborne brigade, arrived in May. By the end of June, the administration had approved a force of forty-four combat battalions for service in South Vietnam. The troops, however, did not have a definite mission. Ambassador Taylor believed they should protect the airfields, which he considered to be prime targets for the Viet Cong now that Rolling Thunder had begun, and provide secure bases for use by revitalized South Vietnamese forces in operations against the enemy. He argued that by adopting his enclave strategy, the United States would remain the partner of the South Vietnamese, encouraging them with advice and material assistance to take an increasingly active, ultimately decisive role in preserving their independence. In contrast, Westmoreland, disturbed by a succession of South Vietnamese reverses, intended to take advantage of American mobility and firepower to engage the North Vietnamese and the conventional or main force units of the Viet Cong anywhere within the nation, creating a shield behind which the South Vietnamese could train and organize, provide for the security of airfields and other installations, and

pacify the countryside, earning the loyalty of the peasants. Westmoreland's strategy, which came to be characterized as search and destroy, had the unfortunate effect of relegating the armed forces of the Republic of Vietnam to at most a nominal partnership in the defeat of the communists. The general proposed to break the insurgency with American forces, while training the South Vietnamese to finish off any remaining opposition and then provide for the security of their nation.

The establishment of enclaves may well have placed the American forces permanently on the defensive, depriving them of their mobility; but the most telling arguments against such a strategy were practical and immediate. There simply was no time to invigorate the South Vietnamese. In mid-1965, the communist forces seemed on the verge of attacking from the highlands on the Laotian border to the coast, cutting the republic in half. To meet this danger, Westmoreland's idea was adopted, but its execution required air support and large numbers of troops. As the size of the American ground forces rose steadily from 23,000 at the end of 1965 to 536,000 four years later, the mission of the Air Force shifted from advising and training, while carrying out those combat missions beyond the capability of the South Vietnamese, to full-scale combat in support of American and South Vietnamese ground troops in an open, if undeclared, war against the North Vietnamese and Viet Cong.

The deepening of the American commitment in 1965 coincided with the appearance at Saigon of stable, though not necessarily incorruptible, leadership. One of the ruling generals, Nguyen Van Thieu, became chief of state in June, and another, Nguyen Cao Ky, commander of the South Vietnamese Air Force, took over as premier. The flamboyant Ky,

Early in the program (and later on anti-crop missions), Ranch Hand C-123s carried South Vietnamese Air Force markings and a South Vietnamese military representative on board.



with his pistols and self-designed uniforms, seemed the dominant figure, overshadowing Thieu, who occupied a basically ceremonial office. Appearance did not reflect reality, however, for Thieu eased Ky into the vice presidency in 1967 and became the only candidate for president. Four years later, he frustrated Ky's bid for the presidency, remaining in office until 1975, when he fled as his nation collapsed. For almost a decade, Thieu clung to power and, according to his enemies, amassed a fortune in the process.

As General Westmoreland moved ahead with his plans for search and destroy operations, he avoided creating a combined South Vietnamese and American military command. Such an idea did not appeal to the Saigon government, which refused to entrust its troops to foreigners, although at times American advisers took over even large units, in fact if not officially, and Westmoreland and his generals saw few, if any, South Vietnamese competent enough to assume responsibility for American lives. In arguing against a combined American and South Vietnamese command arrangement, Westmoreland warned that it would give credence to communist claims that the South Vietnamese were puppets of the United States, stifle South Vietnam's ability to develop military leaders of its own, and impede the aggressiveness of American commanders. Consequently, the South Vietnamese retained their own military structure in which their air force was responsive mainly to their army.

The United States Air Force was not fully equipped, suitably trained, nor doctrinally prepared for the situation in Southeast Asia. The transition from massive retaliation to flexible response and the shift from nuclear to conventional weapons remained incomplete. As a result, the Air Force

dropped high-explosive bombs from aircraft like the F-105 that had been designed for nuclear war and had to create and transport to Southeast Asia the stocks of conventional munitions needed for the conflict. The first tasks facing the service, however, were to set up a workable organizational structure in the region, improve the area's inadequate air bases, create an efficient airlift system, and develop equipment and techniques to support the ground battle.

Starting with the buildup in mid-1965, the Air Force, while continuing to conduct the four air wars, adjusted its structure in Southeast Asia to absorb incoming units. Temporarily deployed squadrons became permanent in November; a wing structure replaced the groups; and in February 1966, the reconnaissance force in South Vietnam, which had grown to seventy-four aircraft of various types, was concentrated in a wing at Tan Son Nhut. In March, the 2d Air Division became the Seventh Air Force, its commander, Gen. William W. Momyer, serving as Westmoreland's deputy commander for air operations.

Commissioned in 1939 after training as an aviation cadet, General Momyer had served as a fighter pilot in World War II, downing eight of the enemy in combat over North Africa, Sicily, and Italy. After commanding a fighter wing and later an air division in Korea, he went on to a series of staff and command assignments that culminated in his appointment during 1964 as head of the Air Training Command. He had the reputation of being able to present his ideas forcefully and clearly, certainly a desirable trait in a headquarters where the Air Force felt its views were being slighted. As commander of the Seventh Air Force, he directed operations originating in Thailand through a deputy sta-

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SQUADRONS**

tioned at Udorn Royal Thai Air Base. The agency through which General Momyer and his successors controlled operations from Thailand came to be called the Headquarters, Seventh/Thirteenth Air Force, for Momyer's Seventh Air Force exercised operational control, but administrative support was entrusted to the Thirteenth Air Force at Clark Air Base in the Philippines. The division of authority satisfied the pride of the Thai government, which wanted to avoid the appearance that the American squadrons based in the country were subordinate to an organization in South Vietnam.

As jet aircraft took over the larger bases, Nha Trang became the home of the helicopters and the conventionally powered types like psychological warfare craft and gunships. Tests during the advisory years had shown that the venerable C-47, converted into a gunship by installing in the left side of the fuselage a multibarrel machinegun (or Gatling gun) that was fired by the pilot, could be a deadly weapon against ground troops, especially at night when the modified transport could attack by the light of its own flares. Four squadrons of O-1 Bird Dog observation craft, three of which had just arrived, and the four squadrons of C-123 transports were positioned throughout the country.

The poor condition of the air bases in South Vietnam delayed the deployment of the jet fighter squadrons scheduled for 1965. Only Tan Son Nhut, Bien Hoa, and Da Nang had runways that could accommodate the jets; improvements on these airfields and construction of three new ones along the coast at Cam Ranh Bay, Phan Rang, and Qui Nhon began in 1965. The U.S. Military Assistance Command, Vietnam, controlled all construction within the country, and the acquisition of workers and material for airfields had to vie with other construction projects. By the end of 1965, four Air Force squadrons of F-4 Phantoms were using a temporary airstrip at Cam Ranh Bay. Progress at the other two sites was slower, however, largely because the assistance command was concentrating on the ground war and giving a comparatively low priority to Air Force facilities, although a contributing factor may have been the desire of Admiral Sharp, the Commander in Chief, Pacific, to make greater use of carrier-based rather than land-based aircraft. A squadron of Air Force Phantoms began flying from Phan Rang in March 1966, but heavy rains damaged the field, postponing until October the arrival of additional jets. Qui Nhon proved unsuitable as a location for the remaining base, and in February 1966 the site was changed to Phu Cat, 15 miles to the north. A temporary strip was opened there by the end of the year, but the 10,000-foot runway was not finished until March 1967.

The problems encountered in building these three bases led the new Air Force Chief of Staff, Gen. John P. McConnell, to secure approval for the Air Force to build a fourth base. For the first time, the Air Force, rather than the Army's Corps of Engineers, contracted for and supervised the construction of an air base, the installation at Tuy Hoa along the South Vietnamese coast. In June 1966,

the firm of Kidde and Company began work at the site, and in the middle of November, forty-five days ahead of schedule, the first of three F-100 squadrons occupied the field.

The increased demand for aerial transport engendered by these deployments overwhelmed the four C-123 squadrons in South Vietnam. Since materiel and equipment jammed the aerial ports, the Pacific Air Forces in April temporarily assigned four C-130 Hercules transports from Japan and Okinawa to help eliminate the backlog. Once in the country, however, the newly arrived transports found plenty to do, and, as the pace of airlift operations increased, their number grew first to thirteen and later to thirty. Since scheduling and maintenance for the C-130s was still being performed outside South Vietnam, the Seventh Air Force found it difficult to mesh their activities with those of its own C-123s. General Momyer tried to integrate the C-130s into the existing airlift system, but the Pacific Air Forces retained control, arguing successfully that these long-range aircraft had to serve the entire Pacific theater. On the other hand, an agreement between the Chiefs of Staff of the Army and the Air Force in April 1966 enabled Momyer to take over the Army's Caribou transports, which continued to have supplying isolated outposts as their principal mission. Air Force crews and mechanics moved onto the Army airfields and gradually installed their own maintenance, supply, reporting, and operating procedures. By the beginning of 1967, eighty C-7s, as the Caribou transports were redesignated, belonged to the Air Force, forming a new wing with squadrons stationed at Cam Ranh Bay, Phu Cat, and Vung Tau.

Instead of the headquarters of the assistance command, the Joint Chiefs of Staff established priorities for fighter sorties in South Vietnam. Friendly forces actually fighting the North Vietnamese or Viet Cong had first call on these aircraft for close air support. Missions to suppress enemy defenses covering landing zones selected for helicopters had second priority and escorting friendly truck convoys, helicopters, and aerial transport came third. Finally, if resources permitted, the fighter-bombers conducted interdiction strikes against enemy supply depots, base areas, and troop movements. Unlike the Army, the Air Force valued interdiction more highly than close air support, but the military assistance command, reflecting the Army's emphasis on aiding troops in contact with the enemy, adopted an accounting system that lumped both battlefield and long-range interdiction with close air support in the category of combat support. The Air Force was thus frustrated in its attempts at gathering statistics to support its arguments that interdiction should receive a higher priority. In fact, the official priorities meant little because there was no shortage of aerial firepower, and almost every mission flown in South Vietnam, except for training and purely administrative flights, somehow helped the war on the ground.

Since the end of the Korean War, the Air Force had given little thought to close air support and had

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dismantled the tactical air control system that successfully directed strikes on the battlefields of World War II and Korea. Rebuilt for Vietnam, the system included operations centers at the appropriate levels of command, liaison parties assigned to ground commanders, and forward air controllers directing strikes from light observation craft. Early in 1966, the Air Force, accepting the inevitable, agreed that Army helicopters would be outside the system, and they remained so for the rest of the war, as did the Navy's carrier aircraft. Attempts to train South Vietnamese forward air controllers failed, and the Seventh Air Force in 1965 apportioned its four squadrons of O-1s, making one squadron of thirty aircraft available in the tactical zone of each corps. The number of regional air operations centers, renamed Direct Air Support Centers, was increased to four, one for each corps headquarters.

The war in Southeast Asia was fought according to rules of engagement that were designed to ensure that firepower was used only to advance American policy, whether battering the enemy in Laos and South Vietnam, where precautions had to be taken to protect friendly forces and spare the local populace whose support and security were at issue, or attacking in the North, where selective and gradually escalating violence was intended to prod Ho Chi Minh into calling off his plans to conquer the South. The rules of engagement for South Vietnam dictated at first that fighters could attack only when directed by forward air controllers, a measure adopted to prevent accidental killings and maimings, whether of friendly troops or of the very non-combatants whose loyalty the Saigon government was trying to gain. The only exceptions to the requirement for a forward air controller were certain free-fire zones occupied by the enemy and from which noncombatants were believed to have fled. Recruited from the ranks of fighter pilots, the forward air controllers had to adjust skills honed for supersonic flight to the far different demands of the slow-flying Bird Dog used to conduct visual reconnaissance and control air strikes. They learned to mark targets with rockets, to navigate by reading maps, and to orchestrate several flights of fighters simultaneously approaching a target. To conduct successful visual reconnaissance, the forward air controllers had to become intimately familiar with their assigned geographic areas, observing the eating, sleeping, working, and traveling routines of the local inhabitants and learning when crops were planted, harvested, processed, distributed, and stored. These pilots came to recognize clues that pointed to the enemy's presence, even though his forces could not be seen the sudden disappearance of the men of a village that could signal a muster of part-time Viet Cong guerrillas, indications that roads or trails had been used during the night, footprints along a shoreline, shadows that revealed a camouflaged man-made structure, and tell-tale marks of human presence like camp fires or flocks of birds suddenly taking flight.

Although most strikes handled by the forward air controllers were preplanned at least twenty-four

hours in advance, a third were immediates flown in response to emergency calls for help. The Air Force experimented with different techniques to reduce the time it took for jets to respond with immediate strikes, keeping some aircraft on alert at air bases and, whenever necessary, diverting others from preplanned missions. Responsiveness steadily improved, and by 1966, Air Force fighters normally were on the scene within 30 minutes of the time they were summoned. From the standpoint of the efficient use of resources, the Air Force preferred preplanned sorties to immediates and encouraged the Army and the South Vietnamese to call for emergency strikes only when absolutely necessary. Not only did the strike planned in advance usually take less time from takeoff to the dropping of bombs, the diversion of a fighter-bomber to meet an emergency upset the orderly and economical use of air power by opening a gap or reducing the effort somewhere in that day's schedule of strikes. Moreover, aircraft diverted from one target to another frequently arrived with less than ideal types of bombs. Fighter-bombers or attack aircraft carried varying combinations of 250-, 500-, and 750-pound high-explosive bombs, napalm canisters, antipersonnel bombs, rockets, and 20-mm ammunition, and emergency calls normally left no time to change munitions. Finally, a pilot diverted to a new and unfamiliar target might require a fairly detailed orientation from a forward air controller or from someone on the ground before he could attack.

When the air war in South Vietnam began to intensify in 1965, the Air Force used standard ordnance from its limited inventory of conventional weapons. Unfortunately, the high-explosive general purpose bombs tended to detonate among the tree-tops in the triple-canopy jungle that often concealed the enemy and had too compact a bursting radius to efficiently kill widely dispersed troops. Researchers at the Air Force Systems Command therefore developed new types of munitions, introducing 11 in 1965, 24 during the following year, and seven in 1967. The Air Force also developed new fuses that allowed general purpose bombs to penetrate jungle canopy and explode only on contact with the ground. Cluster bombs, which dispensed hundreds of small fragmenting bomblets, became the principal weapon against enemy personnel. One type of cluster bomb released a nonlethal gas over a 600-yard area, temporarily incapacitating those in its path. This type, the CBU-19, proved particularly effective in air rescue operations, since it hindered enemy troops closing in on a downed flyer without increasing the risk to his life. By 1968, the Air Force had developed an arsenal of guided bombs, the so-called smart weapons. One type, for example, sought out targets spotlighted by a laser beam, whereas another relied on the contrast between the target and its background to home on the desired object.

Despite the improvements in munitions, fighting at night and in bad weather remained a major problem for Air Force pilots. Flares dropped by gunships and observation aircraft illuminated the bat-





B-52 stands down in Vietnam.

**IN JUNE 1965, B-52s OF THE STRATEGIC AIR COMMAND JOINED TACTICAL AIRCRAFT IN SUPPORTING THE BATTLE ON THE GROUND**

tlefield to some extent, but flares often failed to ignite, and the parachutes from which they hung frequently drifted away from the scene of the fighting. Consequently, it was difficult for forward air controllers to achieve coordination among the flare-ships, the fighters, and the troops on the ground. A great advance in accuracy resulted from the introduction in 1966 of a ground-based radar bombing system, Combat Skyspot, which guided the pilot to the target and told him when to drop his bombs. By early the following year five such sites were directing pilots to unseen targets. So accurate was the radar that the rules of engagement were relaxed to allow pilots to use either this system or a forward air controller, and Combat Skyspot directed about one-quarter of the total strike missions flown during the war.

