

STILL FLYING: LIVING WAR MEMORY, MONUMENTS, AND WORLD WAR II  
AIRCRAFT

By

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A Thesis Submitted in Partial Fulfillment of  
the Requirements for the Degree of Master of Arts in History  
to the office of Graduate and Extended Studies of  
East Stroudsburg University of Pennsylvania

May 10, 2019

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## ABSTRACT

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### **Abstract**

As the Second World War came to an end it marked a new beginning in aviation technology that quickly made the aircraft of the United States Army Air Corps obsolete. Initially, the aircraft that once ruled the skies above Europe and the Pacific seemed destined to spend the rest of their existence in scrap heaps and junkyards. However, in the late 1950s new museums and organizations began to form with the sole mission of finding and restoring these former military aircraft to flying condition. Since that time hundreds of these organizations have been formed and have created a tight nit yet loosely affiliated, "Warbird" community. This community has been vital in preserving the history of World War Two aviation and has created a large effect on the memory of the conflict. However, prior to this thesis, scholars have overlooked the contribution that these organizations, most often called flying museums, have made to the field of memory studies. Furthermore, this thesis shows that these flying museums have also created living monuments by allowing the general public to experience these aircraft in flight.

## ACKNOWLEDGEMENTS

This project has been the culmination of years of work and countless hours of research and writing. As with any project of such a large scale there are numerous people to whom I owe a large debt of gratitude. First and foremost I have to thank my parents Craig and Janice, brother Christopher, and grandmothers Helen and Nancy for the love and support that they have provided me throughout this process. A special thank you to my father for helping to instill a love of aircraft and aviation in me from a young age. To my beautiful Fiancé Brittany, thank you for your patience and the sacrifices that you continually made to ensure that I could complete this project to best of my abilities, even as I began to put it ahead of our relationship. I will be forever grateful.

Of course this thesis would not have been possible without the numerous flying museums that have worked tirelessly to keep these aircraft from fading into history. Each museum deserves more praise and thanks than can be adequately described in a paragraph. However, I would like to highlight the Commemorative Air Force, Military Aviation Museum, and Mid-Atlantic Air Museum. Each of these organizations has become incredibly influential in this field. Moreover, I must extend special thanks to Moreno Aquari, Stan Musik, and Mike Spalding for spending a considerable amount of time with me while I researched this project. Without the three of you this thesis would not be the same.

Lastly, I must thank each member of the East Stroudsburg University History Department. Each and every one of you has made a lasting impression on a young historian who will carry your teachings throughout the rest of my career. To Dr. Michael P. Gray, my advisor, mentor, and thesis chair, your work and teachings have truly been transformative. You have taken a rough around the edges undergraduate student and turned him into a capable historian. You helped me set the bar high myself and helped make sure I would not achieve those goals but surpass them. Thank you.

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## Introduction

As Dana Andrews' character Fred Derry walked through an aircraft graveyard in the 1946 film *The Best Years of Our Lives* he saw the dismembered remains of hundreds of B-17 Flying Fortresses, just like he had flown in World War II. As the scene progresses a foreman at the yard explains to Derry that the aircraft were no longer needed and were being scrapped for parts and sheet metal to make siding for homes. After the war had ended, many aircraft were scrapped much in the same way as Fred Derry's B-17. Within fifteen years of the end of the Second World War the majority of aircraft from the war had been stripped of parts, instruments, and armaments and were left to rot in junkyards. However, since the late 1950s several organizations have come into existence with the sole purpose of restoring, maintaining, and flying the aircraft from that conflict.<sup>1</sup> These organizations and museums specialize in memory and memorialization of World War Two aircraft but have also created a new type of commemoration, living

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<sup>1</sup> William Wyler, *The Best Years of Our Lives*, RKO Radio Pictures, 1946; "Commemorative History and Mission," Commemorative Air Force Headquarters, accessed July 18, 2017, <https://commemorativeairforce.org/aboutus/history>.

memory, and have also created a community for Warbirds.<sup>2</sup> This thesis takes the stance that living memory is when an object, such as an aircraft, can perform its original function and commemorates a person, place, or event. Aircraft as living monuments can have a powerful effect on those who experience them at various airshows and demonstrations. Furthermore, the living monuments can also participate in reenactments, which serve as another form of living memory. This work will explore why living memory and living monuments are important in the scope of World War Two aviation and will argue that these flying aircraft are a more powerful experience than simply viewing a static monument.

While the field of memory studies is one that is ever growing across all areas of history, military aviation and its subsequent memory has yet to see much in the way of scholarly studies. As the scholarship of World War Two memory has grown and is beginning to focus on specific battles of the war, such as Michael Dolski's *D-Day Remembered: The Normandy Landings in American Collective Memory*, it is time for historians to begin looking at other important aspects of the war that do not have a given site or memorial. This work will seek to lay a foundation for future scholars who wish to further war memory scholarship surrounding aviation.

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<sup>2</sup> Commemorative Air Force Headquarters, accessed July 18, 2017, <https://commemorativeairforce.org/aboutus/history>; Moreno Aquari, Interview by Author, Reading, PA, June 4, 2016. Warbirds is term used for historic, formerly military, aircraft. The warbird community is extensive and includes museums, individuals who own aircraft, various publications, and enthusiasts. While the warbird community does not have any type of governing body, they are largely a tight knit and in professionally interact with one another in various ways.



To prove that the remaining flying aircraft of the Second World War are truly living monuments, much research has been conducted about the aircraft and the organizations that keep them in flying condition. Primary sources include interviews and correspondences with organizations such as the Commemorative Air Force, the Fighter Factory/ Military Aviation Museum, Mid-Atlantic Air Museum, and Fagan Fighters. Moreover, sources directly from these museums and organizations, such as press releases, videos, images, and websites, are used and show that these aircraft are living monuments remain in flying condition and why it is important that they remain in that condition.

Social media has also acted as an important source for this work. While it may seem unconventional at first it is hard to deny that social media has an impact on many facets of life, and history is no exception. Museums that operate these aircraft use social media in a variety ways to stay in contact with, and educate the general public. These organizations constantly post original content that includes, interviews with World War Two veterans, airshow updates, airshow video, maintenance updates, and restoration updates. These updates and videos allow for people to engage with the museum on a personal level and helps to keep organizations from being forgotten.

Although there are several organizations and museums all over the United States that have dedicated themselves to the preservation of World War Two aircraft, this thesis will only deal with a small number of them who have the most impact on the field of memory. Arguably the two most important organizations are the Commemorative Air Force and the Fighter Factory/ Military Aviation Museum.

The Commemorative Air Force or CAF began in 1957 when a former service pilot, Lloyd Nolen purchased a surplus World War Two P-51D Mustang.<sup>3</sup> By the end of the decade Nolen and his partners had added two other aircraft to their collection but more importantly embarked on a mission to, “save an example of every aircraft that flew during World War II.”<sup>4</sup> Since the CAF’s inception, the organization has grown to have over 13,000 members and operates 165 aircraft of 60 different varieties. Furthermore, the CAF has official locations in twenty-six states and in four foreign countries. Each of these wings or squadrons, as they are referenced by the CAF, is responsible for maintaining and flying the aircraft, which they are assigned.<sup>5</sup>

Although the Military Aviation Museum is significantly newer than the CAF, their dedication to restoring and flying World War Two aircraft has been nothing short of impactful. Like the Commemorative Air Force’s mission the Military aviation museum looks to educate the public about the importance of aviation in the Second World War and why it is important that these aircraft remain in flying condition. The museum operates one of the largest collections of historic aircraft in the world including twenty-one fighter aircraft, four bombers, and twelve trainer aircraft among others. What makes the Military Aviation Museum’s collection notable is that they operate the only

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<sup>3</sup> “Commemorative History and Mission,” Commemorative Air Force Headquarters, accessed July 18, 2017, <https://commemorativeairforce.org/aboutus/history>.

<sup>4</sup> Commemorative Air Force Headquarters, accessed July 18, 2017, <https://commemorativeairforce.org/aboutus/history>.

<sup>5</sup> Commemorative Air Force Headquarters, accessed July 18, 2017, <https://commemorativeairforce.org/aboutus/history>.

surviving De Havilland Mosquito, as well as a large number of both German and Russian aircraft.<sup>6</sup>

Both the Commemorative Air Force and the Military Aviation Museum have dedicated themselves to living monuments and continue to work to restore and fly more aircraft than what they currently own. While these organizations are important they are also only two of the many groups that are dedicated to this type of preservation, however, for the purpose of this thesis these museums will be vital to showing the importance and power of living memory. Furthermore, some other, smaller museums will also be mentioned throughout this thesis as they also have a great impact on living monuments and living memory.

One such small museum that has become noteworthy is the Mid-Atlantic Air Museum, located at the Reading Regional Airport in Reading, Pennsylvania. Every year since 1990, during the first weekend of June, the museum hosts “World War Two Weekend.” This event is a large-scale airshow that features flying aircraft from other museums and organizations all over the country. Continuously, the weekend long salute to war memory also includes reenactments, interviews with Army Air Corps veterans, and a chance for the public to experience World War Two aircraft first hand. This weekend in many ways is also the ultimate gathering of World War Two aircraft, as it is not interrupted with aircraft from other eras. Also, throughout the airshow the multiple museums in attendance work in conjunction to fly various formations and maneuvers to help create an authentic World War Two aviation atmosphere. While the

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<sup>6</sup> “Military Aviation Museum,” Military Aviation Museum, accessed May 13, 2017, <http://www.militaryaviationmuseum.org/about.html>

Mid-Atlantic Air Museum's fleet of aircraft is small their impact on living memory is rather profound.<sup>7</sup>

The first chapter of this work will introduce the reader to some of the most important and well known aircraft of the Second World War and will show how and why these select aircraft are important as living monuments. Furthermore, the chapter will delve into the various people and groups that the aircraft memorialize. Lastly, the first chapter will argue that the aircraft that have been restored to flying condition are monuments to a larger community of aircraft in meaning that they are a small representation of the hundreds, if not thousands, of other planes of their kind that are no longer in existence or extinct.

Chapter two will explore the importance and impact that restoration has on historic aircraft and the factors that lead up to a restoration being deemed worthwhile. Furthermore, chapter two will argue that the replication of some World War Two aircraft has been important and have saved various aircraft, mostly axis, from being lost altogether. Finally, this chapter will study how modern technology such as GPS and improved mechanics play a part in keeping the aircraft flying.

The third and final chapter of work will analyze how airshows and gatherings impact the warbird and memory community. Airshows, in many cases, draw large crowds and have become annual events that can attract people from all over the country. This chapter will show how the public, veterans, and scholars are impacted by

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<sup>7</sup> "Mission Statement," Mid-Atlantic Air Museum, accessed May 15, 2016, <http://www.maam.org/mission.htm>.

living monuments and will show how various museums in attendance work together to make airshows as impactful as possible.

This work seeks to serve a greater purpose in that it will be the first scholarly work that studies memory and military aviation. Furthermore, it is the hope of the author that the term and idea of a living monument is one that future generations of historians can expand upon and study in great detail. Overall, this thesis will prove that the aircraft of World War Two are important living monuments to the past, that help both scholars, and the public alike, gain a truer understanding of the importance and impact of aircraft during the war.