In June 1965, B-52s of the Strategic Air Command joined tactical aircraft in supporting the battle on the ground, greatly increasing the aerial firepower available for the war. Thirty of the big bombers, specially fitted with external bomb racks, had been standing by at Guam since the attacks on the *Maddox* and *C. Turner Joy* in the event the air campaign proposed by the Joint Chiefs of Staff was carried out and the aircraft had to deliver conventional attacks in North Vietnam. When the air war against the North began, Air Force fighter-bombers and the Navy's carrier aircraft conducted the strikes, and the B-52s remained idle. General Westmoreland, looking for more efficient means of large-scale bombing, asked that these bombers hit the enemy in South Vietnam. During the remainder of the year, the B-52s flew more than 1,500 sorties in the South, raining vast tonnages of high explosives on area targets like troop concentrations, bases, and supply dumps. These Arc Light strikes began with 30-plane missions, but the number of aircraft in each formation declined as the frequency of operations increased. The first sorties against targets in southern Laos did not take place until December 1965, and the following April the B-52s dropped their first bombs on North Vietnam. The

B-52s began to use the Combat Skyspot system in July 1966; by the end of the year, it was the huge bombers' primary aiming method. The number of sorties in the South increased to 4,290 in 1966 and to 6,611 and 15,505, respectively, in the following two years. Throughout this period, 75 percent of the Arc Light missions struck South Vietnam, another 20 percent hit southern Laos, and five percent bombed logistic targets in North Vietnam like the mountain passes that funneled men and cargo into southern Laos en route to South Vietnam.

Although Westmoreland had a high opinion of Arc Light, not all Air Force commanders shared his enthusiasm. To some, using B-52s for essentially tactical purposes diverted them from their principal mission of strategic deterrence. Others, notably General Momyer, believed that the bombers were being employed indiscriminately and inefficiently. Since intelligence of the enemy's formations and logistic depots in South Vietnam was not always reliable, many missions seemed to be wasted. To prevent this wastefulness, Momyer maintained that B-52 strikes should be restricted to clearly identified targets. He also thought his Seventh Air Force should control the bombers rather than the Joint Chiefs of Staff and the Strategic Air Command through the military assistance command. Momyer felt that, without actual control of the bombers, he was responsible for coordinating his tactical aircraft with the B-52s even though he did not have sufficient authority or information to do so. Since the B-52s were flying tactical missions, usually long-range interdiction but occasionally the support of outposts under attack, the existing command structure weakened the single management of tactical aviation, a principle that he strongly supported, and resulted, as he saw it, in a less than efficient operation.

Westmoreland's zeal for Arc Light strikes remained undiminished, despite Air Force objections and a paucity of measurable results. Because of the nature of the targets, many only suspected rather than verified concentrations of men or supplies, he could not calculate the effect on the enemy to determine that a certain level of effort met his needs. As the number of known and suspected targets proliferated, he requested more and more B-52 missions. The authorized monthly sortie rate rose to 450 by March 1966, to 650 in November, and to 800 by February of the following year. When he asked for a further increase to 1,200 in early 1967, the Strategic Air Command became concerned with the impact on its worldwide nuclear forces. To avoid sending more bombers to the theater, some of those already in the western Pacific moved to U-Tapao, Thailand, closer to the battleground than Andersen Air Force Base on Guam, reducing the distance to the Arc Light targets and enabling the same number of B-52s to fly a greater number of sorties. By the middle of 1968, 56 bombers were flying from Guam and 28 from U-Tapao, supported by KC-135 tankers operating from U-Tapao and Andersen, as well as from bases on Okinawa and Taiwan. Despite the greater utilization of the Thailand-based



bombers, the Strategic Air Command worried about the consequences of rotating B-52s between the United States and the distant Pacific. With more bombers dropping conventional bombs in Southeast Asia, fewer were available to carry out the single integrated operational plan. To overcome this deficiency, planners sometimes had to increase the number of nuclear targets assigned to an individual aircraft.

A myriad of types of aircraft other than heavy bombers and fighter-bombers supported the ground war, among them transports equipped for spraying, psychological warfare craft that dropped leaflets or broadcasted from loudspeakers, transports converted into gunships, and helicopters. A squadron of fourteen gunships, designated AC-47s, was activated late in 1965; and early in the following year the aircraft were flying out of Tan Son Nhut, Bien Hoa, Nha Trang, Da Nang, Binh Thuy, and Pleiku. For three years the AC-47s participated in all types of combat support missions, defending fortified villages and outposts against ground assaults, attacking enemy soldiers locked in combat with friendly troops, escorting road convoys, dropping flares for attacking fighters, flying armed reconnaissance, interdicting the movement of enemy forces and supplies, and even directing air strikes. By the end of 1968, however, these earliest gunships were giving way to more heavily armed types like the AC-119, primarily used in South Vietnam, and the AC-130, principally for interdiction in southern Laos.

Although the Army flew the vast majority of the helicopters in South Vietnam, the Air Force used a few helicopters for search and rescue missions and for special operations. Before 1965, the Air Force had sent several Kaman HH-43s to South Vietnam and Thailand, but their relatively short range restricted them mostly to local base rescue. In a typical operation of that era, T-28s escorted the helicopters and a Grumman HU-16 amphibian served

as an airborne command post and supervised the rescue. The intensification of the air war in 1965 brought a dramatic increase in the number of downed airmen; indeed, Air Force helicopters made 93 rescues in the second half of the year compared to 29 during the first six months. A permanent search and rescue center was formed at Tan Son Nhut, and newer, longer range helicopters Sikorsky HH-3s, nicknamed Jolly Green Giants began flying from that base and from Bien Hoa, Da Nang, Pleiku, and Binh Thuy, as well from four airfields in Thailand. Transport aircraft, initially C-54s, but later C-130s, took over on-the-scene control from the HU-16s. As A-1s replaced the T-28s, they assumed the role of escorting the rescue helicopters. By 1967 the Air Force had 50 aircraft dedicated to rescue operations in Southeast Asia. Efficiency improved as the numbers increased; for example, successful experiments with aerial refueling from specially equipped C-130s extended the range of the HH-3s, enabling them to make sustained searches and to reach downed airmen who otherwise would have been dependent on their own survival skills. Late in 1967, larger and more powerful helicopters, Sikorsky HH-53s, began replacing the older Jolly Green Giants. By the end of 1968, over 1,500 persons, 45 percent of them downed airmen, had been rescued from the jungle or the sea.

Following their deployment in 1965, Air Force units first helped hold the enemy at bay as other American forces entered the country; by the early months of 1968, the Air Force had participated in 75 large-scale ground operations and hundreds of smaller battles. The first major clash between American soldiers and North Vietnamese regulars occurred in mid-November 1965, when the newly arrived 1st Cavalry Division (Airmobile) located an enemy formation as it swept through the Ia Drang Valley. During the battle, American soldiers inflicted severe casualties and forced the survivors

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to retreat across the border into Cambodia. During the most savage of the fighting, the Air Force conducted 330 sorties to disrupt counterattacks and help dislodge the North Vietnamese; all told, tactical aircraft flew 753 sorties during a month of searching out and attacking the enemy and B-52s almost a hundred. However, airlift by the Air Force proved as critical as aerial firepower, for the division could not resupply itself with its own aircraft exclusively, unless it diverted helicopters to the task of hauling cargo from depots in the rear to the forward supply points. Air Force C-123s and C-130s allowed Army aviators to redeploy, reinforce, and supply the battalions fighting in the Ia Drang Valley by delivering fuel and ammunition to the division's dumps, where the cargo was transferred to helicopters for the flight into the valley. Had the Air Force transports been unable to maintain the level of supplies, the operation might well have ground to a halt; instead, the fighting continued until the North Vietnamese fled from the battleground. In its first real test, the strategy of search and destroy seemed to work.

The struggle in the Ia Drang Valley taught different and sometimes conflicting lessons to the major participants. To the headquarters of the military assistance command, a month of searching and a few days of fighting had produced a great victory; indeed, the disparity in casualties, an estimated ten North Vietnamese killed for every American, seemed to demonstrate that the U.S. Army could fight a successful war of attrition, making use of mobility and firepower to exhaust a comparatively primitive foe. Believers in airmobility hailed the campaign as a vindication of that concept, although they were concerned that the helicopter force, and the maintenance and logistics base supporting it, needed strengthening to deal with a likely proliferation of assaults by troops landed, supplied, given fire support, reinforced, and finally withdrawn by helicopter. The headquarters of the Seventh Air Force viewed the Ia Drang action as proof that airmobile forces, considering the number of helicopters available and their limitations in firepower and carrying capacity, needed vigorous support from the command's transports and fighter-bombers and from B-52s, as well. The leadership of North Vietnam, although taken aback by the speed and fury of the attack into the Ia Drang Valley, remained determined to fight on, if necessary for twenty years. Field commanders had reflected this determination by employing tactics designed to neutralize air strikes by hugging American positions so that strafing or bombing endangered friend as well as enemy.

All of these views reflected some facet of the truth: the American troops, although some small units had barely escaped annihilation, had out-fought the enemy; helicopters and the men to fly them would soon be in short supply; the helicopter was a remarkable weapon—in one instance vaulting American soldiers over an ambush the enemy had prepared on a road—but it lacked the striking power and capacity of an airplane; and finally the

airmobile division, like every other Army formation, required support from the Air Force, and in subsequent operations there normally was close cooperation between Army and Air Force planners. Finally, the North Vietnamese realized that neither determination alone nor reactive tactics could bring swift victory on the field of battle; like the assistance command at Saigon, the communist leaders in Hanoi were beginning to think in terms of a war of attrition. Perhaps the major lesson taught by the battle in the Ia Drang Valley was that the war would be long and bitter.

As 1965 drew to a close, three distinct tactical air control systems existed side-by-side in South Vietnam, one operated by the Air Force with nominal participation by the South Vietnamese, one by the Army for its helicopters and other aircraft, and the third by the Marine Corps. The system used by the marines, designed initially for amphibious operations in which air strikes complemented naval gunfire during the landing and the exploitation of the beachhead, ensured a prompt response by Marine Corps airmen to requests from marines on the ground (and, as recently as the Korean War, from Army ground troops as well). The Marine Corps mechanism of air control functioned smoothly, the result of training that produced a genuine air-ground team; the competence of Marine aviators to support marines on the ground was not in doubt. General Westmoreland, however, had reservations about the ability of the Marine Corps system to support rapidly unfolding search and destroy missions that might involve swift movement on the ground and require cooperation with the Air Force, with the Army and its air arm, and with South Vietnamese forces.

During Operation Harvest Moon in December 1965, Westmoreland became concerned when crowded air space and a breakdown of communication with controllers kept Marine Corps fighters circling helplessly, preventing a South Vietnamese unit from receiving the air support it had requested. Fortunately, the South Vietnamese managed to reach Air Force forward air controllers assigned to the same area. Even though these Air Force officers had not attended the briefings preceding the operation and were unfamiliar with call signs, radio frequencies, and the location of ground troops, they quickly became oriented and soon organized the necessary air strikes. During this operation, Air Force controllers working their assigned areas complained of intrusions by Marine Corps aircraft. The marines believed that situations like these could be avoided simply by more thorough planning before an operation, but Westmoreland decided that the fault lay in the existence of separate Air Force and Marine Corps control mechanisms. He therefore told his air commander, General Momyer, to find a way to incorporate Marine Corps aviation in the Air Force tactical air control system without arousing controversy. The quest took two years and produced just the kind of interservice argument that Westmoreland hoped to avoid.

Having prevented an enemy takeover of South

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SAIGON**

Vietnam in 1965, the assistance command went on the offensive in 1966. Operating behind a thin screen of border outposts designed to monitor and to some extent impede infiltration, American units, assisted by South Vietnamese troops, used their mobility and firepower to destroy the enemy's bases, kill his soldiers, and shatter his military formations, although not to seize and hold territory. Search and destroy operations of this sort were intended to enable the South Vietnamese to operate more freely against essentially guerrilla forces and extend government control into the countryside. American success depended on winning a war of attrition designed to wear down the organized North Vietnamese and Viet Cong forces; success for the South Vietnamese would stem from providing security and services to an increasing segment of the populace.

Beginning in January 1966, in the largest search and destroy operation of the war to that time, the 1st Cavalry Division (Airmobile), a South Vietnamese division, and a South Korean battalion spent six weeks dislodging the enemy from entrenched coastal positions between Qui Nhon and Quang Ngai in the II Corps area 300 miles north of Saigon. Air Force C-130s flew cargo into a forward airfield with access to the several battlefields of the campaign. Over 600 sorties by fighter-bombers cleared the way for the American advance and helped extricate the ground forces from ambushes and other forms of counterattack. Several thousand of the enemy died while being driven from the rich rice-growing lowlands.

Bad weather always posed problems for the fighter-bombers, and the Viet Cong and North Vietnamese took advantage of it. Early in March 1966 the enemy overran a special forces camp in the A Shau Valley of I Corps, two miles from the Laotian border, a part of the screen that detected and harried North Vietnamese infiltration. Making use of cloud cover that imposed a 200-foot ceiling and largely frustrated Air Force attempts to provide close air support, the enemy seized the camp. This was a serious loss, for the valley became a logistics base with roads connecting it to the Ho Chi Minh Trail across the border. Despite occasional American or South Vietnamese forays in later years, the A Shau Valley remained an important conduit for reinforcements and supplies sent from the North.

When the seasonal rains turned the Laotian trails to mud in June 1966, the communists shifted their infiltration effort to the demilitarized zone, where good weather had dried the roads. The enemy's apparent strategy was to pour troops into the northern provinces of South Vietnam to draw American forces northward and clear the way for attacks farther to the south. Instead of rushing headlong toward the demilitarized zone as the enemy seemed to expect, Westmoreland used his ground forces against the North Vietnamese units that had entered the country and unleashed air power against the routes of supply and infiltration. During the ground portion of the campaign, called

Operation Hastings and conducted between July 15 and August 3, the Air Force supported the South Vietnamese Army, while Marine Corps airmen assisted marines on the ground, an arrangement that on this occasion worked reasonably well because the ground forces were located within readily definable areas. Aside from the occasional emergency call from marines for Air Force strikes and a collision between a Marine Corps helicopter and an Air Force observation craft, there were few problems of coordination between the two air arms.

North of the area of Operation Hastings, directly above the militarized zone, the Air Force opened an interdiction campaign called Tally Ho on July 20. Westmoreland, to avoid the problems of coordinating both Air Force and Marine Corps aircraft in a small area, accepted Momyer's recommendation that he turn down an offer by the marines to participate in this latest aerial effort. By early August, Marine Corps ground units had driven the enemy back into the demilitarized zone while tactical aircraft of the Air Force continued to strike lines of supply and communication. B-52s joined the interdiction campaign in mid-September, multiplying the firepower of the fighter-bombers, which kept harassing the North Vietnamese until November, when the return of the seasonal rains to this region caused the enemy to shift his activity to the infiltration routes of southern Laos. The aerial action in Tally Ho demonstrated that the light O-1 observation craft could not be used to direct strikes in the heavily defended coastal plain, and they were shifted to the western mountains where antiaircraft guns were less numerous. On the plain, Air Force fighter-bombers conducted armed reconnaissance, attacking the enemy without benefit of forward air controllers until jet fighters were substituted for the O-1s in Tally Ho and similarly defended areas. During the interdiction campaign, Marine artillery firing long-range missions sometimes interfered with forward air controllers conducting visual reconnaissance or directing strikes. For this reason, missions occasionally were canceled, as when an Air Force controller, bracketed by artillery shells above and below his aircraft, hastily departed from the region. Obviously, coordination between the Air Force and the Marine Corps gunners was less than perfect.

The southward shift of the main action during November 1966 triggered Operation Attleboro in an area north of Saigon. For several years the enemy had built up his forces near the capital and had created two heavily fortified military complexes, War Zones C and D, some 40 miles north of the city. Despite repeated attacks, the North Vietnamese and Viet Cong clung to these redoubts; not even a savage pounding by B-52s in 1965 could dislodge them. Several ground operations in 1966 Silver City in March, Birmingham in April, and El Paso II in June penetrated the base areas and cleared at least portions of them, but each time the enemy returned in strength to rebuild bunkers and reestablish the headquarters. On November 1, two American divisions entered the zones and, assisted by more than



A B-52 drops a bunch of bombs over Vietnam.



1,700 tactical strikes and 225 Arc Light sorties, drove the communists back across the Cambodian border. In three weeks of vicious fighting, Air Force transports delivered more than 11,000 troops and 9,000 tons of cargo.

In these major battles and scores of smaller skirmishes during 1966, Air Force fighter-bombers flew over 74,000 sorties and B-52s flew 4,500. Airlift units conducted 13,600 sorties, reconnaissance 59,000, forward air controllers 27,500, and Air Force helicopters flew 13,500 sorties carrying passengers and cargo, saving downed airmen, and evacuating the wounded.

The war in South Vietnam during 1967 followed the pattern of the previous year's fighting. The enemy returned from his sanctuary in Cambodia, regrouped, and by February was back to previous strength in War Zone C and an adjacent stronghold, the Iron Triangle. A sweep of the Iron Triangle by two American divisions, called Operation Cedar Falls, took place that month, accompanied by some 1,100 tactical air strikes and 126 sorties by B-52s. Although the operation destroyed the huge network of bases, tunnels, supply dumps, and training camps that constituted the Iron Triangle, the defenders retreated westward into War Zone C and the Americans pursued.

Operation Junction City, essentially a follow-on to Cedar Falls, took place between February and May when the two divisions that had invaded the Iron Triangle pushed on into War Zone C, assisted by Air Force tactical fighters, B-52s, and transports. The pursuit began with C-130s dropping 845 American parachute troops at the rear of the enemy to seal off the escape routes to Cambodia. The advance continued, first through the central and western parts of the zone and then to the east, capturing supplies, destroying bunkers, and sealing

caves. For the first time in the war, B-52s departed from their usual role of area bombing and flew planned missions in support of troops engaged with the enemy. In addition to the rain of bombs from these big aircraft, the defenders reeled under the effect of napalm, high explosives, rockets, and cluster bombs dropped during the 5,000-odd sorties flown by F-100s, B-57s, F-4s, and the recently introduced F-5s, which the Air Force flew extensively in 1965 and 1966 before turning them over to the South Vietnamese in 1967. More than 2,000 sorties by Air Force transports provided the assault troops with supplies and reinforcements throughout an operation that was believed to have destroyed a third of a North Vietnamese division and driven the survivors eastward into War Zone D. Since the objective of the offensive was attrition rather than the capture of territory, the Americans withdrew, and a new enemy division soon reentered the area and began restoring the defenses.

When the seasons changed in the spring, the fighting again shifted to the drier demilitarized zone where the North Vietnamese were resuming their infiltration. Marine Corps units in I Corps moved northward toward the zone, and Army troops took their place. In April C-130s airlifted 3,500 men and 4,000 tons of equipment of the Army's 196th Light Infantry Brigade from Tay Ninh to Chu Lai. At the same time, C-123s and C-130s flew food and ammunition into the northwestern outpost at Khe Sanh, where two Marine battalions battled the enemy in the surrounding hills. Defeated in the west at Khe Sanh, the North Vietnamese then struck to the east, harassing the Marine camp at Con Thien astride a main infiltration route just two miles south of the demilitarized zone. An 11-day Marine attack into the zone, Operation Hickory and its subsidiaries, again demonstrated, in the view of

## THE WAR IN SOUTH VIETNAM DURING 1967 FOLLOWED THE PATTERN OF THE PREVIOUS YEAR'S FIGHTING



A LAPES extraction from a C-130 at Khe Sanh.

## THE MOST SERIOUS OF THE BORDER THREATS SURFACED EARLY IN 1968 AGAINST THE MARINE OUTPOST AT KHE SANH

the Air Force, the need for stricter control over participating air units. Initial confusion whether the Air Force or the marines would control air strikes in the upper half of the demilitarized zone deprived the ground forces of interdiction support for three days, although the close-in strikes delivered by Marine aviators were unaffected.

Besides supporting Operation Hickory, the Air Force stepped up its interdiction of enemy movement in the Tally Ho area. In June 1967, forward air controllers successfully used jet fighters for the first time. Because the fiercely defended coastal strip had become too dangerous for the vulnerable O-1s, the controllers changed to two-seat F-100Fs carrying an observer and a pilot. In July and August, communist artillery batteries within the demilitarized zone intensified the bombardment of Marine outposts, especially on Con Thien, and in September a major air campaign, Operation Neutralize, was directed against these guns. While the marines attacked by air and ground to keep the enemy off balance, Air Force fighter-bombers and B-52s went after the North Vietnamese artillery. Again, the coordination of two air organizations operating in a compact area proved difficult; some Air Force forward air controllers had to dodge Marine aircraft and counterbattery fire, and Marine artillerymen were compelled to withhold their fire, once for 24 hours, while the Air Force bombed targets inside the Neutralize area. The assignment of Air Force liaison officers to the control center operated by the Marine Corps resolved the problem, but this solution fell short of General Momyer's goal of centralizing control over the tactical aircraft of the Air Force and the Marine Corps. Whatever its shortcomings, Operation Neutralize was credited with destroying 146 enemy guns and damaging 183 others. The number of incoming rounds directed at Con Thien and other nearby outposts decreased significantly from 7,400 in September to 3,600 the following month, when the assistance command announced that the enemy's siege of Con Thien had ended.

Although the threat from the demilitarized

zone abated, the North Vietnamese kept up their pressure along the borders of II and III Corps to divert attention, as events would prove, from the population centers of South Vietnam. Attacks during the remainder of 1967 against border outposts at Song Be, Loc Ninh, Bo Duc, and Dak To were repulsed because of close cooperation between air and ground. Throughout the year Air Force fighter-bombers flew more than 122,000 sorties and the B-52s a total of 6,600, increases of 48,000 and 2,100, respectively, over 1966's figures. Reconnaissance aircraft flew roughly 94,000 missions, and 373,000 airlift sorties delivered men and supplies to the battle areas. Forward air controllers flew 43,600 sorties in directing fighter strikes, and other aircraft released flares, leaflets, and defoliants during more than 26,000 flights. Air Force helicopters performed 13,400 tasks, several of which might occur on a single sortie, while retrieving downed airmen, evacuating casualties, or carrying men and cargo.

The most serious of the border threats surfaced early in 1968 against the Marine outpost at Khe Sanh. Unlike the earlier siege by artillery fire at Con Thien, the marines at Khe Sanh were encircled by North Vietnamese troops, and sufficient forces were not available to break through to the garrison. Consequently, General Westmoreland decided to use air power to disrupt an anticipated attack by the two enemy divisions that had massed around the outpost. Near the end of January, he launched a 10-week air campaign, Operation Niagara, so called because the torrent of explosives dropping from the sky was intended to resemble in volume the waters of those celebrated falls. Before the siege of Khe Sanh was broken at the end of March, Air Force, Marine Corps, and Navy aircraft flew some 24,000 tactical sorties against the forces surrounding the base. Flying 2,500 sorties by day and night, B-52s dropped almost 60,000 tons of bombs on trenches and artillery positions. Air Force transports landed 4,300 tons of supplies and 2,700 troops at the Khe Sanh airstrip, despite hostile mortar and artillery fire, and parachuted some 8,000 tons of cargo to the defenders.

As had happened previously when sorties by different services had to be coordinated in a compact area, the control mechanism broke down. Midway through the campaign, General Westmoreland designated General Momyer as the single manager of all tactical aircraft in South Vietnam, both Marine and Air Force, a decision that Admiral Sharp promptly approved. Despite the title of single manager, Momyer's authority was not absolute, for the aircraft of the Army and those operating from the Navy's carriers were excluded, and the marines could launch their own aircraft in response to emergencies that their ground units might encounter. This one concession to its needs did not satisfy the Marine Corps, which interpreted the action as a dismemberment of its air-ground team and carried the resulting protest all the way to President Johnson, who refused to overrule his commander in Vietnam. Although this arrangement



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went into effect too late to have any impact on Operation Niagara, it seemed to represent a major step toward the centralization of air power under the control of the commander of the Seventh Air Force. Before the year ended, however, the single manager system was compromised by the release of a specific number of sorties to the marines, initially for missions like escorting helicopters but ultimately to use as they saw fit.

While the siege of Khe Sanh continued, other communist forces moved largely undetected into position and attacked five major cities, thirty-six provincial capitals, twenty-three airfields, and many district capitals and hamlets. Taking advantage of the annual Tet holidays early in February, when most South Vietnamese soldiers were on leave to celebrate the lunar new year, the enemy struck a stunning blow. The purpose may have been to provoke a popular uprising throughout the South, in which case the offensive failed. The purpose, however, may have been to embarrass the American political and military leadership and undermine public support in the United States for prosecuting an increasingly costly war, in which case the offensive succeeded. Only at Hue in northern South Vietnam did the attackers cling to their objectives for an extended period, and even there the city was retaken, but only after twenty-five days of savage fighting. Its recapture revealed the mass graves of local inhabitants murdered by the communist forces in acts of revenge or calculated terrorism that won no converts to their cause. At Hue and elsewhere, Air Force fighter-bombers launched carefully controlled strikes, but in crowded urban areas, collateral damage proved unavoidable, resulting in civilian casualties and perhaps 600,000 new refugees that strained the resources of the Saigon government. Outside the towns and cities, the aircraft bombed the enemy's storage dumps and troop concentrations and provided battlefield interdiction and close air support for the units fighting the Viet Cong and North Vietnamese attackers. Communist losses may have totaled 45,000, more than half of the regulars and guerrillas who participated in the offensive.

Costly though it was to the communists, the Tet offensive marked the point where the tide of events clearly turned in their favor, for the unexpectedly savage attack caused the United States to reexamine its partnership with the South Vietnamese and the dominant role it had assumed in a war to preserve the independence of South Vietnam. Although repulsed on the battlefield, the attackers by their very boldness lent substance to doubts that already had surfaced as the American people, who were beginning to feel the impact of a distant war, wondered whether the results were worth the sacrifices. The struggle, which cost almost \$33 billion annually, had fueled inflation and bloated the national debt. The number of Americans killed in action during the conflict approached 20,000, with almost half those deaths in 1967. Opposition to the draft, which had supplied many of the dead, was increasing. In October 1967, a week-long demonstration against

the war singled out offices of the Selective Service System in various cities and culminated in large antiwar rallies at the Lincoln Memorial and the Pentagon. Although parades and mass meetings in support of the war and its objectives took place at New York City and elsewhere, numbers, determination, and media coverage seemed to favor the opposition. A segment of the populace, especially young people subject to the draft, had lost confidence in the assurances by the nation's leaders that the war was being won and that the continued independence of South Vietnam was a worthwhile objective. Particularly unfortunate, in view of the Tet offensive, were the optimistic statements made by General Westmoreland when he visited Washington in mid-November and reported publicly on the progress of the war. He described the situation in South Vietnam as very encouraging and declared that the United States was winning the war of attrition, only to have his words challenged by the sudden and widespread attacks.

The Chairman of the Joint Chiefs of Staff, Gen. Earle G. Wheeler of the Army, saw the Tet offensive not as a blow to public confidence or to the morale of the Johnson administration but as an opportunity to restore the nation's strategic reserve of military manpower. He arranged for Westmoreland to call for an additional 206,000 troops, a request that relied for justification on the gloomiest possible interpretation of recent events. To provide such a force required a large-scale mobilization of the reserve components, which the President wanted to avoid. Such a major mobilization would have aroused the anger of those who opposed the war or questioned its importance, but would not have affected the military situation in South Vietnam, where conditions were by no means grave enough to require reinforcement on this scale. The bulk of the troops would have formed a reserve in the United States for possible emergencies outside Southeast Asia. News of the request reached the public, which assumed that all the additional men were destined for South Vietnam, further eroding of confidence in the military and political leadership and in the importance and eventual outcome of the war.

Instead of giving Westmoreland what he sought and mobilizing the reserve, President Johnson called on a group of trusted advisers, his so-called "Wise Men," to review the nation's efforts in Southeast Asia and make recommendations for the future. The distinguished panel concluded that pursuing the existing policy would reinforce failure. As a result, the President approved a final token increase in Westmoreland's forces, bowed to the growing public opposition to the war by declaring that he would not seek reelection, and approached the task of extricating the United States from a conflict that it had taken over not quite three years earlier. In mid-1968, American policy began to change. Although the ultimate objective remained an independent South Vietnam, the United States would strengthen the South Vietnamese, gradually disengage from combat, and in effect turn the war over to its ally. ■

**Operation Thunderclap and the Black March: Two World War II Stories from the Unstoppable 91st Bomb Group.** By Richard Allison. Havertown Penn.: Casemate, 2014. Photographs. Notes. Bibliography. Index. Pp.240. \$34.95 ISBN: 978-1-61200-265-1 (digital 978-1-61200-266-8)

In 2008, Addison Bartush, a co-pilot on 31 missions with the 91st Bomb Group in 1944 and 1945, agreed to share his memories of that tumultuous period in his life with Richard Allison, a business associate and friend. Fortunately, Bartush had meticulously saved the letters he received from the States along with other items documenting his role bombing Germany. Bartush also suggested interviewing another crewmember, Paul Lynch, who had survived the war after capture by the Germans.

Based on these interviews and extensive research, this first-time author, a former naval officer and retired attorney, has brought to life the final year's operations of the 91st while detailing the ordeal of captivity experienced by thousands of captured American airmen. Over 13 chapters and an epilogue, he tells these two veterans' stories in vivid detail. At the same time, he avoids, for the most part, contrived dialogue to enhance the narrative.

This story, like most on military air operations, begins with training and, in this case, formation of what would become known as the Bishop crew, after pilot Dave Bishop.

Arriving at Bassingbourne Airfield, about a dozen miles southwest of Cambridge, England, in November, 1944, the Bishop crew flew combat missions by the end of the month. However, Bartush filled in with another crew a day earlier and missed the mission of November 26 in which German fighters downed the Bishop aircraft, *Wild Hare*.

With Bartush flying and Lynch imprisoned, Allison alternates chapters describing their experiences. Regarding Bartush, he examines the Combined Bomber Offensive during the last year of the war in Europe. He emphasizes the Allies' decision to use American aircraft to engage in daytime area bombing as opposed to "precision" attacks. The destruction of Dresden is once again rolled out as the primary example.

As the Russians advanced into Poland, the Nazis chose to evacuate Allied prisoners from several camps, herding them on foot into Germany. Lynch was among more than 8,000 prisoners held in *Stulag Luft IV* in the Pomeranian region of Poland who endured what became known as the "Black March," a 500-mile trek in sometimes blizzard-like conditions

with limited food and water. Hundreds perished; the average survivor lost about one third of his body weight during captivity.