## Chapter 1: The Birth of Flying Museums

Since the end of World War Two, aircraft from that conflict have become engrained in popular culture in the form of movies, television shows, and even video games. These aircraft have long been remembered as “magnificent birds of steel” that occupied the skies above Europe and the South Pacific. Many of these airplanes have survived and are still in flight today, memorializing not only the planes themselves, but all those who were involved with their wartime service. Each year hundreds of airshows take place all over the United States, in which many prominently feature historic aircraft from the Second World War. These shows not only memorialize the historic aircraft they feature, but they also give the public a personal and interactive experience with living monuments and pieces of commemorative technology.<sup>8</sup>

This chapter will argue that the remaining flying aircraft from the Second World War are living monuments that have a profound influence on memory and memorialization. This effect is carried over from the importance of aviation during the war and how the planes have been remembered from that time. Furthermore, this

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<sup>8</sup> “Airshow Calendar,” Miliavia Airshow Calendar, accessed October 2, 2017, [https://www.milavia.net/airshows/calendar/showdates-2017-north\\_america-US.html](https://www.milavia.net/airshows/calendar/showdates-2017-north_america-US.html).

chapter will show how these airplanes have become monuments, what or whom an aircraft represents, how paint schemes and markings effect the memory of specific aircraft, and how aircraft act as monuments to a larger community of warbirds.<sup>9</sup>

In order to understand memory of Second World War aviation, one must first understand the role that airpower played throughout the war as a whole. According to Brigadier General J. Kemp McLaughlin, air power in the European theatre was one of the greatest American contributions to the war effort.<sup>10</sup> This, in part, was due to the Eighth Air Force. While, the Eighth Air Force became synonymous with air power by the end of war, they struggled to be influential to the war effort when they first arrived overseas.<sup>11</sup>

The Eight Air Force was comprised of bomber groups flying the B-17 Flying Fortress, a low-wing, four engine aircraft, the B-24 Liberator, a mid-wing, dual rudder, aircraft, and fighter groups which rotated planes throughout the war. Based out of England and North Africa in 1942, their mission was to bomb strategic Axis targets behind enemy lines in an attempt to cripple the German war machine. The Air Force's original strategy for these bombing campaigns was simplistic. Allied air command believed the B-17 and the B-24 were armed heavily enough to defend themselves against German interceptors, like the Messerschmitt Me-109, and could simply fly into

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<sup>9</sup> Warbird is a term that describes a historic aircraft that originated in the military. Although warbird can refer to any aircraft used in military service, the term is also used interchangeably with World War II aircraft.

<sup>10</sup> J. Kemp McLaughlin, *The Mighty Eighth in WWII: A Memoir* (Lexington: University Press of Kentucky, 2000), 194-195.

<sup>11</sup> McLaughlin, *The Mighty Eighth*, 4-6, 59, 195; C.L. Sulzberger, *The American Heritage Picture History of World War II* (New York: American Heritage/Bonanza Books, 1966), 423, 427; Roger Freeman, "B-17 Flying Fortress," in *The Great Book of World War II Airplanes* (New York, New York: Wing and Anchor Press, 1984), 117, 120.

enemy territory, drop their bombs, and return to base. This however was far from true, and the strategy resulted in heavy casualties in the forms of both personnel and aircraft. Furthermore, bombing raids were conducted during the day, resulting in more casualties and heavy criticism.<sup>12</sup>

In June of 1943, the first correction to the Eighth Air Force's strategy was to provide fighter aircraft as escorts for the bombers. Originally using the Republic P-47 Thunderbolt, it was hoped that they would provide a better defense for the B-17s and B-24s. Although the Thunderbolts were capable fighter aircraft, they could not escort the bombers all the way to Germany and back to England. Once the Luftwaffe had realized this, they withheld their defenses until the P-47s had to abandon the bombers. This again caused the Eighth Air Force to suffer mass casualties and again called into question the strategy of daylight bombing raids.<sup>13</sup> Consequently, the high casualty rate showed that the Air Force was in desperate need of a long-range escort fighter. Throughout the rest of 1943, the Eighth Air Force experimented with the Lockheed P-38 Lightning, the British Supermarine Spitfire, and eventually in late 1943 the North American P-51 B and C Mustang.<sup>14</sup>

While many of the fighter aircraft that the Eighth Air Force experimented with, as escorts were not suited for that role, each of them played a vital part in gaining air superiority and winning World War Two. The P-47 Thunderbolt was a favorite among

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<sup>12</sup> McLaughlin, *The Mighty Eighth*, 5-6, 195; Sulzberger, *World War II*, 423, 430-431, 434; Freeman, "B-17 Flying Fortress," in *World War II Airplanes*, 125-127.

<sup>13</sup> McLaughlin, *The Mighty Eighth*, 59; Sulzberger, *World War II*, 423; Freeman, "B-17 Flying Fortress," in *World War II Airplanes*, 127.

<sup>14</sup> McLaughlin, *The Mighty Eighth*, 59, Sulzberger, *World War II*, 430-431, 440-441.



pilots. Nicknamed the “Jug,” the P-47 thrived not only as a fighter aircraft, but became most well known for its ability to provide close air support or attack ground targets such as trains, tanks, and supply lines. The British Spitfire rose to legendary status during the Battle of Britain in which the Royal Air Force defended the country against months of Luftwaffe raids in 1940.<sup>15</sup> During the battle, the Spitfires made such an impression on the German forces that ace, Adolf Galland, told Luftwaffe commander, Herman Göring that to win the battle he needed, “... [an] outfit of Spitfires for my squadron.”<sup>16</sup>

Although the Thunderbolt and Spitfire had their successes, both fell short flying escort missions because they did not have the same range as the bombers. However, the Lockheed P-38 Lightning, a twin engine, fork-tailed aircraft, had a somewhat increased range and allowed the Eighth Air Force to yet again revise its strategy, this time with some success. This strategy involved the P-38 Lightnings, based closer to Germany, accompanying the bombers where the P-47s and Spitfires had to turn around. The Lightning squadrons then protected the bombers over Germany and guided them partially back to England, where another escort of P-47s or Spitfires awaited them.

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<sup>15</sup> McLaughlin, *The Mighty Eighth*, 59; Robert V. Brulle, *Angels Zero: P-47 Close Air Support in Europe* (Smithsonian Institute Press: Washington D.C., 2000), xiii, 47-51, 89; Phillip Kaplan, *Fighter Aces of the RAF in the Battle of Britain*, South Yorkshire, (Pen & Sword books, 2007), 5; Taylor Downing and Andrew Johnston, “The Spitfire Legend,” *History Today* Vol. 50, Issue 9 (September 2000), 27.

<sup>16</sup> Adolf Galland, *The First and the Last: The Rise and Fall of the German Fighter Forces 1938-1945* (Holt: New York, 1954), 37.

While this strategy was successful, it was complex and required large amount men to keep it successful.<sup>17</sup>

What the Eighth Air Force needed was an escort that could fly the bombers all the way Germany and return them safely to base. This aircraft came in the form of the P-51 Mustang. The first Mustangs to see combat overseas suffered from a myriad of issues including poor gun mounting, inability to perform at altitude, and poor visibility. By the end of 1943 many of these issues had been remedied by the invention of the P-51B and C Mustang, however the issue of visibility remained. In 1944 a bubble canopy was introduced to the newest Mustang model to increase visibility, this became the most well-known Mustang, the P-51D. What made the Mustang a valuable asset in escorting bombers was that it could be equipped with an external fuel tank under each wing, which could be dropped when empty. These were originally featured on the B and C models, allowing for Mustang escorts to follow bombers during the entire duration of their missions. The significance of the P-51D Mustang was so great that by wars end, all but fifteen Unites States Army Air Force fighter groups were equipped with Mustangs as their primary aircraft. Their impact as an escort was so great, two fighter groups of P-51Ds were sent to Iwo Jima to fly escort missions for B-29 Superfortresses.<sup>18</sup>

With a proper fighter escort, the bombing missions of the Eighth Air Force helped the allies win air superiority in Europe. The addition of the P-51D Mustang ultimately made daytime long-range bombing operations more feasible and successful.

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<sup>17</sup> McLaughlin, *The Mighty Eighth*, 59; Joe Christy, *P-38 Lightening at War* (Scriber: New York, 1978), 102-103.

<sup>18</sup> McLaughlin, *The Mighty Eighth*, 59, 151; M. J. Hardy, *The North American Mustang: The Story of the Perfect Pursuit Plane* (Arco Publishing Co: New York, 1979), 12, 15, 18, 25, 34, 45-49.

In 1944 the Air Force began a direct attack on the Luftwaffe by engaging them in the sky, with Mustangs and other fighters. Continuously, they bombed airfields and the German aircraft industry. Slowly but effectively, the Eighth Air Force helped dismantled the Luftwaffe both in the air and on the ground and ultimately helped bring the war in Europe to an end.<sup>19</sup>

Air power in the European theatre of operations during World War Two relied heavily on the Army Air Force. Air power in the Pacific however, strongly relied on the Navy and Marines, although the Army Air Force was also present. Like the air war in Europe, aerial combat in the Pacific started poorly for American Naval and Marine aviators. After the attack on Pearl Harbor in December of 1941, most aircraft carriers and Marine ground based fighter groups were equipped with the Grumman F4F Wildcat. Designed in the 1930s, the Wildcat was a reliable aircraft, but was not nearly as fast or nimble as its main adversary the Japanese Zero. To correct this, Grumman set out to create a new aircraft carrier based plane that was specifically designed to shoot down Zeros. This aircraft, the F6F Hellcat, made an immediate impact in skirmishes against the Zero. In its first appearance in combat, the Hellcat shot down twenty-one Japanese aircraft while losing only two of their own.<sup>20</sup>

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<sup>19</sup> McLaughlin, *The Mighty Eighth*, 150-151, 194-195; Hardy, *The North American Mustang*, 34, 38-39; Galland, *The First and the Last*, 360.

<sup>20</sup> David A. Anderton, "Hellcat," in *The Great Book of World War II Airplanes* (New York, New York: Wing and Anchor Press, 1984), 159-161, 182-183. Robert C. Mikesh, "Zero Fighter," in *The Great Book of World War II Airplanes* (New York, New York: Wing and Anchor Press, 1984), 591.

Like the Hellcat, the F4U Corsair was another Pacific theatre fighter that made a large impact on air superiority. Although the Corsair was not originally an ideal aircraft to be based on an aircraft carrier, in 1942, because of a tendency to bounce on landing, mechanical modifications quickly corrected the issue by 1943. The Corsair was a favorite among Marine and Naval pilots. The aircraft's large radial engine and aerodynamic design, made it ideal for multiple types of combat, both dogfighting and close air support. Also, the Marines found that the Corsair was well suited for various bombing missions that did not require large bomber aircraft like the B-17.<sup>21</sup>

While the air war in Europe relied heavily on large scale bombing missions, the war in the Pacific relied more on aerial naval battles in which dive bombers and torpedo planes were utilized by the Americans and Japanese to attack opposing aircraft carriers and battle ships. While the Army Air Corps in the Pacific did execute bombing missions with large aircraft like the B-17, the navy and marines used smaller bombers such as the B-25 Mitchell, torpedo planes like the Grumman Avenger, and dive bombers like the Curtis Helldiver and the Douglas Dauntless. Each of these aircraft were vital to the Americans winning the war in the Pacific. The B-25 Mitchell was twin-engine bomber that could be launched from aircraft carriers to bomb inland targets and was used during the Doolittle Raid to bomb Japan. Aircraft like the Avenger, Helldiver, and

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<sup>21</sup> Frederick A. Johnsen, "F4U Corsair," in *The Great Book of World War II Airplanes* (New York: New York: Wing and Anchor Press, 1984), 240-241, 243.