Ultimately, the Russians would catch up to the prisoners as the Third Reich collapsed. At this point, Allison discusses the implications of the Yalta Conference and the forced repatriation of all prisoners as part of the deal that resulted in Soviet Premier Joseph Stalin declaring war on Japan three months after the formal surrender of Germany.

Allison has attempted to tell two complementary stories. For the most part, he has succeeded. Discussion of the "big picture" themes (area or city bombing by the U.S. Army Air Forces in the final year of the war and the forced repatriation of prisoners) seems almost distracting. A map showing the route of the "Black March" would have been most helpful. The epilogue in which Allison introduces himself in the first person sharing additional interviews with Bartush and Lynch comes across as a bit self-serving and somewhat unnecessary.

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



**An Air Fighter's Scrapbook.** By Ira Jones. Philadelphia: Casemate, 2014. Photographs. Notes. Appendix. Pp. 356. \$29.95 ISBN: 978-1-61200-150-0 & **Jagdstaffel 356: The Story of a German Fighter Squadron.** By Elisabeth M. Kähnert. Philadelphia: Casemate, 2014. Photographs. Pp. 126. \$29.95 ISBN: 978-1-61200-144-9 & **Night Raiders of the Air: Being the Experiences of a Night Flying Pilot, Who Raided Hunland on Many Dark Nights During the War.** By A. R. Kingsford. Philadelphia: Casemate, 2014. Photographs. Pp. 168. \$29.95.

Reissued to coincide with the beginning of centennial commemorations for the First World War, these three works offer a useful perspective on aviation in the so-called "Great War." I highly recommended the books by Jones and Kingsford. The third, well, not so much.

Ira "Taffy" Jones was one of Britain's most aggressive and successful fighter pilots of the First World War and a squadron-mate and friend (and biographer) of the legendary Edward "Mick" Mannock, the highest-scoring British ace of the war. *An Air Fighter's Scrapbook*, first published in 1938 after its author had retired from the Royal Air Force (he was recalled to duty for the Second World War), consists of a series of reflections and

anecdotes conveying his impressions and experiences of flying in the war and afterwards and his opinions of friend and foe. Readers will learn much from the cockpit-perspective he offers, keeping in mind that the first air war was one that was marked by, at times, horrific loss rates from combat, lack of appropriate training, and mechanical unreliability. As well, his reflections on his postwar service (which included flying in the British intervention in Russia against the Bolsheviks) are illuminating. Jones' text is considerably illuminated by a series of notes added by Norman Franks, a noted historian of the first air war.

A. R. Kingsford's *Night Raiders of the Air* is a riveting memoir of a night bomber pilot, flying a night-attack derivative of the Royal Aircraft Factory F.E. 2 two-seat pusher fighter. "Fees" quickly became obsolescent for daytime fighter operations and were turned to both battlefield attack and, then, night raiding. While fighter pilot memoirs from the Great War abound, memoirs of other airmen are far less common. Thus, this is a most welcome work.

Elisabeth Kähnert's *Jagdstaffel 356* (Fighter Squadron 356), purported to be based on the thinly-disguised wartime experiences of a German pilot, is actually a work of fiction, not established fact, though it does contain a nice selection of evocative photographs of German aviators, their aircraft, and air operations. Aviation novels are a mixed bag, particularly those of the First World War. If one wishes to read a good aviation novel about the Great War, there are better works to choose from than this: Charles Nordhoff and James Norman Hall's *Falcons of France*; Jack D. Hunter's *The Blue Max*; Ernest K. Gann's *In the Company of Eagles*; and, *sans pareil*, V. M. Yeates' brilliant *Winged Victory*, based on his personal experiences as a wartime pilot, first published in 1934, and reissued by Grub Street in 2013.

However, my personal preference is the memoirs of the airmen, many of which are classics, including Eddie Rickenbacker's *Fighting the Flying Circus*, Ernst Udet's *My Flying Life*, Lewis' *Sagittarius Rising*, Harold Hartney's *Up and At 'Em!*, Arthur Gould Lee's *No Parachute*, and Gordon Taylor's *The Sky Beyond*. These and many others contain enough excitement to fill dozens of novels, and readers will learn much from them as well.

Overall, Casemate is to be congratulated for seeing fit to bring these works to public view, and one hopes that it will publish others, further illuminating an air war that still fascinates both with the scale of



its combat operations and with its influence on subsequent warfare.

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**World Order.** By Henry Kissinger. New York: Penguin Books, 2014. Maps. Index. Notes. Pp. 420. \$36.00 ISBN: 978-1-59420-614-6

Once again, Henry Kissinger, now 91 years old, has written a lucid, well-structured, very readable and informed work. This one analyzes international systems that have served as a basis for world order and examines the various challenges ahead for a workable system. The genesis of this book is in the need to address the ultimate international problem today—the crisis in the concept of world order.

In just under 400 pages, Kissinger takes the reader from the Westphalian system established in 1648 to the current Islamist crisis, addressing the various concepts of world order that have influenced international relations in the modern era in Europe, Asia, and America. He especially focuses on the currently dominant vision of world order—the Westphalian system—which was conceived in response to a horrific 30-year-long war in central Europe, to establish a balance of power and reasonable harmony between states. It did so by institutionalizing an international order on the basis of agreed rules and limits and based on a multiplicity of powers rather than the dominance of a single country. Thus, a balance of power became the key to prevention or mitigation of conflict.

Following Napoleon's disruption of the system, the Congress of Vienna restored a balance of power, bringing 100 years of relative peace to Europe with the exceptions of bilateral and limited wars leading to German unification. Kissinger then points out how German unification and a rigid alliance system across Europe in the post-Bismarck era practically made the catastrophe of World War I inevitable. He also provides cases where the system was marginalized—the Napoleonic era and World Wars One and Two—to demonstrate how essential it is as a basis for maintaining a semblance of international stability and peace. Most important, he examines America's rejection of alliances until it emerged as one of two dominant world powers. The American vision of itself, he tells us, is that it has had universal principles driving its participation in global events, while other countries mere-

ly have national interests. For much of its history, America distained the Westphalian concept and the European system of alliances as fundamentally immoral. It pursued its own agenda of empire building (Manifest Destiny) by justifying it as ordained by Providence. Woodrow Wilson's crusade to change the very nature of governments and the relationships between nations was a consequence of America's unique view of world order.

Kissinger assesses nuclear weapons proliferation as the overarching strategic problem for the contemporary international order. He sees this of critical importance, because non-state actors have no reservations on their use, and emerging nuclear states may fail to control their employment. Additionally, in a multipolar nuclear world, the balance of power may be upset, multiplying the possibilities of nuclear confrontation. In a separate section, Kissinger discusses the impact of information technology on world order, stating that cyberspace challenges all of humankind's historical experience. The challenge presented is especially disruptive to order, because internet technology has made it easier to initiate cyber attacks than it is to defend against them. Cyber warfare then becomes equivalent to actual armed attack, but without international rules for acceptable levels of response.

*World Order* is illuminating. However, there was some difficulty where Kissinger maintained that the invasion of Iraq was consistent with America's values in defense of the free world and the ending of tyranny. If that were true, then the United States should have been invading scores of undemocratic countries in all corners of the world. Kissinger does make it clear that, because of a number of factors in the Middle East, the goal of building democracies where none have existed, given the presence of significant and nearly insurmountable obstacles, has resulted in a Sisyphean nightmare in Iraq. That nightmare has grown in dimension with the jihadist extremists stepping into the power vacuum and seizing huge swaths of territory as they spread their terror.

Kissinger has highlighted the most important issues currently confronting world leadership and provided intelligent insight into those issues. His descriptive language makes it completely accessible to non-academic readers who may not necessarily be familiar with the background, concepts, strategy, or nature of world order. This is an important book and must be read.

*Col. John Cirafici, USAF (Ret.), Milford Delaware*



**Australia and the War in the Air: Volume I - The Centenary History of Australia and the Great War.** By Michael MolKentin. Oxford, UK: Oxford University Press, 2015. Photographs. Maps. Charts. Appendices. Bibliography. Notes. Index. Pp.288. \$91.00 ISBN: 978-0-19-557579-5

With 2014 marking the centennial of World War I, a proliferation of new books dealing with the history of the war have emerged on the bookshelves. Within this broad topic, many new works on the war in the air have appeared. Accordingly, separating the wheat from the chaff or, more specifically, those books that stem from primary rather than secondary sources, is an interesting exercise.

Michael MolKentin earned his Ph.D. in history from the University of New South Wales. His specialty is wartime histories of Australia and other British dominions, with a particular interest in aviation and air power. *Australia and the War in the Air* is a follow-on work to his seminal *Fire in the Sky: The Australian Flying Corps in the First World War*. This new book is certainly worthy of being held in the highest regard.

The titles of the two books might lead to the misunderstanding that they are one and the same. Be assured they are not. This new work is based on his doctoral thesis and is the first volume in Oxford's *Centenary History of Australia and the Great War* series. How better to differentiate the two works than this quote from the author to me regarding this question:

*Fire in the Sky focused on the Australian Flying Corps (AFC) and the tactical level experiences of individuals and units in the air war. My research for it was largely restricted to records held in Australia, mostly private papers (letters, diaries, memoirs), and unit-level records such as combat reports and squadron war diaries. If this approach could be described as 'from below', Australia and the War in the Air, by contrast, approaches the subject 'from above'. The funding I had as a PhD candidate permitted me to research overseas, allowing me to position Australia's involvement in the air war in the political, imperial and operational contexts that defined it. These records also allowed me to go beyond the AFC and look at how Australians volunteered for service in the British flying services too, and to spend time examining aspects such as administration, training and command that I largely overlooked in FitS (Fire in the Sky).*

This is not simply a picture book, though there are photographs, maps, and

charts throughout. The well-researched text, four appendices, bibliographic essay, notes, and index make it a complete and serious study of an important topic regarding the air portion of the Great War.

*Carl J. Bobrow, Museum Specialist, National Air and Space Museum*



**Bomber Aircraft of 305 Squadron.** By Lechostaw Musialkowski. Sandomierz, Poland: Mushroom Model Publications, 2014. Photographs. Pp. 192. \$53.00 ISBN: 978-83-61421-80-1

After the fall of Poland in 1939, most of the flying personnel and technicians of the Polish air force were evacuated to Romania and Hungary. Many found their way to France and, ultimately, to the United Kingdom, where Polish air force units were re-created. This book is the photographic history of the 305th *Weilkopolski* Polish bomber squadron that operated as part of the British RAF from 1940 to 1947.

The 305th Squadron was formed on August 29, 1940 and was initially equipped with Fairey Battle aircraft. In November 1940, it was re-equipped with the Vickers Wellington bomber. The unit began operational flying in April 1941. Missions were primarily over the Netherlands and western Germany. In the fall of 1943, squadron operations were shifted to tactical air strikes on enemy buildings, bridges, supply trains, and troop concentrations. During this period, the squadron converted briefly to North American Mitchell medium bombers before being supplied with the De Havilland Mosquito FB.VI. The squadron was moved to France in late 1944. After the war ended, the squadron continued to operate in Germany as part in of the occupation forces. It was finally disbanded in January 1947.

The book covers the origins of the squadron and the aircraft used. Terse mission descriptions provide names of participating personnel, aircraft serial numbers, and mission results (e.g. enemy aircraft, trucks, trains, and buildings damaged or destroyed, or ground troops targeted). This is particularly true of operations conducted later in the war, when the squadron was assigned low-altitude interdiction with the Mosquito. Also included, are squadron aircraft destroyed or damaged and names of aircrew lost. Short accounts of dangers faced during many of the missions make interesting reading. Statistics summarize the number of combat sorties, hours flown, and bomb tonnage dropped. The chapters of the book are organized

around the aircraft assigned to the squadron throughout the war: Fairey Battle, Vickers Wellington IA and IC, Vickers Wellington II, Vickers Wellington IV, Vickers Wellington X, North American Mitchell Mk II, and de Havilland Mosquito FB.VI.

Each chapter includes many black-and-white photographs of the respective aircraft with descriptions of the markings and camouflage schemes. Matching color profiles provide the reader with more detail of these markings and camouflage patterns. Examples of nose art and other markings for the aircraft are also shown. Some photographs include the flight or ground crews staged around the aircraft or providing routine armament and maintenance services. At the end of the book are several photographs taken after the war of captured German aircraft and a V1 rocket launch facility.

Most of the photographs are from Gabriel Miłosz. He served in various photo-related roles throughout the war and ultimately was head of the photo section of the 305th. Excellent color profiles, matched to many of the black-and-white photographs, are provided by Marek Radomski. These combine to make the volume a valuable resource for aircraft and diorama modelers interested in the various WWII aircraft. This book is also valuable for those interested in the members and operations of the Polish Air Force serving with the RAF in World War II.

*Frank Willingham, Docent, National Air and Space Museum*



**The Birth of the Royal Air Force: An Encyclopedia of British Air Power Before and During the Great War—1914 to 1918.** Ian M. Philpott. Barnsley, UK: Pen & Sword Books, 2013. Photographs. Maps. Appendices. Bibliography. Index. Pp. 480. \$70.00 ISBN: 978-1-78159333-2

Ian Philpott, a retired RAF Wing Commander, has written a most valuable and useful reference work and one that lives up to the promise in its subtitle. As such, it complements the two seminal histories by the late Professor Alfred M. Gollin: *No Longer an Island: Britain and the Wright Brothers, 1902–09* and *The Impact of Air Power on the British People and their Government, 1909–14*. Indeed, Gollin, sadly, was working on a successor to these when he died. In effect, Philpott has contributed a work that nicely fits with Gollin's pioneering studies, though very different in organizational structure and style.

The title of the book is, to a degree, misleading. Readers may think Philpott will plunk them down in the midst of the Gotha and R-plane raids of 1917–18 (with the attendant outcry of the populace), and the Parliamentary, War Office, and Admiralty battling over the future of air power, and the influential Smuts report. They will be pleasantly surprised to discover that he begins his account well before the war—in fact, all the way back to the first military kite and ballooning experiments at the time of the Boer War.

In six chapters, Philpott takes the reader from the foundational days of British air power through the formation of the RAF in 1918, detailing the operational history of the so-called Independent Bomber Force in 1918. His second section, of five chapters, treats specialized topics from aircraft design through training, basing, personnel and administration, and technical support and logistics. No less than twelve appendices follow on a variety of topics. The bibliography, alas, is sparse to the point that it offers little in the way of guidance to a reader wishing further information (Gollin's works, for example, are notably absent).

Overall, as Philpott states, "This is not a book one might read from cover to cover but is essentially a work of reference." Instead, readers are presented with a series of extracts from official documents and memoirs, the vast majority drawn from records held in The National Archives (formerly the Public Record Office) at Kew. These make for fascinating reading, and as Philpott introduces the sections by cogent and thoughtful essays. To this degree, the book makes a very useful companion to the late Capt. S. W. Roskill, RN's *Documents Relating to the Naval Air Service*, v. 1, 1908–1918.

With the 100th anniversary of the founding of the RAF rapidly approaching, one may expect a plethora of works tracing the history of the service. Certainly those researching and writing such books will do well to consult Wing Commander Philpott's compendium, which easily takes its place among other studies of British air power, and which should be an essential reference for anyone interested in the complex and fascinating roots of the world's oldest independent air force.

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**Other Than War: The American Experience and Operations in the Post-Cold War Decade.** By Frank N.



Schubert. Washington, D.C.: Joint History Office, 2013. Tables. Notes. Bibliography. Index. Pp. ix, 126. Available free from [http://www.dtic.mil/doctrine/history/other\\_than\\_war.pdf](http://www.dtic.mil/doctrine/history/other_than_war.pdf)

As the Cold War bipolar confrontation between the U.S. and Soviet Russia dissolved into today's multipolar world, many small conflicts flared around the world. The United States responded by frequently engaging its military in operations below the threshold of open combat. These operations included peacekeeping, peace enforcement, peacemaking, and humanitarian aid to mention just some of the most prominent. These operations became collectively known as "Military Operations Other Than War" (MOOTW or a variety of other acronyms).

This short book provides a relatively thorough discussion of the basic subject. It originated in the mid 1990s out of the request from a Joint Staff officer for a list of those current operations. The book leads off with a historical background dating back to the 19th century showing that MOOTW is not a new phenomenon. Schubert demonstrates that the U.S. military has engaged in these types of operations throughout its history. He then discusses operations beginning with the end of the Cold War through today dividing them into four broad areas: Drug Enforcement/Migrant interdiction (support for domestic issues), Humanitarian, Stability, and Other Types of Operations. He outlines the characteristics of each category and then moves into a discussion of the big picture and what he sees as the transition to future operations.

Several themes emerge from the discussion. The first focuses on DoD's process of naming every operation no matter how small. Schubert argues this gives a false perspective on commitment. While the larger and particularly ongoing operations such as Southern and Northern Watch from the 1990s and Enduring and Iraqi Freedom from the 2000s do significantly impact overall readiness, the many smaller ones have much more limited impact. By naming every operation as if they were Overlord, it becomes difficult to differentiate between large and small and, therefore, the actual effort expended. The second theme deals with methods for counting deployed personnel which have varied by service and over time. Again, developing an accurate picture of impact is complicated. Schubert suggests that grouping similar or related operations into campaigns and standardizing resource accounting would make the information more accessible and useful.

Schubert demonstrates that MOOTW, by whatever name, has been a constant in U.S. history; and we shouldn't expect it to go away. Low-intensity combat operations such as those in Libya and against ISIS also seem a permanent fixture. Figuring out the best way, therefore, to track these operations to derive lessons learned will benefit policy and decision makers. Schubert has written a useful primer on the subject and I hope he will consider expanding this volume to include a discussion of the policy- and decision-making processes associated with determining when and how we choose to engage.

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



**Allied Air Power 1942-1945: A Newsreel History of Allied Air Force Operations in World War II.** By Perry Wolff. Havertown PA: Casemate Publishers. 80 min. \$14.95 ISBN: 024762065-3

This DVD is a reissue of a documentary film, *The Smashing of the Reich*, an overview of the Allied campaign in Europe compiled in 1962 from wartime footage. Pen and Sword reissued it as part of a new World War II DVD series. These DVDs, including titles on individual battles, weapons, and campaigns, accompany their popular print series on the same topics.

*Smashing the Reich* details the course of the war in Northern Europe from autumn 1943 to VE day. The roles of daylight precision strategic bombing, especially of the oil industry, and tactical airpower are prominently featured. D-Day, the breakout from St. Lô, the drive across France, and the Battle of the Bulge are covered. True to the title, a significant percentage of screen time is devoted to bombs falling, guns firing, targets blowing up, enemy footage of burning factories, and gun-camera film of trucks, tanks and trains exploding under strafing attacks. There is plenty of footage of fighters and bombers taxiing, taking off, and in flight; those who track such things will be able to pick out individual units, aircraft, and even individuals in some shots. For instance, General Pete Quesada of the IX TAC appears in a scene with Eisenhower, although he is not pointed out.

Producer and writer Perry Wolff is an experienced documentary creator, with *Airpower* (1956), *A Tour of the White House* (1962) and a number of works on history and the fine arts to his credit. The music by composer Norman Dello Joio, who scored the TV documentaries *Airpower* (1956) and *The Golden Prison: The Louvre*

(1964) emphasizes the dramatic, setting a mood of dominance and supremacy. Jim Stephens' narration is appropriately clipped and hard-bitten, in wartime style, with meaningful pauses to let the points sink in.

The World War II compilation documentary genre as we know it originated with the critically acclaimed *Victory at Sea* (1954), scored by famed composers Richard Rodgers and Robert Russell Bennett. The pattern it set probably peaked with *The World at War*, a widely viewed 1970's TV series that interspersed eyewitness accounts with original footage.

Unfortunately, *Smashing the Reich* does not reach the high standard set by those landmark works. This film takes a simplistic view of the strategic bombardment of Europe in World War II. Strategies, tactics, and timelines are blurred. Events are conveniently rearranged to fit the narrative. The B-17 is emphasized; the B-24 is but briefly visible. The Mediterranean Theater of Operations and the Fifteenth Air Force are not cited. Air Force leadership—Eighth Air Force or otherwise—is not in the narrative; it appears to the viewer as though Eisenhower made all the decisions. Casablanca, from which emerged the Combined Bomber Offensive, focusing on defeat of the Luftwaffe, and Operation Pointblank, the air campaign during the first six months of 1944 to seize air superiority over Europe, are not mentioned. Although the crisis of the unescorted bomber in the fall of 1943 opens the film, portrayal of efforts to develop a long-range escort fighter force leaves the impression that the problem was solved almost overnight. Even the film's concentration on the oil campaign is mishandled. The August 1943 Ploesti operation is absent; if the central theme is oil, it should have opened with it. As a history of the air war in Europe, the film falls very short.

All of that said, *Smashing the Reich* rightfully can be regarded as a newsreel history intended for popular consumption. Those who fought the war, built the weapons, and supported the home front composed this film's original audience. Typical of many documentaries of the immediate postwar years, it closes with scenes of families warmly greeting homecoming troops. Familiar with the wartime sense of menace and national purpose, they would readily have related to the producer's unfettered, graphic approach, and drawn emotional sustenance from seeing that their sacrifices were not in vain: Europe was liberated, prisoners freed, evil vanquished. It would be difficult—perhaps not politically correct—to issue such a work for a general audience now. Shots of neatly costumed re-enactors, cleaned-up

battlefields, and restored warbirds with only brief excerpts of contemporary footage characterize documentaries of the past fifteen or twenty years.

Pen and Sword did not restore the film itself for this reissue. Some clips are blurry, contrast is off, and numbered leader (for theater projectionist use) precedes some scenes. After five decades, some sequences have become familiar stock shots. Nonetheless, the era of vivid documentary of the first few decades immediately after the war is a valuable trove of contemporary footage that portrays World War II far more vividly than one is likely to see in modern productions.

Steve Agoratus, Hamilton, N.J.

**Wings of the Navy: Testing British and U.S. Carrier Aircraft.** By Royal Navy Captain Eric "Winkle" Brown CBE, DSC, AFC, RN. Manchester: Blacker Design and Hikoki Publications. 2013. Cutaway Diagrams. Illustrations. Photographs. Index. Pp. 344. \$56.95. ISBN 9 78 1902109 329.

Captain Eric Brown had a thirty-one-year career in the Royal Navy. He is the Fleet Air Arm's most decorated pilot, has flown a record 490 basic types of aircraft, made a world record 2,407 carrier landings in fixed-wing aircraft, and is the only non-American to have been inducted into the U.S. Navy's Test Pilot Hall of Honor. He has also authored *Wings of the Weird and Wonderful*; *Wings of the Luftwaffe: Flying German Aircraft of the Second World War*; *Wings of the Luftwaffe: Flying the Captured German Aircraft of World War II*; *Duels in the Sky*; *Testing for Combat*; *The Helicopter in Civil Operations*; and *Wings on My Sleeve*.

All fighting aircraft display some measure of compromise between operational requirements, flight characteristics, and technology applications. Perhaps no designer has to make more concessions than in the development of carrier-based aircraft, which must accommodate both the demands of combat as well as the maritime environments in which they operate.

Brown has recorded the flying characteristics of principal combat aircraft flown from U.S. and British carriers, from pre-World War II designs through the introduction of turbojet aircraft in the 1950s. Thirty aircraft are described, from the archaic Fairey Swordfish to the astonishing McDonnell Phantom II. Brown begins with a chapter on "stringent design

requirements for naval aircraft" including comments on needs for adequate undercarriage structure, landing visibility, aircraft attitude and aerodynamic characteristics, arresting gear, and requirements for multi-engine designs. Next, he addresses the "delicate art of deck landing", which briefly describes the differences between British and American carrier deck landing techniques, deck safety equipment, and carrier configuration changes brought about by the advent of the jet age (namely the angled deck, steam catapult, and mirror landing sight).

The main section of the book contains a chapter on each of the individual aircraft. Brown starts with a one-sentence overview of what he thinks of the aircraft. He doesn't pull any punches and tells it like it is! Some examples are:

Fairey Swordfish: "Obsolescent at the outset of World War II, but triumphant in the Battle of the Atlantic at Taranto, and against the mighty *Bismarck*."

Grumman Wildcat: "It was manna from heaven, when the Fleet Air Arm's fighter cupboard was pretty bare." (this was one of Brown's favorite planes)

Douglas Dauntless: "Not up to Stuka standard, but served the Navy well in the wartime Far East."

Curtiss Helldiver: It never recovered from a poor design start, and had little operational impact."

Vought Corsair: "Oversized, but an effective fighter. A dog to land on an aircraft carrier."

Chance Vought Cutlass: "I am not left with beautiful memories of the Cutlass." (this chapter is a great read for stability and control-system engineers

McDonnell Phantom: "One of the greatest aircraft I have ever flown."

Each chapter describes the overall design requirements and intended operational use of the aircraft. Brown describes start-up and take-off and landing procedures in some detail to include cockpit settings for engine, cooling, and control surfaces. Climb and cruise performance is discussed in some detail, along with static and dynamic stability. Brown's data and opinions are all based on his more-than-adequate flight test experience on multiple aircraft. A detailed cutaway drawing is included for each aircraft along with many cockpit layouts.

This is an excellent reference volume. It is a solid, reliable work by an author whose credentials are above reproach. The book will provide many hours of enjoyable and informative reading for the aviation

enthusiast and, especially, for aviators and design engineers alike!

Frank Willingham, Docent, National Air and Space Museum



**Surprised at Being Alive: An Accidental Helicopter Pilot in Vietnam and Beyond.** By Robert F. Curtis. Havertown, Penn.: Casemate Publishers. 2014. Index. Photographs. Glossary. Pp. 297. \$32.95 ISBN 978-1-61200-275-0

Major Robert Curtis, U.S.MC (Ret), has over 5,000 flight hours, mostly in helicopters, during 24 years with four armed services. He enlisted in the U.S. Army's Warrant Officer Candidate Program and flew CH-47s in Vietnam from 1968-1972. He then joined the National Guard from 1972-1975 (UH-1H and OH-58A). He served in the Marine Corps from 1975-1993 (CH-46E/F, CH-53D, UH-1N, and AH-1T). From 1983-1985, he was on exchange duty with the Royal Navy (Sea King Mk IV, license-built S-61). During his Marine service, he flew off U.S. and British ships from the Med to the Baltic and many points between.

Curtis sets down his memoir by describing his four distinct "Flying Lives." Each contains a number of short, action-packed flying stories. These range from desperate combat tales to adventurous, sometimes hand-wringing, sometimes hilarious exploits during the post-Vietnam war era. Common to all his stories, Curtis provides just the right amount of technical detail about how the aircraft should be flown, operational performance and limitations, loading requirements and techniques, maintenance, and risks. He gives a good feel of what goes through the pilot's mind when facing various situations, ranging from a perfectly normal flight to high-tension events like loss of visibility, engine failure, or being shot down! Curtis contends that his success in flying resulted from "luck and superstition," words that end most of his stories. Based on his writing, I would add "ritual" to that group. Curtis downplays his obviously excellent piloting skills and relies on his ability to "close his mind's door" on all external events that don't involve flying the aircraft. He contends that anything less than full concentration does not allow one to be fully successful as an aviator. When you can't close the door on that mental room marked "flying", it's time to retire.

Curtis' flying career began in 1968, when he enlisted in the Army to gain some measure of control over his future. This was a time when the draft was inevitable.



He signed up to be a helicopter pilot and was soon in the thick of the Vietnam War, flying Chinooks with the 159th Combat Aviation Brigade. You get the drift of his stories by some of their titles: *The Playtex Club*, *Survival Instruments*, *Tracers*, *Night Flight*, *Flares*, and *Napalm*.

Curtis' second "Life" in the Guard, was with the 2113th Transportation Company, "you call—we haul". Here, he relates one assignment to fly state police on an observation and enforcement mission during the truck strike of 1973. He also flew the governor of Kentucky on a tornado damage-assessment mission.

In his third Marine "life," Curtis had some hair-raising experiences with *Night Vision Goggles*, *Night Flight* ("In the event of a complete loss of engine power at night, the pilot should turn on both the landing and searchlights. If he does not like what he sees, he should turn them off"), *Wires*, *Special Ops*, and being *Broken on a Moroccan Beach*.

During his two years of exchange duty with the Royal Navy, deployed from Egypt to Norway, he had to fly through brownouts from blowing sand and whiteouts from falling snow. He also operated to and from shipboard in dense sea fog.

I liked this book! It is at once exciting, philosophical, insightful and informative. It can bring a tear to your eye and make you laugh out loud. It's a page turner!

Frank Willingham, Docent, National Air and Space Museum

**History of Rocketry and Astronautics—AAS History Series, Volume 41.** By Kerrie Dougherty, Ed. American Astronautical Society, 2014. Tables. Diagrams. Illustrations. Photographs. Index. Pp. 460. \$110.00 ISBN: 978-0-87703-607-4

This is Volume 41 of the American Astronautical Society (AAS) History Series that contains the continuing symposium proceedings of the International Academy of Astronautics (IAA). Prague, Czech Republic, was the location for the 44th History of Astronautics Symposium in September, 2010. As in previous volumes, the papers are organized in Parts (four in this volume), with each paper being a chapter (21 chapters). Although Part 1 and Part 4 are very interesting, I especially liked Parts 2 and 3 with their intimate reviews of key space pioneers and the science/technology being developed for mankind's initial travels and exploration of space. All of the papers recounted relevant and important history.

A highlight of the session on IAA:

Origin and Early Years, was a pre-recorded interview with Dr. Les Shepherd, one of the founders of IAA. He was 92 at the time of this interview and passed away in 2012. We are fortunate to have his recounting of the exciting early days. The complete DVD interview is included with this volume. The Part 1 papers discuss some early space organizations that reflect the challenging public environment of the times.

Four papers stood out in Part 2, "Memories and Organizational Histories." One was a paper on the history and contributions of Dr. Ernst Stuhlinger, a historian and a member of Werner von Braun's rocket team transplanted from Germany to the U.S.. At the NASA Marshall Center, he was the first director of the Space Science Laboratory. His most widely known historical work is on von Braun. Chapter 7 reviews the many important and critical contributions of Ary Sternfeld to spacecraft trajectories and maneuvers, a major area of modern cosmonautics. Chapter 9 recalls the history of Dr. Vasily Budnik, a founder of space rocketry in Ukraine and his service as deputy to U.S.S.R. Chief Designer Korolev. Dr. Budnik was directly involved in all of the U.S.S.R.'s successful rocket programs. "Japan's Space Program" reviews half a century of history of the Institute of Space and Aeronautical Science, one of the key groups leading to the formation of the Japan Aerospace Exploration Agency, the organization leading Japan's impressive programs.