Dauntless were all instrumental in attacking and helping destroy the Japanese naval fleet.<sup>22</sup>

Air superiority was important to the allies in both theatres of operation during World War Two, the strategies in Europe and the Pacific greatly differed but remain impactful as to how aircraft are remembered. Many of the aircraft from this time period have become legendary and are surrounded by stories of those who flew them and those who they directly impacted. Moreover, in the years following the war these aircraft have become iconic symbols of victory in World War Two.<sup>23</sup>

Each aircraft has a unique memory regarding their service throughout the war, however, it should be noted that most aircraft are remembered for what they did well. A prime example of this is the P-47 Thunderbolt. The Thunderbolt is best remembered as a strong and rugged fighter that found its niche attacking ground targets and providing close air support. However, it is not often thought of as being used as an escort for the heavy bombers because of how poorly it performed in that role. The memory of the Thunderbolt shows how aircraft are remembered based on triumphs. In part this is because the first people to remember these aircraft were those who flew them with great success and tend to fall into a nostalgia trap when reminiscing about these planes. Furthermore, memory is often tied to emotion and can elicit an emotional

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<sup>22</sup> Anderton, "Hellcat" in *World War II Airplanes*, 182-1984.

<sup>23</sup> McLaughlin, *The Mighty Eighth*, 195; Anderton, "Hellcat" in *World War II Airplanes*, 159-161.

reaction. The achievements and popularity of an aircraft have also partially dictated which planes are considered desirable to be restored to flying condition.<sup>24</sup>

Following the end of the war in Europe, some pilots who had returned home were asked to participate in various airshows. These demonstrations were used to show the American public and government officials what the Air Force had done overseas. Military airshows were organized in cities such as Detroit, and featured squadrons of some of the Army Air Forces most important aircraft, including the P-51 Mustang, P-47 Thunderbolt, B-17 Flying Fortress, and C-47 Skytrain. These shows featured combat demonstrations from the aircraft. While airshows in cities were spectacles for public audiences, more elaborate demonstrations were set up for government officials on army bases.<sup>25</sup> As a B-17 pilot who had returned home from Europe, J. Kemp McLaughlin was asked to participate in one of these elaborate displays. He recalled that, "A mock airport, complete with wooden airplanes was our target, all in view of open bleacher seating on a nearby hillside."<sup>26</sup> During this reenactment mission, McLaughlin led a flight of B-17s, followed by other bombers, on an attack run, over the base, for the audience to observe. For authenticity, ground crews fired blanks from anti-aircraft guns during the bombers display. What the bombers had not destroyed was then strafed by P-51s and P-47s to ensure a good show.<sup>27</sup>

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<sup>24</sup> Brule, *Angels Zero*, xi, xii, xiii; Michael Dolski, *D-Day Remembered: The Normandy Landings in American Collective Memory* (Knoxville: University of Tennessee Press, 2016), xxi, 1; Moreno Aquari, Interview by Author, Reading, PA, June 4, 2016.

<sup>25</sup> McLaughlin, *The Mighty Eighth*, 190-191; Hardy, *The North American Mustang*, 51.

<sup>26</sup> McLaughlin, *The Mighty Eighth*, 191.

<sup>27</sup> McLaughlin, *The Mighty Eight*, 191.

These early airshows were more than just a victory lap for the importance of air power. It was the beginning of commemorating and monumenting the importance that these aircraft had during the actual war. However, these airshows did not last long. By 1946, thousands of aircraft, used in World War Two, were locked away into military storage. Even aircraft that were vital to allied victory, such as the *Enola Gay*, were not immune to this fate.<sup>28</sup>

While most aircraft fared poorly following the end of the Second World War, a select few were not as ill fated. Among them were the B-29 Superfortress, the P-51 Mustang, and the P-38 Lightning. Both the Mustang and a large number of Superfortress remained in military service through the Korean War. However, the Mustang and Lightning found a purpose outside of the military. Surplus of each aircraft was made available to the public and both became favorites among racing pilots. Although pilots made modifications to the designs of these aircraft, to better suit them for the stresses of racing, the aircraft maintained many of their keynote features that endeared them to wartime pilots. The largest changes that were made to the aircrafts were to add fuel tanks for more range, and lighten them for greater speed. While the Mustang and Lightning were ultimately intended to be repurposed, they

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<sup>28</sup> McLaughlin, *The Mighty Eight*, 191; Brule, *Angels Zero*, 163-164; Norman Pulmar, *The Enola Gay: The B-29 that Dropped the First Atomic Bomb on Hiroshima* (Washington D.C.: Potomac Books, 2004), 47.

became early living monuments to two of the Second World War's most popular aircraft.<sup>29</sup>

While the Mustangs have had a much more storied career as racing aircraft, both have become valuable pieces of commemorative technology. The most notable way that the racing aircraft pay and paid homage to their military brethren is through their paint schemes. One aircraft that did just this was a P-38 known as *White Lightning*. *White Lightning*, as the name implies, was painted all white with red wing and tail tips as well as spinners. Although this paint scheme drastically differed from the military silver, or olive drab, the aircraft's owner, Marvin L. "Lefty" Gardner, left the military emblems on the aircraft's wings and tail sections as a tribute to its heritage. *White Lightning* retired from racing after a crash in June of 2001. Since that time, the P-38 has been restored, but no longer participates in air races. Continuously, some of the P-51 Mustangs that were transformed into racers have honored the wartime Mustangs in similar ways. Apart from some aircraft keeping the military insignias, some were kept in the original military color with various markings indicative of specific fighter squadrons. While not all warbirds turned racer openly celebrate their heritage, they are all still important monuments to World War Two aircraft. Although there are currently no P-38s racing, Mustangs still make their presence felt and are still popular among pilots who compete in National Air Championship races.<sup>30</sup>

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<sup>29</sup> Pulmar, *The Enola Gay*, 53-55; Hardy, *The North American Mustang*, 87-90; Jacqueline Cochran, *Jackie Cochran: An Autobiography* (Toronto: Bentam Books, 1987), 214.

<sup>30</sup> Hardy, *The North American Mustang*, 87, 90-91, 95, 98, 101-105; "White Lightning," P-38 National Association and Museum, accessed September 16, 2017, <http://p38assn.org/white-light.htm>; Jeffery L. Ethell, "P-38 Lightning," in *The Great Book of World War II Airplanes* (New York, New York: Wing and Anchor Press, 1984), 11-20; Robert Grinsell, "P-51 Mustang"



The end of the Second World War marked a major change in aviation with the invention of jet aircraft. While the United States military's transition to these new planes was originally slow, they ultimately spelled the end for the piston driven airplanes on which the military had previously relied. By the late 1950s, with the exception of racing aircraft and a few others, many warbirds were either dumped in the ocean, or stripped of parts, weapons and instruments, and left to rot in scrap yards. Even aircraft such as the Mustang, which served in the Korean War, were decommissioned from American military service. Preservation, let alone monumentation, of most of these aircraft was not a priority for anyone, including the military. However, in 1957 a group of former service pilots, who became the founders of the Commemorative Air Force, came together and saved several historic aircraft from the brink of extinction.<sup>31</sup>

In 1957 Lloyd Nolen, Lefty Gardner, and small group of friends pooled their money to purchase a P-51D Mustang for \$2,500. This group founded a small organization that became known as the Confederate Air Force, or CAF, with the goal of maintaining their Mustang, and eventually their two Grumman F8F Bearcats.<sup>32</sup>

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in *The Great Book of World War II Airplanes* (New York, New York: Wing and Anchor Press, 1984), 77-84; Jim Moore, "Hinton Makes Reno Magic in 'Voodoo': Champion Repeats in New Airplane," *Aircraft Owners and Pilots Association*, September 16, 2013. Accessed September 26, 2017, <https://www.aopa.org/news-and-media/all-news/2013/september/16/reno-wrap>.

<sup>31</sup> Brule, *Angels Zero*, 163; Hardy, *The North American Mustang*, 87-90; Norman Polmer, "Historic Aircraft," *Naval History* 18, no. 6 (December 2004), 85; "Commemorative History and Mission," Commemorative Air Force Headquarters, accessed July 18, 2017, <https://commemorativeairforce.org/aboutus/history>.

<sup>32</sup> Commemorative Air Force Headquarters, "Commemorative History and Mission"; Moreno Aquari, Interview by Author, Reading, PA, June 4, 2016.

However, by 1960, “what had started as a hobby became an urgent mission to preserve history.”<sup>33</sup> To the former service pilots leaving the aircraft in junkyards was unacceptable, and they set out to save as many aircraft as they could afford. They officially chartered the CAF in 1961 as a nonprofit organization in Texas, with the goal of restoring wartime aircraft. By the end of the year, the newly formed group had purchased six more aircraft to restore and fly.<sup>34</sup>

From its humble beginnings, the Confederate Air Force, renamed the Commemorative Air Force in 2001 to better reflect its mission, has become one of the most influential flying museums in the United States, if not the world.<sup>35</sup> The CAF currently operates one hundred sixty three aircraft, has several aircraft in storage or on display, and has undertaken numerous restoration projects. Furthermore, since its inception, the CAF has spread over the country and has set up branches in several states, with its headquarters and main facilities located in Dallas, Texas. Each of the CAF’s divisions, participate in airshows across the country each year to further the organization’s larger mission of ensuring that the public has a chance to experience these powerful pieces of commemorative technology in flight.<sup>36</sup>

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<sup>33</sup> Commemorative Air Force Headquarters, “Commemorative History and Mission.”

<sup>34</sup> Moreno Aquari, Interview by Author, Reading, PA, June 4, 2016; Commemorative Air Force Headquarters, “Commemorative History and Mission.”

<sup>35</sup> Moreno Aquari, Interview by Author, Reading, PA, June 4, 2016; Commemorative Air Force Headquarters, “Commemorative History and Mission.”

<sup>36</sup> Moreno Aquari, Interview by Author, Reading, PA, June 4, 2016; Commemorative Air Force Headquarters, “Commemorative History and Mission.”