Part 3, "Science and Technology Reviews," contained three very good papers. "Impact of the IGY" covers the historic space-program impacts of the critical International Geophysical Year (IGY) program back in 1957-1958. I remember this future-oriented program in my high school days. It aimed at the future within many countries. "Nixon/Ford Space Policy" provides a revealing look at the space policy results of the Nixon and Ford administrations in the late 1960s and 1970s. Projects Apollo and the Apollo-Soyuz Test Project (ASTP) required many complex agreements throughout the world. Chapter 15, "Early Rocket Motor Development," features an historical artifact, the American Rocket Society (ARS) Test Stand No. 2 (1938-1942). The development of regenerative-cooled rocket motors depended on this continually modified test apparatus that is now displayed at the National Air and Space Museum in Washington DC. The ARS and this test stand were very instrumental in the formation of RMI (Reaction Motors, Inc.), a key group in U.S. rocket development based on the Wyld motor regenerative principle.

The last part, "Contributions to

Astronautics in the Former Czechoslovakia," is a tribute to the host country to cover history and contributions to early rocket, satellite, and space technology by the former Czechoslovakia. A host-recognition section is a standard feature of the previous symposia proceedings. It also reminds us that space activities and interests involve all countries and people of the world. Space achievements represent and excite all mankind.

In summary, this book reviews lots of interesting history. It has something for everyone: a variety of subjects on personalities, history, organizations, countries, and technologies. It can offer some interesting reading and just good browsing. It is a treasure of space history and memorable events from which I learned many new things. I suggest that an interested reader should check out the other 40 volumes of the AAS History Series.

Paul D. Stone, Docent, NASM Udvar-Hazy Center



**The Supercarriers: The Forrestal and Kitty Hawk Classes.** By Andrew Faltum. Annapolis: Naval Institute Press, 2014. Maps. Tables. Diagrams. Illustrations. Photographs. Notes. Appendices. Glossary. Bibliography. Index. Pp. ix, 240. \$42.95 ISBN 978-1-59114-180-8

Retired Commander Andrew Faltum served as an air intelligence officer on board the *U.S.S. Midway* before joining the Navy Reserve. He has also authored *The Independence Light Aircraft Carriers* and *The Essex Aircraft Carriers*.

The Forrestal class ships were the first super carriers specifically designed to accommodate naval jet aircraft entering service after World War II. The *U.S.S. Forrestal* ushered in a new era of naval power when it was commissioned in 1955. Ships of the Kitty Hawk class were essentially improved Forrestal designs. The basic soundness of their design is reflected in the fact that they became the basis for every U.S. carrier that followed.

Faltum addresses the individual ships of their respective classes: CV-59 *Forrestal*, CV-60 *Saratoga*, CV-61 *Ranger*, CV-62 *Independence*, CV-63 *Kitty Hawk*, CV-64 *Constellation*, CV-66 *America*, and CV-67 *John F. Kennedy*. But, because of the book's organization, it must be read cover-to-cover to obtain an overview of the design, armament, aircraft, operations, deployments, and ultimate fate of each ship.

An overview chapter addresses a potpourri of topics, including political and budgetary problems facing the Navy. Next, car-

rier configuration is discussed (angled deck layout, catapults, aircraft accommodation, defensive armament, and arresting gear). Finally, keel laydown and launch dates, yards where built, and initial deployments are described for each of the carriers.

Faltum moves on to describe flight deck launch and landing operations, deck crew assignments, maintenance processes, and preparation of the carrier for sea duty. Early "main battery" aircraft are mentioned (e.g., F2H, F7U, F9F, FJ-4, F11F). A subsequent chapter describes accommodation of aircraft evolution to new types (e.g., F-14, F/A-18, S-3, SH-60). Follow-up technical data for each aircraft type is presented in an appendix. More aircraft photos are needed here. Photos are accumulated in a couple of sections, and the reader has to flip back and forth to see what Faltum is talking about. While there are ample photos of carriers in various configurations and operations, the many aircraft discussed are not all shown. A photo would help a reader remember the difference between the Grumman Tracker, Tracer, and Greyhound! Faltum also discusses new developments in catapult systems, automatic carrier landing systems, defensive gun and missile systems, automation and information systems, and the carrier service life extension programs. A 62-page appendix details naval air wings, squadrons, their coding, aircraft types, and deployments to each super carrier.

Several chapters show the value of carrier operations as deterrents in Cold War hot spots (e.g., Suez, Lebanon, Africa, Quemoy), Viet Nam, the Gulf, Bosnia, and Middle East. The causes and results of several major carrier disasters, such as the *Forrestal* fire, are also brought out.

The book has more than 100 black-and-white illustrations and maps covering the western Pacific, Vietnam, Mediterranean, Middle East, Indian Ocean, and Caribbean. The front endpaper provides port and starboard profiles and an overhead view of the *Saratoga* (Forrestal class). The rear endpaper displays similar views of the *Constellation* (Kitty Hawk class).

Overall, the book is an excellent reference volume—a good anthology of super carrier design requirements, technology, and operational use. Naval jargon and acronyms are explained in easily understood terms. Policy, threat, budgets, and technology status are placed in context to allow the reader a more comprehensive understanding of the rationale behind, and application of, the first generation of the nation's super carriers.

Frank Willingham, National Air and Space Museum Docent

**Fall of the Flying Dragon: South Vietnamese Air Force, 1973-75.** By Albert Grandolini. Houston TX: Harpia Publishing and Moran Publishing Joint Venture, 2011. Charts. Tables. Illustrations. Photographs. Notes. Appendices. Bibliography. Index. Pp. 256. \$48.00 ISBN 978-0-9825539-7-8

Do not let this slick volume fool you. *Fall of the Flying Dragon* fills a major gap in Vietnam War history. The examination of the relationship of the U.S. military and the final fall of South Vietnam remains largely untouched. Grandolini utilizes sources from North and South Vietnam along with personal accounts from participants recently released. The story unfolds clearly but sadly. It is, after all, a story of defeat at the hands of the Communist North.

Grandolini, a military historian and freelance aviation journalist, spent his youth in South Vietnam. This sparked his long-time interest in Asian military history. Extensive use of lengthy personal letters, while sometimes tedious, offers revealing perspective on the trials and tribulations endured by the South Vietnamese. Despite the challenges involved at the end of the war, South Vietnam's air force made tremendous efforts to defend its country but, without U.S. assistance, were unable to hold back communist efforts.

Beginning with a brief summary of the early development of the South Vietnamese Air Force (VNAF), Grandolini examines the sporadic growth and development of the VNAF emphasizing links to the U.S. during the war years. The bulk of the book deals with the period following the 1973 cease-fire until the fall of the South in 1975.

Grandolini's description of the "Final build-up" initiated by the VNAF reveals a dedication to organize, expand, focus, and train in preparation for the coming struggle against the North Vietnamese which were equipped with formidable Soviet aircraft such as the MiG-21 and deadly SA-2 Guideline surface-to-air missiles. The high drama, sacrifice, and dedication of the South Vietnamese forces during the tragic final events of April 1975, including evacuation in the face of overwhelming enemy forces, is difficult to read without emotion. Accounts of fuel shortages for operations and family efforts to locate lost aviators only scratch the surface of difficulties presented here for the first time.

Throughout this book, wartime imagery, much in color, is included on nearly every page. Each image is accompanied by a detailed caption that adds depth to the narrative story. Reference

notes following each chapter are equally detailed, some a bit too long, and others that might have been included directly in the book narrative.

That being said, a reader may approach this volume in three ways. For those wishing a new look at a time of the war much neglected, reading the main narrative and looking at the images will provide that experience. For those wishing greater details, reading the full captions adds depth to the personal stories often with vivid descriptive details. Including the page-turning exercise necessary to include the chapter endnotes is well worth the effort and showcases the detailed research that shaped Grandolini's work. Also included in the appendices are illustrations of unit patches and aircraft camouflage designs similar to those seen in the WarBird Series of slick aircraft tech soft-bound books.

The publisher's mission statement says their products are "The Aviation Books of a Different Kind: Unique Topics, In-depth Research, Rare Pictures, High Printing Quality." Grandolini's, *Fall of the Flying Dragon: South Vietnamese Air Forces 1973-75*, hits the Harpia Publishing target with a CEP of zero.

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



**Reconnaissance and Bomber Aces of World War I** [Book 123 of Aircraft of the Aces series]. By Jon Guttman. Oxford UK: Osprey Publishing, 2015. Photographs. Appendices. Bibliography. Notes. Index. Pp. 96. \$22.95 ISBN-10: 178-200801-2

Historian and author Jon Guttman manages to pack a great deal of material into the nearly 100 pages of his most recent addition to the Osprey Aircraft of the Aces collection. Nearly every page has a photograph or two together with accompanying text that is equally as informative and descriptive as the rest of the book.

In the decades since World War I ended, it seems as if pursuit pilots have been the mainstay of war-in-the-air books. Occasionally a book comes along, such as this one, which tells a different story. This one is about the *arbeitsflieger*, or working aviator: the reconnaissance and bomber pilots and crews.

Guttman brings together in one volume a number of these individuals and their valiant battle records. Although the book does not cover all of the combatants who could be called an ace, it does lay out a cohesive examination of many of these individuals. To Guttman's credit he does



provide lists in the appendices—which are as complete as he could compile—of all of those individuals who reached this combat rating.

Perhaps the main thing to consider about the reconnaissance and bomber pilots and crews is not how many enemy aircraft they shot down but, rather, that they were capable of defending themselves at all—quite often against great odds, and do so time and time again. From the very beginning of the war, aerial reconnaissance was the pivotal role that was delegated to the airplane. These machines were soon carrying weapons to defend themselves and, in many cases, to attack the enemy found roaming in the same space of sky. From the exploits described, it is easy to understand how the phrase “boredom punctuated by moments of terror” was wholly applicable to these *arbeitsflieger*. These crews were detailed for long flights in the vast ocean of the heavens often deep into enemy-held territory over a battered landscape. Then, literally out of the blue, the enemy would appear, all too often with superior speed, maneuverability, numbers, and firepower with every intention of destroying the aircraft and its crew.

The book is divided into seven sections. The core deals with French, British, American, German, and Austro-Hungarian crews. In addition to a group of lists of those individuals not covered in the narrative of the book, the appendices also contain thirty-two color profiles of aircraft flown on these missions. There are further details of the men, machines and exploits of this portion of the first great air war. I highly recommend this book for researchers, historians, modelers, and enthusiasts.

*Carl Bobrow, Museum Specialist, National Air and Space Museum*



**Stay the Distance: The Life and Times of Marshal of the Royal Air Force Sir Michael Beetham.** By Peter Jacobs. Barnsley, UK: Pen & Sword Books, 2011. Photographs. Appendix. Bibliography. Pp 336. \$50.00 ISBN: 978-1-84832-552-4

Wing Commander Peter Jacobs was chosen to write the Beetham story following the death of Air Commodore Henry Probert, Head of the Air Historical Branch, who Jacobs notes had planned to write the book. Beetham, the second longest serving Chief of the Air Staff since Lord Trenchard (1919–1930), subsequently chose Jacobs from their long professional association and for Jacobs’ Air Staff

knowledge of squadron procedures or patterns with the Air Staff.

Both Trenchard and Beetham have a good deal in common. Both served at times of financial crisis; both had to organize and order the RAF; and both were very familiar with commanding topics. However, Trenchard was a poor flier and normally was flown by a trained pilot, whereas Beetham, on the other hand, starting out his career as a pilot in World War II and sought to be qualified in every aircraft on the RAF inventory. When, for instance, he went to visit or inspect a unit he hadn’t visited before, he immediately got out his parachute and his hard-hat helmet and checked out in that aircraft. As Chief of the Air Staff for seven years, he tried to visit every station and, thus, kept in close touch with the service itself.

Jacobs’ selection of photographs from Beetham’s albums perhaps can be seen as a lesson in service politics (although Beetham didn’t take all of the photos, but he did collect them). At least it appears from the photographs chosen that planning was a primary concern. Although too young at the moment to become Marshal of the RAF, Beetham was favored for the post from some time before. And it seems that one of the things that was strongly in his dossier was the fact that he had so held so many posts, all the way up to Commander in Chief in Germany, in which planning and foresight were very much required. Thus, before he became Chief of the Air Staff, it is evident that he had a reputation as someone who could see ahead in both the RAF technical area and in politics.

The book has a serious weakness. While it portrays a career pattern that successfully concluded at the top, there is very little feeling for the man himself. Jacobs seems to have consulted Beetham’s personnel records as a path to describing the airman’s career pattern. But we have very little sense of the individual. Even worse, his wife is but a cipher to the whole story. Nevertheless, this is a book that would be worth reading by career-ambitious officers.

*Robin Higham, Professor Emeritus, Military History, Kansas State University, and Sometime Pilot, RAFR 1943–1947*



**George Owen Squier: U.S. Army Major General, Inventor, Aviation Pioneer, Founder of Muzak.** By Paul W. Clark and Laurence A. Lyons. Jefferson NC: McFarland & Company, 2014. Photographs. Appendices. Bibliography. Notes. Index. Pp. 292. \$39.95 ISBN-10: 0786476354

Whenever we make a phone call or find ourselves in an environment filled with background music, these ever-present elements in our life are thanks to George Owen Squier (pronounced “square”). He invented telephone signal multiplexing, which permits multiple transmissions on a single line, and devised the system that could provide piped-in music on demand to any location, including elevators.

This biography covers the full sweep of his military career as Chief Signal Officer of the United States Army, which included overseeing the effort to provide the United States, as well as its allies, with American-manufactured airplanes and engines during World War I. Simultaneously he was organizing engineers, scientists, and corporations in an effort to develop and supply the American forces going off to war with the most modern communications equipment yet designed.

The book’s arc spans Squier’s early years as a cadet at West Point, to his academic achievements at Johns Hopkins University (receiving his doctorate in electrical engineering), and through his life-defining career in the United States Army.

Of particular relevance to those of us interested in aviation history are his efforts to acquire aircraft for the Army. The establishment of the Aeronautical Division of the U.S. Army Signal Corps, and the subsequent purchase of the Wright Brothers aircraft, were direct results of his efforts. Squier was cognizant of the importance of military aviation; perhaps nothing testified more to his commitment than his willingness to be a passenger, making him the first officer to fly in an airplane, on September 12, 1908.

As the military attaché to Great Britain during the first years of World War I, Squier developed a clear understanding of the technology-driven war. His privileged access to the front lines in France afforded him a realistic view of the war. He was quick to realize the importance of modern communication systems in fighting such a war. Upon becoming Chief Signal Officer of the Army, he oversaw the advancement of wireless technology and, within that sphere, the use of radiotelephony for command and control of military air assets.

Despite the very long list of his achievements, remarkably no biography of George Squier has previously been published. This work fills that gap and provides a new understanding of how these two important technologies became integral to the U.S. Army and its air arm.

*Carl Bobrow, Museum Specialist, National Air and Space Museum*



**Berlin Airlift: Air Bridge to Freedom—A Photographic History of the Great Airlift.** By Bruce McAllister. Boulder, Col.: Roundup Press, 2015. Maps. Tables. Photographs. Bibliography. Pp. 216. \$49.95 ISBN: 978-0-61598499-5

With this effort, Bruce McAllister has completed nine books on aviation history. On each occasion, he has attempted to compile a photographic record. This work, however, is his first on a military subject. While he relies on the obvious sources such as the National Museum of the United States Air Force and the National Archives for close to 50 percent of his images, about 40 percent come from his personal collection. Altogether, he credits more than 20 different sources. He was stationed in West Berlin as a U.S. Army lieutenant in 1959 and 1960.

The photographs and their captions, along with a limited narrative, tell the story of the western allies' ability to disrupt the Soviet Union's effort to enforce an overland blockade of West Berlin from the summer of 1948 to the spring of 1949. At the time, West Berlin was a democratic urban island surrounded by the communist German Democratic Republic (East Germany). West Berlin depended on the West to meet most of its needs. Furthermore, much of the city still reflected the impact of the devastating Allied bombing campaign of World War II.

Rather than emphasize a chronological approach, McAllister has correctly chosen to organize his 11 chapters (including the introduction) on a thematic basis. The introduction sets the stage, establishing the post-war political situation that led to the "estrangement" between the West and Soviet Premier Josef Stalin.

The so-called first chapter, "Prelude," discusses West Berlin's isolated status just before the initiation of the blockade, an action that interrupted all highway, railway, and waterway service with the pro-West Federal Republic of Germany (West Germany). In Chapter Two, he reviews the challenges of initiating and sustaining *Operation Vittles* (the American name) and *Operation Plainfare* (the British name). From there, he moves on to the flight crews, improving the airfields both in West Berlin and West Germany, the types of goods transported, Gail Halvorsen (better known as the "Candy Bomber"), the various types of aircraft, maintenance, and accidents. In recognition of the last item, the book is dedicated to the 73 aircrew members who lost their lives. The final chapter concludes with photos of the Berlin Wall and its eventual demolition.

While it's impossible to overemphasize the contribution of the Douglas C-54

Skymaster, the airlift's workhorse, photos of that aircraft tend to dominate. On the other hand, aviation buffs will find rewarding McAllister's efforts to document the use of as many aircraft as possible. For example, he includes photos of the Douglas C-74 Globemaster, of which only 14 were built.

Overall, this work probably is best suited for students of the Cold War or airlift or those who have a personal connection.

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



**American Bomber Aircraft Development in World War II.** By Bill Norton. Manchester UK: Crécy, 2012. Diagrams. Illustrations. Photographs. Pp. 224. \$35.00 ISBN: 978-1-85780-330-2

This book recounts in detail the development of U.S. Army Air Forces and Navy World War II bombers. Bill Norton is a retired USAF flight test engineer who has worked at the Air Force Flight Test Center and has held positions in aircraft engineering design and development as well as project and business management. Norton points out that this is the third of his planned four-part set of books presenting America's development of World War II military aircraft, with the emphasis on experimental and lesser known models. His previous works covered the development of U.S. fighter and cargo aircraft. He has included in this work all American aircraft with bombing as their primary role.

The detail within the book is truly valuable. Each aircraft entry describes the design, development, and technical issues faced by the commercial contractor and the two military services from the drawing board to operational employment. The message is enhanced by illustrations that portray the construction of the aircraft part and/or total aircraft design. The high level of detail is further enriched by the numerous photos of the aircraft preparing for flight during flight test operations. Of particular note to me are the descriptions of the various models of familiar aircraft that helped the Allies win the war, namely the venerable B-17 and B-24. Norton also covers how and why the U.S. was able to export versions of their aircraft inventory to allied nations (UK, France, and the USSR) through the Lend Lease program for their use in combating Nazi Germany's military advances before the U.S. entered into the fighting.

Norton focused on bomber aircraft designs that evolved into the development

and test phase. However, he includes numerous examples of heretofore not commonly known aircraft that never became operational during the war. Because of the lead time needed in major aircraft design and development, Norton began his research and writing on those developments from the late 1930s through the summer of 1945. Interestingly enough, this period of time brings the reader through the propeller era to the dawn of the age of jet bombers. The U.S. military began a program in the summer of 1941 to develop jet engines. However, no new American bomber project begun after 1941 reached combat status.

There is not much effort to write expansively on the operational use of the aircraft, and there are very few photos of the aircraft in wartime operations. However, this by no means limits the book's value. Norton's goal was to detail the design and development phases of these weapon systems, and he clearly attained that objective. Those looking for a book that depicts the wartime operational experiences of vast American bomber fleets need to look elsewhere. However, if you are pursuing the detailed information on how the American bombers used during World War II came to be operational, the problems faced by contractors and the services, the attempts to improve then-current aircraft inventories, and the attempts to leap into the jet age, then this is certainly a book to consider.

This is a good and useful book that can serve as a useful source document. I recommend it not for the casual history buff but for the individual who really wants to know the story behind the design and development of the wartime American bombers.

*Col. Joe McCue, USAF (Ret.), Leesburg, Virginia*



**I Won't Be Home Next Summer: Flight Lieutenant R.N. Selley DFC (1917-1941).** By Ron Selley and Kerrin Cocks. Pinetown, South Africa: 30° South Publishers, 2014. Photographs. Footnotes. Pp. 191. ISBN 978-1-920143-94-7

This is a biography of the short, but eventful, life of RAF Flight Lieutenant Ron Selley. He grew up in South Africa, became interested in flying, and joined the RAF just before World War II. Arriving in England just as the Dunkirk evacuation and Battle of Britain were starting, Selley was assigned to Coastal Command, whose mission was to guard shipping and provide anti-submarine protection for British convoys. This mission has not been addressed



as much in the literature as the more glamorous efforts of “The Few” in Fighter Command during the Battle of Britain. So there’s some historical potential there. The book was written by a nephew (with a co-author) whose intention was to document the exploits of a family hero. Biographies, however, need to be more than just a recounting of the subject’s timeline. They need to put the individual’s life in context within the times he lived. For compelling biographies, the subject either had an impact on the times or vice versa. In this area, this account leaves the reader a bit wanting.

Selley’s story is told through a series of letters home and squadron operations-book entries. While there’s value for air warfare historians, the approach here is a bit overdone. Personal letters give a feel for what life was like in the early war years for a young South African pilot. His letters show a perceived prejudice against awarding medals to “colonial” pilots. He also didn’t pay much attention to the idea that “loose lips sink ships.” Many letters contain comments along the lines of, “[I did this today]. Don’t say anything to anyone about that. No one is supposed to know what we [do].” So much for security awareness. Selley eventually flew to the point of exhaustion and was relieved a few months before his untimely death in an air accident.

The biography provides some insight into the development of Coastal Command’s mission, its early challenges, and the suitability of its aircraft. It does not adequately describe Selley’s impact on his small corner of the war and leaves too many questions. For example, as a respected pilot in Coastal Command, did he help develop convoy protection or anti-submarine tactics? What was his contribution to the developing mission? It is not adequate to merely declare that he was a “good pilot.” He ultimately suffered from exhaustion due to insufficient aircraft and pilots and was pulled from operational flying. He likely had what is known today as post-traumatic stress syndrome. However, few details are provided on his decline, treatment, or recovery.

The structure of the book is also distracting. Much of the story is told by stringing letters and operations-book entries together to paint a picture of Selley’s environment. This works, however, only if there’s sufficient accompanying narrative to let the reader know the significance of the entries. Personal letters often have too many references to unknown subjects. Stringing one unamplified letter or operations entry after another is not coherent narrative. One chapter, in fact, begins with 12 straight

entries from the squadron operations book with no context provided.

Further, there is a significant amount of discussion on the history of South Africa as background. South African history and geography are not terribly familiar subjects to the average aviation enthusiast. A map or two to provide enlightenment on the Boer War or show where Zululand is, for instance, would have been useful. A map depicting Selley’s wartime area of operations would also have greatly enhanced the description of his missions.

While this book attempts to document the noble story of a courageous pilot who lost his life in a great cause, the reader is left with too many questions. With only 191 pages, there is room to include the additional information that could have provided more relevance to Selley’s life.

*Lt. Col. Paul Jacobs, USAF (Ret.), National Air and Space Museum Docent*



**Japanese Fighters in Defense of the Homeland, 1941-1944, Vol. I.** By Leszek A. Wielicko. Lublin, Poland: Kagero, 2014. Map. Tables. Illustrations. Photographs. Notes. Appendices. Bibliography. Pp. 82. \$15.04 paperback ISBN: 978-83-64596-06-3

As one with a keen interest in B-29 operations and the air war over the Japanese Home Islands, I looked forward to reading this book when it was offered by the publisher. Having now read it, my reactions to it are mixed.

The story is certainly an important piece of history. The Japanese military leadership had two primary concerns about air defense before the war in the Pacific got underway. There was a possible threat to the homeland from Russian bombers out of the Kamchatka Peninsula. That, obviously, never materialized. The other was the U.S. Pacific Fleet. In 1945, that did materialize. But the Japanese completely missed the third threat—long-range bombing by American land-based aircraft. In the end, this is the one that effectively ended their dreams of empire.

The Army was put in charge of overall air defense efforts before the war started. They had an organization and some assets, but there was no question that air defense at home was subordinate to war operations abroad. The Doolittle Raid of April 18, 1942, was certainly a wake-up call for the high command. Both fighter and ground anti-aircraft defenses proved to be totally inadequate. Major changes had to be made.

Wieliczko has done an excellent job of researching the organization, units, and equipment charged with air defense, and he shows how the establishment was constantly changing throughout the war. One theme that comes across strongly is that, no matter what was done at home, it was quickly undermined by the need to move units overseas—especially after the U.S. went on the offensive and the tide of conquests turned against the Japanese.

And then the B-29s showed up starting in June 1944. While initial operational results from Chinese bases were not good, the capture of the Marianas and improvements in logistics, tactics, and experience substantively changed the picture. Japan never did manage to mount a major defense such as *Luftwaffe* aircraft and flak batteries had made against U.S. and British bombers in Europe. Vol. II will follow and is supposed to finish the story of homeland defense in 1945—the seven-month period when B-29 operations really got into full swing. I am looking forward to reading that volume—with some trepidation.

Why the mixed reaction to the book? No question: it is full of good information. However, the presentation is the problem. Japanese is difficult to pronounce, and the terms are confusing. Wieliczko uses it throughout: military ranks and organizations are invariably given by their Japanese term. Writing “11th Flying Division” instead of “11th *Hikoshidan*” would make it much easier for the English reader to comprehend and maintain the flow of thought. *Sentai*, *Chutai*, *Boei Soshireibu*, and dozens of other terms abound in the text. But the most annoying practice is that of naming the commander of every unit mentioned—every time, and with the Japanese rank! To say that reading and comprehending the chronological events is ponderous is an understatement.

All that being said, for the reader interested in how Japan attempted to defend the Home Islands against air attack, this (and, hopefully, the next volume as well) is the book to have. Just plan to spend some time wading through to extract the information.

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



**The Millionaires’ Squadron: The Remarkable Story of 601 Squadron and the Flying Sword.** By Tom Moulson. South Yorkshire, England: Pen & Sword Books Ltd, 2014. Photographs.

Bibliography. Index. Pp. xi, 237. \$44.95. ISBN: 978-1-78346-339-8

Several years after the Royal Air Force became an independent service in 1918, the head of the RAF proposed creation of civilian units to complement regular, full-time forces. There would be two elements: the Special Reserve Air Force and the Auxiliary (or Territorial) Air Force. This book is the history of one Auxiliary squadrons, 601 Squadron (County of London). Although the parallels are not precise, the organization and mission of the Auxiliary were similar to those of the U.S. Air National Guard.

When 601 was officially formed in October 1925, its founder and first commander was Lord Grosvenor. Not one to delegate significant responsibilities, he personally selected each of the pilots for the squadron. While no official qualification standards were published, Grosvenor clearly had three criteria for squadron membership: 1) given the primitive state of aviation training and non-availability of centralized flying schools for the Auxiliary, it was helpful if an applicant already knew how to fly; 2) wealth played a role in the selection process; and 3) most importantly, in the class-conscious Britain of the 1920s, the individual had to be a member of the right social class. These seemed to be based on the premise that only an officer could fly an airplane, and only a "gentleman" could be an officer. A newspaper writer dubbed the group the "Millionaires' Squadron."

In addition to serving in 601 Squadron in the 1950s, Tom Moulson conducted extensive research into the squadron's traditions and operational records, which makes him well qualified to write this unit's history. He wrote the first version 50 years ago in *The Flying Sword: The Story of 601 Squadron* and has made good use of the wealth of new information that has come to light since then to produce a more robust story.

Squadron members were avid students of flight, studying evolving trends in aviation technology and tactics and diligently honing their flying skills. But in the years before World War II, they participated in hijinks, pranks, and stunts, sometimes to the dismay of higher headquarters. The squadron prided itself on its somewhat freewheeling approach to good order and discipline.

When the war began, 601 and other Auxiliary squadrons became part of Britain's full-time forces, operationally indistinguishable from the active RAF. Thus, in the World War II chapters the book becomes the story of the RAF itself, told through the lens of 601 Squadron. It

served with distinction in the Battle of Britain, the Siege of Malta, North Africa, and Northern Italy. Moulson well describes these combat operations. For a reader unfamiliar with the RAF in World War II, the book can stand alone as a vivid telling of its story.

None of the unit's aviators was more interesting than Roger Bushell. Assigned to 601 at the start of the war, he was soon given command of another squadron. During the evacuation of Dunkirk he was shot down and captured by Germans, escaped, and was recaptured no fewer than three times. His most famous escape attempt was the subject of a book and movie, *The Great Escape*, in which "Big X" was portrayed by Richard Attenborough. Moulson's telling of this story, unembellished by movie theatrics, is one of the highlights of the book.

Post-war budget cutbacks and shifting defense policy led to disbandment of the Auxiliary squadrons in March 1957. Moulson presents an honest assessment of this unpopular decision and clearly laments inactivation of a unit with a distinguished record and rich history. But at the same time he acknowledges it was difficult to maintain flying proficiency in the increasingly high-tech aircraft of the late 1950s and concludes the requisite skills could not be maintained by a force of part-time pilots.

Moulson's primary objective is to tell the story of 601 Squadron, and he accomplishes this in fine fashion. He is an excellent storyteller who gives the reader an appreciation of what life was like in the Millionaires' Squadron and an understanding of the context in which the Auxiliaries were created, operated, and eventually disbanded. It's an interesting story told well.

*Lt. Col. Joseph Romito, USA (Ret.), Docent, NASM's Udvar-Hazy and National Mall Facilities*



**Guardian Angel: Life and Death Adventures with Pararescue, the World's Most Powerful Commando Rescue Force.** By SMSgt William F. Sine, USAF (Ret). Oxford: Casemate Publishers, 2012. Photographs. Pp. 240. \$20 ISBN: 978-1-61200251-4

Guardian Angel is the U.S. Air Force's premiere and unique human weapon system dedicated to personnel recovery (PR). This weapon system consists of combat rescue officers (CRO); pararescuemen (PJ); survival, evasion, resistance, and escape (SERE) specialists; and the equip-

ment these individuals use to execute PR for the USAF and the Department of Defense.

In *Guardian Angel*, William Sine provides a wonderful adventure in the true-to-life compilation of his own personal stories and those of other American heroes. Sine takes the reader through decades of Air Force pararescue service starting in the post-Vietnam War era, through the tragedy of Kohbar Towers, to Operations Enduring Freedom and Iraqi Freedom. Numerous anecdotal stories provide insight into the ingenuity, courageousness, and selfless dedication demanded by, and showcased within, the U.S. Air Force pararescue career field. Readers are able to understand the rigorous selection process that all young CROs and PJs must endure in the selection course, also known as indoctrination. Soon Sine has the reader following him on breathtaking high-altitude low-opening (HALO) jumps into the open ocean, and rescuing downed airmen from triple-canopy jungles.