Although the Commemorative Air Force was one of the first flying museums, and remains one of the most influential, other smaller organizations, have also had a profound influence on World War Two aviation memory. Among these institutions are Fagan Fighters WWII Museum, the Mid-Atlantic Air Museum, the Yankee Air Museum, the American Airpower Museum, and the Military Aviation Museum. These museum's collections of aircraft are significantly smaller than that of the CAF's, however they are still notable in that they feature, preserve, and fly rare aircraft, and strive to educate the public through their living monuments. Regardless of size, all of these entities share a similar commitment to keeping their aircraft in flying condition and often work together to achieve their goal. The various aircraft of these smaller institutions often perform side-by-side with those of the Commemorative Air Force during airshows and reenactments, as well as play host to some of the most important annual aerial demonstrations in the country.<sup>37</sup>

Each flying World War Two aircraft, regardless of which museum operates it, is a monument to a variety of battles, events, units, and people, spanning both theatres of operation. One way in which these aircraft have become monuments is through their paint schemes. Paint shows which squadron or group an aircraft belonged too, but it

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<sup>37</sup> Commemorative Air Force Headquarters, "Commemorative History and Mission"; "Home," Fagan Fighters WWII Museum, accessed May 15, 2016, <http://www.fagenfighterswwiimuseum.org/index.html>; "Mission Statement," Mid-Atlantic Air Museum, accessed May 15, 2016, <http://www.maam.org/mission.htm>; "About the Collection," Yankee Air Museum, accessed July 9, 2017, <http://yankeeairmuseum.org/about-the-collection/>; "About," American Airpower Museum, accessed August 29, 2017, <http://americanairpowermuseum.com/about/>; "Military Aviation Museum," Military Aviation Museum, accessed May 13, 2017, <http://www.militaryaviationmuseum.org/about.html>; Moreno Aquari, Interview by Author, Reading, PA, June 4, 2016; Mike Spalding, Interview by Author, Reading, PA, June 4, 2016.

may also show where an aircraft was based and in some cases which battles it took part. Moreover, painted names, pinup girls, and cartoons were an important personal touch many World War Two aviators added to their aircraft that have been preserved by flying museums for authenticity.<sup>38</sup>

One of the most recognizable paint schemes on allied aircraft are the black and white, wing and body stripes that were applied for the D-Day invasion. Known as invasion stripes, this configuration was applied to all allied single and twin-engine aircraft that participated in the invasion of France, so troops on the ground could differentiate their own aircraft from German aircraft. Several museums have painted their aircraft with invasion stripes to commemorate the role that aircraft played during the invasion. Some of the notable aircraft that bear this paint are the CAF's P-51D *Red Nose*, the Battle of Britain Memorial Flight's Spitfire Mk Vb, and the American Air Power Museum's P-47D *Jackie's Revenge*. These types of fighter aircraft were crucial to the victory of the June 6 invasion and are remembered as such through flying monuments.<sup>39</sup>

Although, combat aircraft were played an important role on D-Day, other aircraft, such as the C-47 Skytrain, were just a crucial to the success of Operation

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<sup>38</sup> Moreno Aquari, Interview by Author, Reading, PA, June 4, 2016; Mike Spalding, Interview by Author, Reading, PA, June 4, 2016.

<sup>39</sup> Allan Janus, "The Stripes of D-Day," *Smithsonian Air and Space Museum*, June 6, 2014, accessed October 17 2017, <https://airandspace.si.edu/stories/editorial/stripes-d-day>; "Fighters," Commemorative Air Force Headquarters, accessed October 17, 2017, <https://commemorativeairforce.org/root/airplanes/ghost-squadron/91-caf-aircraft/127-caf-fighters>; "RAF BBMF," Royal Air Force, accessed October 17, 2017, <https://www.raf.mod.uk/bbmf/theaircraft/spitfireab910.cfm>; American Air Power Museum, Facebook Post, May 20, 2016, accessed October 17, 2017, <https://www.facebook.com/123023458399/photos/a.10150632809968400.413934.123023458399/10154095765023400/?type=3&theater>.

Overlord. The C-47s were the transport aircraft for the 101<sup>st</sup> and 82<sup>nd</sup> airborne divisions, which led the attack on Fortress Europe. Though not as popular among flying museums as combat aircraft, restored and flying C-47s have become more prevalent as living monuments and are often used to commemorate the events of June 6, 1944. Currently, the Commemorative Air Force has undertaken the restoration of the C-47 *That's All Brother*, which led the airborne invasion of France. The CAF acquired the aircraft in 2015 and began the painstaking process of making the plane airworthy once again. Although the aircraft is not yet in flying condition, the organization believes *That's All Brother* will be completed by mid 2018. In the meantime, the Skytrain is displayed by the CAF and currently painted with various facts about the aircraft's D-Day history, including that it led more than 800 aircraft to Normandy, that it carried members of the 101<sup>st</sup> airborne, and that it has undergone over 16,213 hours of restoration. Once finished, the C-47 will be a flying monument to the D-Day invasion and will partake in celebrations in France for the 75<sup>th</sup> anniversary in 2019.<sup>40</sup>

Invasion stripes are just one way that paint schemes are commemorative. The colors aircraft are painted can be representative of a squadron or an individual pilot. Although painted with invasion stripes, the CAF P-51D *Red Nose* commemorates a larger part of the Mustangs use in the European Theatre. *Red Nose* is painted in the colors of

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<sup>40</sup> Moreno Aquari, Interview by Author, Reading, PA, June 4, 2016; Allan Janus, "The Stripes of D-Day," *Smithsonian Air and Space Museum*, June 6, 2014, accessed October 17 2017, <https://airandspace.si.edu/stories/editorial/stripes-d-day>; "Project Timeline," Commemorative Air Force Headquarters, accessed October 17, 2017, <https://commemorativeairforce.org/root/airplanes/thatsallbrother-project>; Commemorative Air Force, Facebook Post, July 29, 2017, accessed October 17, 2017, <https://www.facebook.com/CommemorativeAF/photos/a.345518077509.154347.263893947509/10155498712957510/?type=3&theater>.

the 4<sup>th</sup> Fighter Group, 334<sup>th</sup> Squadron, which was based in Debden England. The 4<sup>th</sup> Fighter Group was one of the most successful units of the war and was the highest scoring fighter group in the European theatre, having destroyed 1,016 enemy aircraft.<sup>41</sup> *Red Nose* has become a living monument for all those who served with 334<sup>th</sup> Squadron and is used to commemorate their success and sacrifice. This Mustang does not represent any specific pilot but rather the group and squadron as a whole.<sup>42</sup>

While aircraft like *Red Nose* monument specific groups, others, such as the Commemorative Air Force's Corsair, and the Battle of Britain Memorial Flight's Spitfire Mk Vb, celebrate the memory of individual pilots. The CAF's Corsair is a monument to Michael Owen "M.O." Chance. Chance, a Marine aviator, flew combat missions in the Pacific as part of VMF-312 commonly known as the, "Checkerboard Squadron."<sup>43</sup> This radial engine powered, gull-winged plane has been painted to look exactly as Chance's did in every way, including the checkerboard patterns around the engine and rudder, along with his numerical designation of 530. Chance was a longtime friend of the CAF and was fortunate enough to live to see his aircraft come to life once again. To ensure that Chance's memory would live on through this aircraft, the Commemorative Air Force

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<sup>41</sup> Moreno Aquari, Interview by Author, Reading, PA, June 4, 2016; "Home," The Official Site of the 4<sup>th</sup> Fighter Group – WWII, accessed October 19, 2017, <http://www.4thfightergroupassociation.org>. The term score or scoring refers to the number of enemy aircraft destroyed.

<sup>42</sup> Moreno Aquari, Interview by Author, Reading, PA, June 4, 2016.

<sup>43</sup> Moreno Aquari, Interview by Author, Reading, PA, June 4, 2016; Stan Musik, Interview by Author, Reading, PA, June 4, 2016; Major William J. Sambito, *A History of Marine Fighter Attack Squadron 312* (Washington D.C.: History and Museums Division Headquarters, U.S. Marine Corps, 1978), iii, 4.

had him autograph a piece of metal that is part of the aircraft's fuselage. As the CAF's Corsair is a monument to M.O. Chance, the Battle of Britain Memorial Flight's Spitfire Mk Vb is a monument to Royal Air Force pilot, Tony Cooper. Cooper, a member of 64 Squadron, flew missions during some the war's most violent battles, including two missions on D-Day and one during Operation Market Garden. Cooper also flew several bomber escort missions throughout the war. The Spitfire which pays homage to Cooper is painted with his aircraft designation, his squadron colors, and also features the hand painted name *PeterJohn1* outside the cockpit, just as he had done to honor his newborn son. Each of these aircraft are important monuments to the war as a whole, however, they also commemorates the service of individuals.<sup>44</sup>

One final way in which paint schemes are commemorative, is through the personal touches that pilots added to their aircraft. Many aviators during the Second World War painted cartoons, names, and pinup girls on the noses of their aircraft. These paintings, referred to as nose art, are still featured on many of the planes still flying. However, it is in this nose art, which many organizations, "take some artistic license."<sup>45</sup> One piece of nose art that has remained largely unaltered are the shark faces that have become synonymous with the P-40 Warhawk. Fagan Fighters, the American Airpower museum, the Commemorative Air Force, and the Military Aviation Museum all operate P-40s painted to represent different groups and squadrons, however each of

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<sup>44</sup> Moreno Aquiri, Interview by Author, Reading, PA, June 4, 2016; "RAF BBMF," Royal Air Force, accessed October 20, 2017, <https://www.raf.mod.uk/bbmf/theaircraft/spitfireab910.cfm>; "Spitfire Mk Vb BM327," Royal Air Force, accessed October 20, 2017, <https://www.raf.mod.uk/bbmf/theaircraft/spitfiremkvbbm327.cfm>.

<sup>45</sup> Moreno Aquiri, Interview by Author, Reading, PA, June 4, 2016.

their aircraft feature the signature shark face on the nose of the aircraft. On a larger scale, the Warhawks have also become symbolic of the American Volunteer Group or AVG, better known as the Flying Tigers. The Flying Tigers were a group of American Army, Navy, and Marine pilots who flew with the Chinese Air Force from 1941 to 1942 to help defend the country against Japanese attacks. Each the AVG's P-40s were painted with a Disney designed cartoon tiger with wings. The American Air Power Museum's Warhawk is painted with similar cartoon tiger to commemorate the Flying Tigers, however, the museum took artistic license, adding a red, white, and blue striped top hat, and having the tiger flying through the original AVG insignia, holding a torn Japanese flag. Although the cartoon tiger on the American Air Power Museum's P-40 is not an exact likeness of the one painted on the original AVG aircraft, it still stands as a monument and piece of commemorative technology to that unit.<sup>46</sup>

Another area, in which organizations take artistic license with aircraft, is in how they are named. Naming aircraft was a popular trend among pilots. Some names honored loved ones service members left behind, while other names were an attempt to give an aircraft personality. Some of the most recognizable plane names are Chuck Yeager's *Glamorous Glennis*, Bud Anderson's *Old Crow*, Paul Tibbet's *Enola Gay*, and

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<sup>46</sup> Moreno Aquari, Interview by Author, Reading, PA, June 4, 2016; "P-40E Warhawk," Fagan Fighters, accessed October 21, 2017, <http://www.fagenfighterswwiimuseum.org/aircraft/desertshark/desertshark.html>; "Curtis P-40 Warhawk," American Air Power Museum, accessed October 21, 2017, <http://americanairpowermuseum.com/2014/01/01/curtiss-wright-p40-warhawk/>; Commemorative Air Force Headquarters, "Fighters"; "WWII Aircraft," Military Aviation Museum, accessed October 21, 2018, <http://www.militaryaviationmuseum.org/images/Aircraft%20Images/P-40.jpg>; Roger D. McGrath, "The Flying Tigers," *New American* 32, no. 19 (October 10, 2016): 35-39. It should be noted that the Military Aviation Museum's P-40 is painted to be an exact likeness of a Flying Tigers plane.



Robert Morgan's *Memphis Belle*. While organizations do name their aircraft after combat veterans, many restored aircraft are given names by those who helped to restore them, or something symbolic regarding the museum. One of the most important aircraft in the Commemorative Air Force fleet, the B-29 *Fifi*, was named for the wife of one of the group's founders. While *Fifi* is not a known name of any B-29 Superfortress that served during the war, the CAF aircraft still stands as an incredible piece of commemorative technology. Similarly, the Yankee Air Museum, which operates a B-17 Flying Fortress, has named that aircraft *Yankee Lady*. This name not only acts as a reminder which museum owns the aircraft, but also helps to add a personal quality to the aircraft making it yet another commemorative aircraft.<sup>47</sup>

Whereas names and various cartoons were widespread among World War Two aircraft, pin-up girls were arguably the most popular among pilots, especially those who flew bombers. Either scantily clad or even fully nude, these pin-up girls often featured clever play on words, or a slogan that pilots and bomber crews could use as a mascot for their airplanes. Moreover, these women helped to personify the airplanes to their crews and gave them a more human quality.<sup>48</sup> While some have been critical of this art

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<sup>47</sup> Moreno Aquari, Interview by Author, Reading, PA, June 4, 2016; Carl von Wodke and Jon Guttman, "Chuck Yeager," *Aviation History* 8, no. 6 (July 1998): 26; Pulmar, *The Enola Gay*, 18-19; Robert Morgan, *The Man Who Flew the Memphis Belle: Memoir of a WWII Bomber Pilot* (New York: Dutton, 2001), 4; "About the Collection," Yankee Air Museum, accessed October 22, 2017, <http://yankeeairmuseum.org/about-the-collection/>; Yankee Air Museum, Facebook post, October 17, 2017 accessed October 22, 2017, <https://www.facebook.com/yankeeairmuseum/photos/rpp.154874604563322/1711638665553567/?type=3&theater>.

<sup>48</sup> Morgan, *The Man Who Flew the Memphis Belle*, 3-5; Moreno Aquari, Interview by Author, Reading, PA, June 4, 2016; Tracy Bilsing, "Mors Ab Alto: The Dangerous Power of Women's Images in WWII Nose Art," *Texas Review* 35 no. 1/2 (Spring/Summer, 2014): 88-89.

form claiming it is sexist, others such as Tracy Bilsing, argue that, “nose art represents the overwhelming importance of the numerous roles that women played during wartime both at home and abroad...”<sup>49</sup> Flying museums continue to decorate their aircraft with these pinups and agree with Bilsing’s observations of what is behind the meaning of the pin-up girls. Moreover, excluding this art form would result in museums ignoring an important of an aircraft’s history.<sup>50</sup>

Each aircraft that has been restored to flying condition is an important monument to numerous aspects of the Second World War. However, each of those aircraft also act as monuments to other aircraft of the same kind that are not in flying condition or are no longer in existence, therefore representing a larger community of aircraft. For example, the P-51D was the most manufactured Mustang model; consequently this model has also survived in great numbers with the help of flying museums. However, prior to the P-51D Mustang, several other Mustang variants were built, but in smaller numbers. These other versions of the famed Mustang lacked the popularity and success of the D model. The other Mustangs, the P-51A, B, and C as well as the P-36 Apache, a dive-bomber variant, have not survived in nearly as great of numbers as the P-51D. There are roughly over one hundred P-51D Mustangs flying, but only a few of each of the other models are left in existence, let alone capable of flight. It is important to note that these numbers are constantly fluctuating due to restoration and maintenance projects. Because of the lack of other Mustang variants, the P-51Ds

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<sup>49</sup> Bilsing, “Mors Ab Alto,” 89-90, 102-103.

<sup>50</sup> Moreno Aquari, Interview by Author, Reading, PA, June 4, 2016; Mike Spalding, Interview by Author, Reading, PA, June 4, 2016; Bilsing, “Mors Ab Alto,” 102. In her article Bilsing points out that several museums have made the pin-up girls more family friendly.

have become monuments for all Mustangs across the scope of World War Two history, and help to commemorate the service of all Mustangs and Mustang pilots. They accomplish this through their ability to be present and perform at airshows as pieces of commemorative technology all throughout the country.<sup>51</sup>

Like the Mustang, the British Supermarine Spitfire was one of the most popular aircraft of World War Two. One of the defining moments for the Spitfire took place early in the war, as they were a key component to defending the British Isle during the Battle of Britain. The model Spitfire that made the aircraft famous was the Mk I, the first version of the aircraft to be used in combat. Throughout the rest of the war twenty-two different Spitfire variants were built and used for the war effort. Since the creation of flying museums, the Spitfire has been one of the most valued aircraft for organizations to own and operate, even causing some to pursue a wild goose chase to acquire the aircraft. There are roughly over one hundred flying Spitfires worldwide. However, currently there are only four airworthy Spitfire Mk Is in flying condition, all of which are located in England. Each surviving model Spitfire has its own unique memory and acts as monuments to many different parts of the war. However, as a consequence of so few Mk Is left in existence, the various and numerous remaining Spitfires serve as powerful monuments to the Battle of Britain.<sup>52</sup>

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<sup>51</sup> Hardy, *The North American Mustang*, 45; Robert Grinsell, "P-51 Mustang," *The Great Book of WWII Airplanes* (New York, New York: Wing and Anchor Press, 1984), 61-68, 73-74, 77-84; Moreno Aquinari, Interview by Author, Reading, PA, June 4, 2016; Mike Spalding, Interview by Author, Reading, PA, June 4, 2016.

<sup>52</sup> Phil Listman, *Supermarine Spitfire MkI – MkII – MkV*, (Paris: Histoire & Collections 2014), 38; Christopher Yeoman and David Pritchard, *The Battle of Britain Portraits of the Few* (Hitchin: Fighting High Ltd, 2011), 11; Downing and Johnston, "The Spitfire Legend," 27;

While some aircraft like the P-51D Mustang and Supermarine Spitfire are plentiful and can be used as monuments to a larger community, other airplanes are rarities. These uncommon aircraft are even more important as monuments to a community because they commemorate once numerous and important aircraft. Among these rare planes is the B-29 Superfortress. Although one of the most important and easily recognizable aircraft of the war, B-29s were not preserved in the same manner as some other aircraft. Of the over 1600 built, only two B-29s remain in flying condition, and from the mid the 1970s to 2016 there was only one, the Commemorative Air Force's *Fifi*.<sup>53</sup> Since her restoration *Fifi* has been dubbed the "Queen of the Commemorative Air Force fleet," and has become an important monument to all B-29s.<sup>54</sup> In the late summer of 2016, another B-29 took flight for the first time. This aircraft, known as *Doc*, is a privately owned B-29 that was under restoration for almost thirty years. Together, *Fifi* and *Doc* commemorate everything that the B-29s accomplished and all those who flew in that aircraft. Furthermore, they also serve as living monuments to the dropping of the atomic bombs. While the actual *Enola Gay* is on display, it sits static as a museum exhibit to monument the dropping of the atomic bomb. The two flying B-29s offer a more realistic interpretation and allow observers to experience the aircraft performing their original function. *Fifi* and *Doc* are two examples

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"Airworthy Spitfires Around the World," A Guide to Military Airshows in the UK, accessed October 25, 2017, <http://www.military-airshows.co.uk/spitaw.htm>; Mike Spalding, Interview by Author, Reading, PA, June 4, 2016; "The Spitfire," RAF BBMF, accessed October 25, 2017, <https://www.raf.mod.uk/bbmf/theaircraft/spitfirehistory.cfm>.

<sup>53</sup> Moreno Aquari, Interview by Author, Reading, PA, June 4, 2016; Pulmar, *The Enola Gay*, 4.

<sup>54</sup> Moreno Aquari, Interview by Author, Reading, PA, June 4, 2016.

of how a small number of exceptional aircraft can be flying monuments to a larger group.<sup>55</sup>

Although rare to see flying, the B-29s have a storied history and are easily recognizable to airshow enthusiasts. However other scarce, lesser storied, aircraft are still important flying monuments. Among these types of aircraft are the Curtis SB2D Helldiver and the de Havilland Mosquito. Currently, the Helldiver and Mosquito have only one flying example each. The Helldiver, a single engine, aircraft carrier based dive-bomber, was not a popular aircraft among combat pilots, however it played a crucial part in crippling the Japanese Navy. The only flying Helldiver left in existence is operated by the Commemorative Air Force and is a monument to the role all Helldivers played in the Pacific, but its lack of wartime popularity has affected how the aircraft has survived.<sup>56</sup>

The Mosquito was a wooden, twin engine, British fighter-bomber that helped England bomb targets in Fortress Europe. While this aircraft was more popular with pilots than the Helldiver, its wooden structure did not lend the aircraft to long life. Currently the lone flying Mosquito is operated by the Military Aviation Museum and serves as a powerful monument to British airpower during the war. The Helldiver and Mosquito are a small sample size of one of a kind aircraft that commemorate much

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<sup>55</sup> Moreno Aquari, Interview by Author, Reading, PA, June 4, 2016; Pulmar, *The Enola Gay*, 61-64.

<sup>56</sup> Moreno Aquari, Interview by Author, Reading, PA, June 4, 2016; "SB2C Helldiver," Commemorative Air Force, accessed October 26, 2017, <http://sb2chelldiver.com>.

larger groups. It is through their ability to fly that these aircraft serve as the most powerful form of memory regarding World War Two aviation.<sup>57</sup>

Although many aircraft are stand-alone monuments, the Commemorative Air Force has set up traveling exhibits that pair with one some of their planes. The first traveling exhibit the CAF set up worked in tandem with their P-51C Mustang *Tuskegee Airmen*. The aircraft is an actual Mustang used by the 332<sup>nd</sup> Fighter Group better known as the Tuskegee Airmen. The 332<sup>nd</sup> Fighter Group was the first fighter group to be comprised of all African-American pilots. The Tuskegee Airmen became one of the most successful fighter groups of the war and was highly decorated; moreover, they became a symbol of equality and civil rights. Painted with trademark red tails, the Tuskegee Airmen were critical in escorting bombers and crippling the Luftwaffe. As a companion to their aircraft, the CAF designed a traveling Tuskegee Airmen exhibit called “Rise Above: Red Tail.” This display features several artifacts from the unit including flight jackets, instruments, tools, and commendations among other pieces. The main attraction for this exhibit is a small theatre, which shows a short film about the unit’s history and another short film that puts viewers in the pilot’s seat of the P-51C Mustang. “Rise Above: Red Tail” has become one the CAF’s most popular attractions everywhere it travels, including airshows, schools, and various other functions.<sup>58</sup>

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<sup>57</sup> Mike Spalding, Interview by Author, Reading, PA, June 4, 2016; “The Mosquito,” Royal Air Force, accessed October 26, 2017, <https://www.raf.mod.uk/history/TheMosquito.cfm>.