The reader also endures the tragic effects, the chaos, the confusion, and, ultimately, the heroic efforts of the young PJs and other U.S. service members during the June 1996 terrorist attack on Kohbar Towers in Saudi Arabia. The attack, orchestrated by Hezbollah and backed by Iran, left nineteen U.S. military members dead and 498 others wounded. If not for the efforts of the PJs stationed there that day, the toll would have much higher for the U.S. to pay. Sine also paints a picture of what our USAF PJs are dealing with today. The pain of the physical and, sometimes, mental injuries that are much less noticeable but just as real, are a reminder of the price our service members pay for our freedom and for our safety. He reminds us that these are flesh-and-blood men; while often super heroic, they are, unfortunately, not super heroes but mere mortals.

Beyond telling a great story, Sine is able to explain complex equipment and technical procedures in a simplified manner allowing readers to fully understand and appreciate the action. This is no easy task when dealing with the rescue skill-set, as it is tremendously specialized and complex with its own jargon. Yet Sine produces an easily followed book appropriate for all readers. This book should be on anyone's reading list that is interested in the Air Force rescue mission or Air Force Special Operations as a military career.

*Lt. Col. John D. McElroy, USAF, Joint Personnel Recovery Agency*





## Books to Review

Crosley—They Gave Me a Seafire. 279p.

Dando-Collins—Operation Chowhound: The Most Risky, Most Glorious US Bomber Mission of WWII. 248p.

Homan & Reilly—Black Knights: The Story of the Tuskegee Airmen. 336p.

Hunt—Melvin Laird and Nixon's Quest for a Post-Vietnam Foreign Policy 1969-1973. 31p.

March—Wings of the Fleet: 50 Years of the Canadian Sea King. 147p.

Popravak—The Oregon Air National Guard. 127p. Publisher

### PROSPECTIVE REVIEWERS

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

Col. Scott A. Willey, USAF (Ret.)

3704 Brices Ford Ct.

Fairfax, VA 22033

Tel. (703) 620-4139

e-mail: [scottlin.willey@gmail.com](mailto:scottlin.willey@gmail.com)

## History Mystery Answer

On August 17, 1942, the 97th Bomb Group (shown flying in formation at right) conducted the first American strategic bombing mission over Europe when twelve B-17 Flying Fortresses bombed the Rouen-Sotteville Railyard in France. Paul Tibbets Jr. was the pilot who flew both on the Rouen mission and dropped the first atomic bomb on Hiroshima, Japan. For the mission to Rouen, then Major Tibbets flew a B-17E (Serial number 41-2578) named Butcher Shop. For the mission to Hiroshima, Colonel Tibbets flew a B-29 Superfortress (Serial number 44-86292) named Enola Gay. Bombardier Thomas Ferebee and Navigator Theodore "Dutch" Van Kirk flew with Paul Tibbets in Europe as part of the crew of the B-17 Red Gremlin and flew with him aboard the Enola Gay.

To learn more about the dropping of the first atomic bombs and to see more images, visit: <http://www.afhra.af.mil/documents/index.asp> and <http://www.afhso.af.mil/afhistory/factsheets/factsheet.asp?id=15251>

To view the Roger Freeman collection of 15,000+ images from the European air war, which was the source for some of these official USAAF photos and to learn more about the air war via an interactive archive, visit the American Air Museum's website at <http://www.americanairmuseum.com/what-is-the-roger-freeman-collection/>



# Coming Up



Compiled by  
George W. Cully

#### July 5-10, 2015

The **International Organization of Women Pilots**, better known as the **Ninety-Nines**, will hold its annual meeting at the Sheraton Munchen Arabella Park Hotel in Munich, Germany. For further details, visit the Organization website at [www.ninety-nines.org/index.cfm/about\\_the\\_organization.htm](http://www.ninety-nines.org/index.cfm/about_the_organization.htm).

#### July 6-9, 2015

The **American Institute for Aeronautics and Astronautics** will host its 20th annual International Space Planes and Hypersonic Systems and Technologies Conference at the Strathclyde University Technology & Innovation Center in Glasgow, Scotland. For more details, see the Institute's website at [www.aiaa.org/hypersonics2015/](http://www.aiaa.org/hypersonics2015/).

#### August 13-16, 2015

The **Mars Society** will host its 18th annual convention in the Edward J. Pryzbyla Center on the campus of the Catholic University of America in Washington, DC. For registration and other information, visit the Society's website at <http://www.marssociety.org/home>.

#### August 16-21, 2015

The **International Committee for the History of Technology** will host its 42nd annual Symposium in Tel Aviv, Israel. The theme of this year's gathering is "The History of High-Technologies and Their Socio-Cultural Contexts." For further details, see the Committee's website at [www.icohtec.org/annual-meeting-2015.html](http://www.icohtec.org/annual-meeting-2015.html).

#### August 27-31, 2015

The **US Army Center of Military History** will conduct its biennial Army Historians Training Symposium at the Crowne Plaza National Airport in Crystal City, Arlington, Virginia. The symposium is open to Army and DoD historians and professional historians from other government agencies, along with members of academia and the general public. The theme of this year's symposium is "**Adapting to Peace; Preparing for War; Responding to Crisis: An Unworkable Triad?**" To participate, see the Center's website post at [www.history.army.mil/news/2015/150300a\\_AHTS.html](http://www.history.army.mil/news/2015/150300a_AHTS.html).

#### August 31-2 September 2015

The **American Institute for Aeronautics and Astronautics** will host a Space and Astronautics Forum and Exposition (AIAA SPACE 2015) at the Pasadena Convention Center in Pasadena, California. For details, see their website at [www.aiaa.org/Forums/](http://www.aiaa.org/Forums/).

#### September 10-12, 2015

The **Tailhook Association** will host its annual convention and reunion at John Ascuaga's Nugget Hotel in Sparks, Nevada. This year's theme will be "Junior Officer Tailhookers – Tip of the Spear." For more information, including reservations, visit their website at <http://tailhook.net/>.

#### September 12, 2015

The **Museum of Flight** will exhibit the results of its 2015 Spirit of Flight Photography Competition in the T. A. Wilson Great Gallery at the Museum's main facility in Seattle, Washington. This juried competition will remain on display for several months. For more information, see the Museum's website at [www.museumofflight.org/exhibit/2015-spirit-flight-photography-exhibition](http://www.museumofflight.org/exhibit/2015-spirit-flight-photography-exhibition).

#### September 14-16, 2015

The **Air Force Association** will present its annual Air & Space Conference and Technology Exposition at the National Harbor Convention Center in National Harbor, Maryland. For details, see the Association's website at [www.afa.org/afa/home](http://www.afa.org/afa/home).

#### September 17-18, 2015

The **History Department of the United States Naval Academy** will host the 2015 McMullen Naval History Symposium at the Naval Academy in Annapolis, Maryland. The symposium will put special emphasis on the centennial of World War I. For more information, see the Department's website at [www.usna.edu/History/Symposium](http://www.usna.edu/History/Symposium).

#### September 18-19, 2015

The **Prince Tamakado Japan Centre** at the University of Alberta in Edmonton, Alberta, Canada will host a conference to commemorate the 70th anniversary of the dropping of the atomic bombs on Japan. For more detailed information, see the Centre's website at [www.ptjc.ualberta.ca/en/Events.aspx](http://www.ptjc.ualberta.ca/en/Events.aspx).

#### September 19, 2015

The **National Museum of the Pacific War** will host its 2015 Symposium at the Fredericksburg Theater Company's Steve W. Shepherd Theater in Fredericksburg, Texas. This is the second part of a two-part series entitled "In Stealth We Trust: Special Operations and Their Origin in WWII." For the particulars, contact the Museum at [www.pacificwarmuseum.org/news-events/the-2015-annual-symposium/](http://www.pacificwarmuseum.org/news-events/the-2015-annual-symposium/).

#### September 23-26, 2015

The **Society of Experimental Test Pilots** will host its 59th Annual Symposium & Banquet at the Grand Californian Hotel in Anaheim, California. For more information, visit the Society's website at [www.setp.org/](http://www.setp.org/).

#### October 2, 2015

The **National Aviation Hall of Fame** will induct its 2015 honorees at a ceremony to be held in the Hall at the National Museum of the United States Air Force in Dayton, Ohio. This year's honorees include retired USAF Brig Gen Robert Cardenas, Robert Hartzell, Gene Krantz, and Abe Silverstein. For more details of the event, visit the Hall's website at [www.nationalaviation.org/](http://www.nationalaviation.org/).

#### October 8-11, 2015

The **Society for the History of Technology** will hold its annual conference in Albuquerque, New Mexico. For more details as they become available, check the Society's website at [www.historyoftechnology.org/](http://www.historyoftechnology.org/).

#### October 12-14, 2015

The **Association of the United States Army** will host its annual meeting and exhibition at the Walter E. Washington Convention Center in Washington, DC. For more information, check the Association's website at <http://ausameetings.org/2015annualmeeting/>.

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

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



# Reunions

## 11th Bombardment Group "H" Assn

Jul 8-12, 2015, Dayton, OH Contact:

Brenda Fulkerson  
26611 N. Dixie Hwy, Suite 103  
Perrysburg, OH 43551  
419-872-5000, ext. 3154  
bfulkerson@aaanwohio.com

## 91st Tactical Fighter Squadron Sep

24-27, 2015, Fairborn, OH Contact:

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

**20th Fighter Wing Assn**—all ranks,  
1930s to present **20th FW (20th FG, FBW, TFW)** Oct 14-18, 2015, New Orleans, Louisiana Contact:

Lt Col (Ret) David Skilling  
1605 Cheatham Hill Rd SW,  
Marietta, GA 30064  
770-429-9955  
abbyndavid@aol.com  
www.20fwa.org

**47th Armament & Electronics Squadron** Oct 8-12, 2015, Fairborn, OH. Contact:

Alex Sallustino  
379 Hanging Rock Rd,  
Flora, IL 62839-3610  
618-919-1792  
Alex3315@bspeedy.com

**86th Fighter-Bomber Grp Assn, WWII**  
Sep 30-Oct 4, 2015, Fort Walton Beach, FL Contact:

Dallas Lowe  
P.O. Box 313,  
Shalimar, FL 32579-0313

850-319-3047

fighterbomberpilot@yahoo.com

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

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

**98th Bomb Group/Wing** Aug 27-30, 2015, Fairborn, OH Contact:

Dennis Posey  
1780 Chasewood Park Ln,  
Marietta, GA 30066  
770-509-7734  
dennis\_posey@att.net

**160th Fighter Squadron** Aug 6-9, 2015, Dayton/Fairborn OH Contact:

Robert Mintz  
403 Tantalum  
Peachtree City, GA 30269  
901-317-7379  
rmintz1@comcast.net

**310th Bomb Wing** Sep 15-18, 2015, Fairborn, OH Contact:

Neil Ray  
9295 Shallow Creek Dr,  
Loveland, OH 45140  
513-469-1788  
nmray@zoomtown.com

**316th Tactical Airlift Wing** Sep 21-26, 2015, Fairborn, OH Contact:

Jerry Haines  
2411 South Tecumseh Rd,  
Springfield, OH 45502  
937-325-9306

gerald\_haines@yahoo.com

**366th Fighter Assn** Sep 19-24, 2017, Fairborn, OH Contact:

Paul Jacobs  
8853 Amarantha Ct  
Reynoldsburg, OH 43068  
614-866-9791  
paul@jacob.net

**463rd Airlifters Assn** Sep 21-26, 2015, Fairborn, OH Contact:

Jerry Haines  
2411 South Tecumseh Rd,  
Springfield, OH 45502  
937-325-9306  
gerald\_haines@yahoo.com

**4477th Test & Evaluation Squadron**  
Sep 8-11, 2016, Fairborn, OH Contact:

Ted Drake  
1212 Westmont Dr,  
Southlake, TX 76092  
817-251-8614  
teddrake@aol.com

**Air Force Officer Candidate School.**  
Oct 8-12, 2015. All classes (1943-1963). Montgomery, AL. Contact:

Dave Mason  
757-820-3740  
blokemason@verizon.net

### List provided by:

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

## In Memoriam

Lt. Col. Robert Hite, USAF (Ret.) one of the last surviving Doolittle Tokyo Raiders, died at his home in Nashville, Tenn., on March 29. He was 95.

Hite was the co-pilot on plane sixteen, dubbed "Bat Out of Hell," during the top secret April 18, 1942, mission to bomb Japan. The raid, led by Gen. (then colonel) Jimmy Doolittle, had little impact on the Japanese military, but significantly boosted American morale during World War II.

Hite was captured by the Japanese in China following the raid and was imprisoned in Shanghai for forty months, during which time he was held in solitary confinement, tortured, and starved until liberated on Aug. 20, 1945. He remained on active duty until Sept. 30, 1951.



During the Korean War, Hite once again returned to active duty and served overseas before he was released from duty for the second time in November 1955.

He received the Distinguished Flying Cross, Purple Heart with one Oak Leaf Cluster, and the Chinese Breast Order of Pao Ting. Hite. Along with the other seventy-nine Doolittle Raiders, he was awarded the Congressional Gold Medal, which will be presented on April 15.

Only two Doolittle Raiders are still living. They are: retired Lt. Col. Richard Cole, co-pilot of crew one, and retired SSgt. David Thatcher, engineer-gunner of crew number seven.



Test your knowledge of air power history by trying to answer this quarter's history quiz. Since the goal is to educate and not merely stump readers, you should find the multipart question, challenging but not impossible. Good Luck!

This August marks the anniversaries of two milestone events of American strategic bombing during World War II: the first American bombing mission over Europe and the first (and only) time atomic bombs were dropped in anger. In both cases, very few bombers were involved in the mission but both represented significant firsts in American airpower.

What was the target for that first American bombing mission in August 1942? This pilot flew both



the first American bombing mission in the European Theater and the first dropping of an atomic bomb? For our readers who love nose-art, what were the names of the B-17 and B-29 flown on the two missions. For the real detailed-oriented readers: while a last minute aircraft change prevented these two aviators from flying the first American bombing mission with the pilot in our second question, they flew with him on the mission to drop the first atomic bomb (the three are pictured here on Tinian in '45).

Go to page 61 to learn the answers.

## Guidelines for Contributors

We seek quality articles—based on sound scholarship, perceptive analysis, and/or firsthand experience—which are well-written and attractively illustrated. The primary criterion is that the manuscript contributes to knowledge. Articles submitted to *Air Power History* must be original contributions and not be under consideration by any other publication at the same time. If a manuscript is under consideration by another publication, the author should clearly indicate this at the time of submission. Each submission must include an abstract—a statement of the article's theme, its historical context, major subsidiary issues, and research sources. Abstracts should not be longer than one page.

Manuscripts should be double-spaced throughout, and prepared according to the *Chicago Manual of Style* (University of Chicago Press). Use civilian dates and endnotes. Because submissions are evaluated anonymously, the author's name should appear only on the title page. Authors should provide on a separate page brief biographical details, to include institutional or professional affiliation and recent publications, for inclusion in the printed article. Pages, including those containing illustrations, diagrams or tables, should be numbered consecutively. Any figures and tables must be clearly produced ready for photographic reproduction. The source should be given below the table. Endnotes should be numbered consecutively through the article with a raised numeral corresponding to the list of notes placed at the end.

Electronic submissions are preferred. Articles should be submitted via e-mail as an attachment, in Microsoft Word. Electronic photographs and graphics should be copied to a CD and mailed if they exceed 5-8 megabytes.

There is no standard length for articles, but 4,500-5,500 words is a general guide.

Manuscripts and editorial correspondence should be sent to Richard Wolf, Editor, c/o *Air Power History*, 6022 Cromwell PL. Alexandria, VA 22315, e-mail: [airpowerhistory@yahoo.com](mailto:airpowerhistory@yahoo.com).





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