<sup>58</sup> *Tuskegee Airmen National Historic Site Alabama* (Washington D.C.: National Park Service, U.S. Dept. of the Interior, 2008); Lawrence P. Scott, *Double V: The Civil Rights Struggle of the Tuskegee Airmen* (East Lansing: Michigan State University Press, 1994), 2, 83, 223-226; J. Todd Moye, *Freedom Flyers: The Tuskegee Airmen of World War II* (Oxford: Oxford University

With the success of “Rise Above: Red Tail” the Commemorative Air Force has also set out to commemorate the WASPs, or Women Airforce Service Pilots, in a similar manner. The WASPs were vital to the American war effort, ferrying aircraft on the home front. From 1942 to 1944 they were heavily relied upon to ferry aircraft from factories to bases and from base-to-base all over the United States so they could be sent over seas. In their two years of service, the WASPs flew 60 million miles of operation flights in seventy-eight different types of aircraft. The WASPs have become a popular unit not only because of their service, but also because of how they helped fight for women’s rights in the military. However, there has been little done to commemorate their service. In 2016 the Commemorative Air Force launched a campaign to help create a living monument and exhibit to memorialize the WASPs. For the actual piece of commemorative technology, the CAF has acquired an original BT-13 trainer aircraft that was used to train the pilots. Flying the BT-13, a single engine, double cockpit aircraft, was a crucial part of the WASP training regiment, that proved the women could handle military aircraft. A companion traveling exhibit and film entitled, “Rise Above: WASP,” is also in the works to help educate the public and monument the unit.<sup>59</sup>

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Press, 2010), 13-15; “About Rise Above: Red Tail,” CAF Red Tail Squadron, accessed October 27, 2017, <http://www.redtail.org/rise-red-tail/>; Moreno Aquari, Interview by Author, Reading, PA, June 4, 2016.

<sup>59</sup> Molly Merryman, *Clipped Wings: The Rise and Fall of the Women Air Force Service Pilots of World War II* (New York: New York University Press, 1998), 26-27; “Official Archive Women Airforce Service Pilots,” Texas Women’s University, accessed September 30, 2016, <http://www.twu.edu/library/wasp.asp>; Cochran, *Jackie Cochran*, 236-237; “Honoring the WASP,” Kickstarter, accessed October 27, 2017, <https://www.kickstarter.com/projects/caf/trailblazing-women-pilots-honoring-the-wasp>; Moreno Aquari, Interview by Author, Reading, PA, June 4, 2016.

Long since World War Two has ended it is still one of the most studied and discussed conflicts in history. It is continuously thrust into the public eye through various multimedia outlets and continues to captivate the masses. While it is often battles and major operations, such as D-Day, that are the major focus for both scholarship and entertainment, the area of aviation has, and continues to capture the curiosity of people of all ages. This is in part because many of the aircraft from that famed conflict are still in flight today; through events such as airshows the public can personally interact with these pieces of commemorative technology in ways they can not interact with any other aspect of the war.<sup>60</sup>

The living memory of World War Two aviation commemorates some of the most important aspects of the allied war effort. It is through the flying museums that this type of commemoration has become possible. Flying museums have helped save the aircraft of the Second World War from junkyards and have restored them to their former glory. Although large organizations such as the Commemorative Air Force helped to create this trend and have arguably had the largest influence on saving aircraft, all flying museums are important to keeping these planes in flying condition. Each organization, regardless of size, is committed to the same mission of restoring and preserving these aircraft as living monuments. The aircraft themselves are living monuments and pieces of commemorative technology that commemorate the importance of air power during World War Two.

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<sup>60</sup> Moreno Aquiri, Interview by Author, Reading, PA, June 4, 2016; Mike Spalding, Interview by Author, Reading, PA, June 4, 2016.



## Chapter 2: Restoration and Technology: A Behind the Scenes Look at Flying Museums

Living memory in World War Two aviation relies heavily on the multiple flying museums around the United States and the world. These organizations are largely responsible for restoring, flying, and maintaining historic airplanes. The restoration and maintenance of these aircraft is not only expensive but also complicated, as replacement parts are often difficult to find. Moreover, museums must ensure that their aircraft are safe to fly; resulting in modern technology sometimes being fitted into these aircraft. Although restoration and maintenance are among the primary goals of flying museums, some of them also build and operate replica aircraft. Flying replica aircraft allow for the public to experience aircraft that are no longer in existence or are extremely rare. The majority of replica aircraft that museums operate are German or Japanese, and many were used in movies. These aircraft have become vital to commemorating the Second World War.<sup>61</sup>

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<sup>61</sup> Commemorative Air Force Headquarters, accessed July 18, 2017, <https://commemorativeairforce.org/aboutus/history>; "Military Aviation Museum," Military Aviation Museum, accessed May 13, 2017, <http://www.militaryaviationmuseum.org/about.html>.

This chapter will explore the process of restoration and maintenance, how replication parts and modern technology effect how aircraft are cared for by flying museums, and how they keep them continuously safe to fly. By using examples from various organizations, it will be shown how historic aircraft are cared for and maintained. Furthermore, this chapter will explore how replica aircraft influence living memory and their importance in commemorating uncommon aircraft.

Flying Museums are unique because of their dedication to restoring historic aircraft to flyable condition. Restoration is often a painstaking process that can take years, if not decades to complete. This practice begins with an organization locating an aircraft they wish to restore. Some aircraft are found in easily restorable condition. Often times these particular planes were left in long term storage by a private owner, small historical society, or museum that never found the funding to restore the aircraft. Although these types of aircraft are ideal for museums to restore, they are also generally well-known aircraft, such as the P-51 Mustang, leaving flying museums to search other avenues to find a wider spectrum of aircraft.<sup>62</sup>

One of the most famous long-term storage locations that flying museum's have gone through is known as the Edward's Ranch. The space was a large warehouse owned by Wilson Connell "Connie" Edwards located on his West Texas ranch and housed over forty World War Two aircraft. Edwards collection included several P-51 Mustangs, a F4U Corsair, a P-38 Lightening and a handful of Spitfires and reproduction German Me-

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<sup>62</sup> Moreno Aquari, Interview by Author, Reading, Pa, June 4, 2016; Mike Spalding, Interview by Author, Reading, Pa, June 4, 2016; Jon Guttman, "Movie Messerschmitts Sold," *Aviation History* no. 25 (March 2015), 4.

109s that were featured in the movie *The Battle of Britain*. Edwards sold and donated many pieces of his collection to various organizations, including the Commemorative Air Force. However, he was reluctant to sell off the aircraft from *The Battle of Britain* as they were given to him as payment for his work as a stunt pilot on the film. Since they were only collecting dust in his warehouse, in 2014, Edwards auctioned his remaining collection for an estimated \$15 million to multiple buyers. The groups and individuals who purchased Edwards' collection will restore to them to flyable condition.<sup>63</sup>

Although dilapidated, dust and dirt, covered aircraft sold from the Edwards' Ranch were still generally protected from the elements. In this instance it made for a shorter restoration process, but aircraft are not always found in such good or complete condition. To find one of a kind aircraft, flying museums will go to great lengths to recover an airplane. This includes raising aircraft from the bottom of lakes or oceans, saving them from scrapyards, and even searching foreign World War II crash sites. The Commemorative Air Force went to these extremes to obtain the queen of their fleet, the B-29 Superfortress *Fifi*. From 1958 to 1971 the B-29 was used as a missile and gunnery target at the Naval Weapons Center and bombing range in China Lake, California. To the members of the CAF, this was an unacceptable fate for what they believed was a magnificent aircraft. After bringing their concerns to the Navy, and

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<sup>63</sup> Guttman, "Movie Messerschmitts," 4; Dave Hirschman, "Tall Tale (That's True): Rare Warbirds to Depart Edwards Ranch," *AOPA News & Video*, August 5, 2015, accessed December 2, 2017, [https://www.aopa.org/news-and-media/all-news/2014/august/pilot/f\\_talltale](https://www.aopa.org/news-and-media/all-news/2014/august/pilot/f_talltale); "Sold," Platinum Fighter Sales, accessed December 2, 2017. It should be noted that in 2016 several of the movie Messerschmitts were resold at auction through Platinum Fighter Sales. It is unknown how far into the restoration process these aircraft are.

complicated negotiations with both the Air Force and Navy, the museum was able to acquire the B-29. The restoration of *Fifi* took a little more than four years, thousands of repair hours, and countless volunteers and professional workers before it was airworthy once again.<sup>64</sup>

The restoration of the CAF's Be-29 *Fifi* was complex, but it pales in comparison to the Mid-Atlantic Air Museum's attempted restoration of a rare Northrop P-61 Black Widow. The P-61 was an American built twin engine, fork-tailed, night-fighter that was tasked with attacking enemy targets in both the Pacific and European theatres. In 1980, the Mid-Atlantic Air Museum, or MAAM, was formed in Reading Pennsylvania with the goal of acquiring and restoring a Black Widow. The aircraft they wished to obtain had crashed in the mountains of New Guiana shortly before the end of the war. On January 10, 1945, pilot Logan Southfield, and crew, took off from their base in New Guinea. However, shortly after becoming airborne, Southfield's P-61 began to experience engine trouble and the young pilot was forced to crash land on Mount Cyclops. It took two

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<sup>64</sup> Guttman, "Movie Messerschmitts," 4; Dave Hirschman, "Tall Tale (That's True): Rare Warbirds to Depart Edwards Ranch," *AOPA News & Video*, August 5, 2015, accessed December 2, 2017, [https://www.aopa.org/news-and-media/all-news/2014/august/pilot/f\\_talltale](https://www.aopa.org/news-and-media/all-news/2014/august/pilot/f_talltale); "Sold," Platinum Fighter Sales, accessed December 2, 2017. It should be noted that in 2016 several of the movie Messerschmitts were resold at auction through Platinum Fighter Sales. It is unknown how far into the restoration process these aircraft are.; "The Mid-Atlantic Air Museum's P-61B Black Widow Recovery and Restoration Project," Mid-Atlantic Air Museum, accessed December 2, 2017, <http://www.maam.org/p61.html>; Moreno Aquari, Interview by Author, Reading, Pa, June 4, 2016; Stan Musik, Interview by Author, Reading, Pa, June 4, 2016; "About the CAF B-29, Fifi," Commemorative Air Force, accessed December 2, 2017, <https://www.airpowersquadron.org/history>.

days for a rescue party to reach Southfield and his crew and even longer for one to return for the downed Black Widow.<sup>65</sup>

In 1984, a recovery team was sent from the MAAM to New Guiana to inspect the crash site and the aircraft's condition. The team, led by aviation historian Jeffery Ethell and MAAM founder Gene Strine, located the P-61 on a steep incline, covered in vegetation, and rotting away. Although the remains of the aircraft were skeletal, they proceeded with removing the aircraft from the mountainside. The team extracted the plane from the Indonesian wilderness piece by piece and shipped it home to Eastern Pennsylvania. The removal was a time-consuming endeavor that took almost seven years to complete; however the restoration process has taken even longer. Since the P-61s arrival at the MAAM facility in 1991, it has been worked on diligently but is yet to be fully restored. As of 2017, the fuselage, interior, tail section, and engines have all been successfully restored, however the wings and control surfaces are still being worked on. MAAM has yet to release a timetable for when they believe the Black Widow will take its first flight.<sup>66</sup>

During the restoration process of some aircraft, museums may choose to add an additional seat, and in some cases dual controls, in what was originally a single seat aircraft. This was done to multiple aircraft throughout the Second World War in an

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<sup>65</sup> "The Mid-Atlantic Air Museum's P-61B Black Widow Recovery and Restoration Project," Mid-Atlantic Air Museum, accessed December 2, 2017, <http://www.maam.org/p61.html>

<sup>66</sup> Warren Thompson, "The Bite of the Black Widow," *Aviation History* no. 19 (November 2008), 50-55; "The Mid-Atlantic Air Museum's P-61B Black Widow Recovery and Restoration Project," Mid-Atlantic Air Museum, accessed December 2, 2017, <http://www.maam.org/p61.html>.

attempt to quicken the pace of pilot training, and get aviators acclimated the planes they would be flying in combat. Today, the main purpose behind this is to first sell rides to the public during airshows, but aircraft that feature dual controls can be used to help teach new or experienced pilots to fly these aircraft. The most popular aircraft that is converted to two seats is the P-51D Mustang. Its shape and size of the cockpit and fuselage create a relatively easy conversion to two seats by removing a fuel tank and relocating the radio unit. This conversion process does not affect the appearance, resulting in many D model Mustangs being adapted to two seats. When undertaking a process such as this, it is the goal of most organizations to ensure that the outward appearance of aircraft remains largely unchanged from their wartime use. Moreover, the popularity and physical appearance also make it easier to sell high priced ride tickets.<sup>67</sup>

The Mustang is not the only World War II aircraft that museums convert to accommodate a second seat. The P-40 Warhawk and Supermarine Spitfire also have multiple two seat examples, although the P-51D is by far the most popular. Like the Mustang, the conversion of the P-40 does not affect the aircrafts appearance and adding the passenger seat is relatively simple. On the other hand, the conversion process for the Spitfire is rather complex. To add a second seat in the famed British

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<sup>67</sup> Moreno Aquiri, Interview by Author, Reading, Pa, June 4, 2016; Mike Spalding, Interview by Author, Reading, Pa, June 4, 2016; "North American P-51 Mustang," Commemorative Air Force, accessed October 15, 2017, <http://dixiewing.org/north-american-p-51-mustang/>; M. J. Hardy, *The North American Mustang: The Story of the Perfect Pursuit Plane* (Arco Publishing Co: New York, 1979), 110; "Warbird Rides," Commemorative Air Force Dixie Wing, accessed, December 2, 2017, <http://dixiewing.org/warbird-rides/>; "Warbird Ride Program," CAF SoCal, accessed December 2, 2017, <https://www.cafsocial.com/warbird-ride-program/>. Pricing will be explored in Chapter 3.

fighter, aircraft specialists have to remove a large section of the fuselage behind the cockpit and either elongate the original cockpit or create an entirely new one. Because of how drastically the alteration changes the aesthetic of the aircraft, two seat Spitfires have become more of an oddity than a regular occurrence. The majority of two seat Spitfires are located in the United Kingdom.<sup>68</sup>

As of the end of 2017, several flying museums have restoration projects well underway. The Commemorative Air Force is currently working on restoring a P-47 Thunderbolt, along with multiple other aircraft. Fagan Fighter's World War II Museum arguably has undertaken one of the most interesting restoration projects, by trying to rebuild a Curtis Helldiver, of which there is only one flying example in the world. Fagan Fighters is also restoring a P-40 Warhawk. The Experimental Aircraft Association, or EAA, is restoring a B-25 Liberator, the Texas Flying Legends Museum is restoring a P-47 Thunderbolt, and the Planes of Fame Museum is working on a B-17 Flying Fortress, among other projects. Such restoration projects of aircraft are just a small sample size of several restorations going on throughout the world. There are countless museums and organizations that are dedicated to restoring and flying World War Two aircraft. Also there are, a number individual collectors, with the financial means, who restore and fly

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<sup>68</sup> "Take Flight," North Bay Air Museum, accessed December 2, 2017, <http://www.northbayairmuseum.org/take-flight/>; John Bretschneider, "Back in the Air," *Air Force Times* no. 75 (May 2015), 34-35; Mike Spalding, Interview by Author, Reading, Pa, June 4, 2016; Robin J. Brooks, "The Origins of the Two Seat Spitfire," *Into the Blue*, August 26, 2016, accessed December 4, 2017, <https://www.intotheblue.co.uk/blog/2016/08/26/the-origins-of-the-two-seat-spitfire/>; "Fly in a Spitfire," Classic Wings, accessed December 4, 2017, <http://www.classic-wings.co.uk/fly-in-a-spitfire/>; "Spitfire Auction," *The Times*, April 8, 2009.

these aircraft. Each organization, or individual, works and hopes to ensure that these historic planes will fly once again and help create living history.<sup>69</sup>

One of the most important aspects of flying museum's restoration process is their staff and membership. Each flying museum relies heavily on the people that keep them operating. Professional historians, mechanics, and metal workers, all make the restoration process possible for these organizations. Furthermore, a large network of volunteers, who work for nothing other than the love of historic aircraft, also play a enormous role in the actual restoration process for museums. The volunteers bring various skill sets and use their own personal expertise to help revive these aircraft and be part of something they believe is special. Although the professionals do much of the skill related work, the volunteers are still crucial in the restoration process of aircraft by preparing it, cleaning, it, sanding it, and performing many other thankless tasks.<sup>70</sup>

Mechanics and pilots are key figures in the operation of flying museums. The mechanics are the individuals who ensure that the aircraft remain in perfect flying

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<sup>69</sup> "Collection/CAF Fleet," Commemorative Air Force, accessed December 4, 2017, <http://ghostsquadron.org/aircraft>; "Current Restoration Projects," Fagan Fighters, accessed December 4, 2017, <http://www.fagenfighterswwiimuseum.org/aircraft/aircraft.html>; "B-25 Restoration," EAA, accessed December 4, 2017, <https://www.eaa.org/en/ea/contribute-to-eea/b-25-restoration>; "In the Works," Texas Flying Legends, accessed December 4, 2017, <http://texasflyinglegends.org/index.php/in-the-works/>; "Restoration Projects," Planes of Fame Air Museum, accessed December 4, 2017, <http://planesoffame.org/index.php?page=restoration-projects>.

<sup>70</sup> Moreno Aquiri, Interview by Author, Reading, Pa, June 4, 2016; Mike Spalding, Interview by Author, Reading, Pa, June 4, 2016; "Volunteer," Commemorative Air Force, accessed December 4, 2017, <https://commemorativeairforce.org/membership/volunteer>; "Volunteer Opportunities," Military Aviation Museum, accessed December 4, 2017, <http://militaryaviationmuseum.org/volunteer>.



condition and work tirelessly to make sure they safe to fly. Mechanics often times have gone through rigorous schooling to work on aircraft, but it is through their own drive and determination that they have studied to become experts in working on these historic warbirds and continue to help create living history.<sup>71</sup>

Like the mechanics, the pilots of flying museums are also crucial to their function. Outside of the aircraft themselves, pilots are the most easily recognizable and popular figures. Flying World War Two aircraft is no small task. To fly these aircraft, which were designed for combat, pilots have to be in peak physical condition. Moreover, flying historic Second World War aircraft is starkly different from most civilian aircraft. Apart from the higher horsepower, the World War II planes differ in how they sit on the ground. The majority of historic warbirds are tail draggers; meaning when aircraft is parked or taxiing the tail portion of the aircraft sits on the ground. This configuration leads to the nose of the aircraft pointing upwards and obscures the view of the pilot during taxiing, take off, and landing. Because of all these demands on the pilot, learning to fly these aircraft is no small task and one that perspective pilots cannot take lightly if they wish to succeed. Mike Spalding, the chief pilot at the Military Aviation Museum, explained that flying a World War Two aircraft, is an entirely different type of flying altogether and can take years for even experienced pilots to master.

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<sup>71</sup> T.K., Facebook Message to Author, May 24, 2015; Mike Spalding, Interview by Author, Reading, Pa, June 4, 2016.

Spalding has also mentioned that flying museums are beginning to face a shortage of certified pilots and that this shortage could eventually become problematic.<sup>72</sup>

Maintenance and upkeep of historic aircraft is also expensive, but crucial to keeping them airworthy. Each Flying Museum must comply with FAA regulations to keep their aircraft safe to fly, but many organizations hold their aircraft to a higher standard to ensure that they can remain in flight for years to come. One of the largest maintenance projects was undertaken in 2006, when the Commemorative Air Force grounded their B-29 Superfortress, *Fifi*. According to the aircraft's chief pilot, the Superfortress was in desperate need of four new engines. The CAF spent the next four purchasing and installing the new engines into the B-29. To compliment the new engines, the CAF also engineered four new engine-housing units, which exactly resembled the original World War Two parts, but functioned more efficiently to air cool the engines and prevent overheating. In 2010, *Fifi* returned to flying condition and with the exception of minor upkeep, has not faced any major repairs.<sup>73</sup>

Another notable CAF aircraft that has undergone major maintenance work is the museum's Corsair. Following the planes performance at several 2016 summer airshows, it was discovered that the engine needed to be replaced. The estimated cost of the new

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<sup>72</sup> Mike Spalding, Interview by Author, Reading, Pa, June 4, 2016; Stan Musik, Interview by Author, Reading, Pa, June 4, 2016. Chris Bulko, Interview by Author, Bethlehem Pa, April 3, 2015.

<sup>73</sup> Federal Aviation Administration, *Aviation Maintenance Technician Handbook – Airframe, Volume 1*(Washington D.C.: U.S. Department of Transportation), 1-5 – 1-9, 9-41; Federal Aviation Administration, *Aviation Maintenance Technician Handbook – Airframe, Volume 2*(Washington D.C.: U.S. Department of Transportation); 10-2 – 10-4, 11-2 – 11-3, 11-30 – 11-34; Stan Musik, Interview by Author, Reading, Pa, June 4, 2016; Commemorative Air Force, "About the CAF B-29, *Fifi*."

engine totaled over \$200,000. It was feared that the Corsair would not be airworthy until 2020, because they lacked the funding to suddenly purchase a new engine. However, a fundraiser was posted online, and donors from all over the world helped to cover the cost of the new engine. Fortunately for the CAF, their prized Corsair was only grounded for three months and has performed as well as it ever had in the past.<sup>74</sup>

Not every maintenance project is a months or years long process. Taking care of these aircraft can be as simple as an engine tune-up, or a new coat of paint. Many flying museums have mechanics and engineers on staff to keep aircraft engines running at peak efficiency. One of the most important things a museum can do to ensure long life for their aircraft is the simple mechanical work such as oil changes and regular tune-ups.<sup>75</sup>

Among the most important ways these aircraft are cared for is how they stored when they are not flying for long periods of time. Flying museums are protective of their aircraft and many museums will shut down their flying aircraft during the winter months to avoid the aircraft being subjected to harsh cold and poor conditions. Museums begin to winterize their aircraft following the end of airshow season at the

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<sup>74</sup> Commemorative Air Force, Facebook Post, December 8, 2017, accessed December 8, 2017, <https://www.facebook.com/CommemorativeAF/photos/a.345518077509.154347.263893947509/10155841602372510/?type=3&theater>; "FG-1D Corsair N9964Z," Crowdrise, accessed December 8, 2017, <https://www.crowdrise.com/FG1DCorsairN9964Z>; Commemorative Air Force Dixie Wing, Facebook Post, December 30, 2017, accessed January 2, 2018, <https://www.facebook.com/CAFDixieWing/photos/a.109917925699685.13189.109359792422165/1774553035902824/?type=3&theater>.

<sup>75</sup> Moreno Aquari, Interview by Author, Reading, Pa, June 4, 2016; Mike Spalding, Interview by Author, Reading, Pa, June 4, 2016; Stan Musik, Interview by Author, Reading, Pa, June 4, 2016.

end of August and September. The process includes draining all fluids from the aircraft and making sure that engine components and other parts of the aircraft are functional. Planes are then moved to a large hangar space where any additional maintenance can be performed on them if needed. At this time the aircraft may also be displayed as static museum exhibits. This time out of the sky often allows museums to address any issue with an aircraft, it is also not uncommon for them to remove an aircraft's engine for cleaning and maintenance. Lastly, although many museums keep their aircraft grounded during the winter months, they make sure to select days throughout those months to run the engines so they do not sit idle for too long.<sup>76</sup>

While winterizing the aircraft is important, preparing them for airshow season is also vital. Each summer numerous airshows are held across the United States at airports large and small. The aircraft that attend, and make these events memorable, often fly long distances to make it to airshows. It is the job of the museums that operate these aircraft to make sure that they are capable of making the flight, performing in the show, and returning back to their home. Sometimes organizations need to make

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<sup>76</sup> Commemorative Air Force Dixie Wing, Facebook Post, February 27, 2017, accessed January 3, 2018, <https://www.facebook.com/CAFDixieWing/photos/a.124573624234115.16470.109359792422165/1459932400698224/?type=3&theater>; Commemorative Air Force Dixie Wing, Facebook Post, January 24, 2018, accessed January 25, 2018, <https://www.facebook.com/CAFDixieWing/photos/a.109917925699685.13189.109359792422165/1801952039829590/?type=3&theater>; Commemorative Air Force Dixie Wing, Facebook Post, January 24, 2018, accessed January 25, 2018, <https://www.facebook.com/CAFDixieWing/photos/a.109917925699685.13189.109359792422165/1801951993162928/?type=3&theater>; Commemorative Air Force Dixie Wing, Facebook Post, January 24, 2018, accessed January 25, 2018, <https://www.facebook.com/CAFDixieWing/photos/a.109917925699685.13189.109359792422165/1799509230073871/?type=3&theater>; Moreno Aquiri, Interview by Author, Reading, Pa, June 4, 2016.

difficult decisions in the best interest of their aircraft, and these decisions can effect if an aircraft can attend or perform at an airshow.<sup>77</sup>

At the 2015, the Annual World War Two Weekend airshow, held at the Mid-Atlantic Air Museum, suffered several cancelations due to unforeseen circumstances. One cancelation was the P-38 from Fagan Fighter's. Evan Fagan, chief pilot and operator of the museum, made the last minute decision to cancel the planes appearance, as he would have had to fly through a storm system to get from Minnesota to Pennsylvania. Moreover, the Military Aviation Museum also experienced difficulty. Of three aircraft they had set to attend the weekend, only two actually made the trip, and only one actually flew for the show. The aircraft that did not make the trip was the museum's Me-109. There was some concern that aircraft had recently flown too much and was grounded pending a full examination. The other aircraft the Military Aviation Museum had issues with was their Spitfire. While the plane made the flight from Virginia Beach to Reading, the pilot noticed an unusual amount of smoke coming from the engine. Upon arriving at the MAAM chief pilot Mike Spalding decided against flying the Spitfire in the airshow. Although cancelations are unfortunate for those in attendance, flying museums will always put the well-being of their aircraft first so that more people may experience them in the long run.<sup>78</sup>

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<sup>77</sup> "North American Air Show Calendar," MILAVIA, accessed January 5, 2018, [https://www.milavia.net/airshows/calendar/showdates-2017-north\\_america.html](https://www.milavia.net/airshows/calendar/showdates-2017-north_america.html); Evan Fagan, Email Message to Author, May 3, 2015; Mike Spalding, Interview by Author, Reading, Pa, June 4, 2016.

<sup>78</sup> Evan Fagan, Email Message to Author, May 3, 2015; Mike Spalding, Interview by Author, Reading, Pa, June 4, 2016; Moreno Aquari, Interview by Author, Reading, Pa, June 4, 2016.

Each flying museum is dedicated to making sure that their restored aircraft remain in flying condition as long as possible. To achieve this, many organizations have begun to put modern technology in their aircraft. Contemporary technology not only can make historic aircraft more efficient, but can also make them safer to fly. One of the Military Aviation Museum's FW-190s has had the entire cockpit refitted with modern instruments. Apart from the government-mandated radio, the chief mechanic installed new flight gauges as well as a state of the art GPS navigation system and an onboard computer, which gives the pilot performance readouts in flight.<sup>79</sup> These new gadgets allow for the pilot to more safely fly the aircraft over long distances, making it more feasible to attend airshows. Another aircraft that has been somewhat modernized, is the Commemorative Air Force's Corsair. While the aircraft has maintained most of its originality, the CAF made the decision to replace the engine's double stage supercharger with a newer single stage supercharger. This was done to because the single stage supercharger is far less prone to create engine fires than the double stage supercharger. Moreover, the single stage supercharger also stresses the engine less. The changes that museums make to modernize their aircraft help preserve their ability to fly.<sup>80</sup>

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<sup>79</sup> Fighter Factory, Facebook Post, August 18, 2015, accessed December 12, 2017, <https://www.facebook.com/FighterFactory/photos/a.768093759943543.1073741843.597973800288874/870282906391294/?type=3&theater>; Fighter Factory, Facebook Post, August 18, 2015, accessed December 12, 2017, <https://www.facebook.com/FighterFactory/photos/a.768093759943543.1073741843.597973800288874/870283753057876/?type=3&theater>; Mike Spalding, Interview by Author, Reading, Pa, June 4, 2016.

<sup>80</sup> Stan Musik, Interview by Author, Reading, Pa, June 4, 2016; Mike Schneider, "CAF Corsair FG-1D BuNo 92468," *Commemorative Air Force*, July 2015, accessed September 22,

Even though these changes are made for the greater good, some aircraft purists still do not believe that all modernization is necessary. According to Moreno Aquiri, a CAF member and researcher, some aircraft enthusiasts believe that putting modern technology in World War II aircraft detracts from the importance of their memory and use as living monuments. Aquiri believes that there are generally three ideologies on how modern technology in aircraft is viewed, the first being the purists who believe that no modern technology is best. The second school of thought includes those who believe that limited technology is best. The belief is that technology which improves safety and flight conditions of an aircraft are important, however pieces of technology that can be viewed as superfluous, such as installed GPS navigation system and onboard computers should be avoided. The final school of thought is that as long as the aircraft maintains its general structure and integrity, the amount of new technology does not matter and all that matters is that the aircraft is airworthy.<sup>81</sup>

Each of these differing opinions has strong arguments for their point of view, and all could be considered valid. Flying museums often mirror these philosophies in how they conduct their restoration and maintenance projects. For example, the EAA believes that aircraft should be as original possible, the Commemorative Air Force believes in adding some modern technology within reason, and the Military Aviation Museum will add as much modern technology to an aircraft as they believe will be

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2016, <http://dixiewing.org/wp-content/uploads/2017/02/CAF-Corsair-FG-1D-History.pdf>.

<sup>81</sup> Moreno Aquiri, Interview by Author, Reading, Pa, June 4, 2016.

beneficial to its overall function. While the philosophies of individuals and organizations may vary, their overall mission, to restore and fly as many World War II aircraft as possible, is universal.<sup>82</sup>

Since the inception of flying museums in the late 1950s, organizations have done notable work to preserve the aircraft from World War II. While they have done an admirable job in doing so in regards to Allied aircraft, finding original Axis aircraft has proven to be difficult. In part this is because the Germans destroyed many of their own aircraft to avoid them from being captured by the Russians, and many Japanese aircraft were not built for long life and were reduced to scrap after the war. To help safeguard these aircraft from being lost to time, museums have turned to replicas of Axis aircraft.<sup>83</sup>

Replica aircraft have become an important part living memory in World War Two aviation. Many of the replica Japanese aircraft that are operated today were originally used in 1960s and 70s war films, most notably *Tora! Tora! Tora!*. For filmmakers to recreate the Japanese Air Force that attacked Pearl Harbor, they purchased a large number of North American AT-6 Texans. The Texan was the primary training aircraft of the United States military throughout World War II and were built in large numbers. As a result of their mass production, they became easily attainable once they were

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<sup>82</sup> Moreno Aquiri, Interview by Author, Reading, Pa, June 4, 2016; Stan Musik, Interview by Author, Reading, Pa, June 4, 2016; Mike Spalding, Interview by Author, Reading, Pa, June 4, 2016; "Warbirds," EAA, accessed January 8, 2018, <https://www.eaa.org/en/ea/aviation-communities-and-interests/ea-warbirds-of-america-warbird-and-ex-military-aircraft>.

<sup>83</sup> Moreno Aquiri, Interview by Author, Reading, Pa, June 4, 2016; John Killen, *The Luftwaffe: A History* (Barnsley: Pen and Sword Aviation, 2013), 298; John W. Whittman, "Japan's Fatally Flawed Air Arms," *Aviation History* 17, no. 1 (September 2006), 50-51.



decommissioned. Filmmakers turned to this particular aircraft for a number of reasons. First and foremost, the AT-6 has the ability and power to perform as a military aircraft, making its presentation look believable on film. Moreover, it was discovered that some alterations the former American trainer could be made to look like multiple Japanese aircraft including the famed Mitsubishi A6M Zero, the Aichi D3A “Val” dive-bomber, and the Nakajima B5N “Kate” torpedo bomber. These conversions were inexpensive and simple for the film crew to complete and helped make for more practical and realistic filming.<sup>84</sup>

Once *Tora! Tora! Tora!* finished filming, 20<sup>th</sup> Century Fox was left with a number of reproduction Japanese aircraft. Instead of scrapping the aircraft or selling them to private collectors, in 1972 the studio donated six of the movie planes to the Gulf Coast Wing of the Commemorative Air Force. The Aircraft quickly became among the most popular operated by the CAF, and were given their own division, known as the Tora Sponser Group. This branch of the CAF still operates the six original aircraft that were donated by 20<sup>th</sup> Century Fox, but have also added four more replica Japanese aircraft to their fleet. The Tora Sponser Group also puts on a bombing reenactment using their aircraft and a pyrotechnic crew to create one of the most memorable living history experiences. Although they are replicas, these Japanese aircraft have become an important part of living history and living memory.<sup>85</sup>

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<sup>84</sup> Elliot Pood, “Tora, Tora, Tora – A Living Museum,” *Tora! Tora! Tora! Air Shows*, accessed January 9, 2018, <http://www.toratoratora.com/ourstory.html>; Moreno Aquari, Interview by Author, Reading, Pa, June 4, 2016.

Like Japanese aircraft, many flying museums have turned to replica aircraft to represent German planes as well. One of the most popular and most used German aircraft was the Messerschmitt Me-109. The Me-109 was one of the main fighter planes used by the Germans throughout the war and helped build the Luftwaffe's early aerial dominance on both fronts. During the Spanish Civil War and throughout World War II, the Germans gave the Spanish military several Me-109s for their own use, and eventually reached a licensing agreement that allowed the Spanish aircraft manufacturer Hispanio to build the fighter, who gave it the name Buchon. When the war had ended many German Me-109s had been destroyed leaving only a handful of original planes in existence. In the late 1960s when the film *The Battle of Britain* film began production the producers realized they needed aircraft that would resemble the Me-109s. As a solution, they purchased nineteen Hispanio Buchons, which had recently been retired by the Spanish Air Force. With some minor cosmetic work and paint, the Buchons perfectly resembled their German relatives.<sup>86</sup>

Unlike the replica Japanese planes that were used in *Tora! Tora! Tora!*, reproduction Me-109s from *The Battle of Britain* were not donated, but instead many

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<sup>85</sup> Elliot Pood, "Tora, Tora, Tora – A Living Museum," *Tora! Tora! Tora! Air Shows*, accessed January 9, 2018, <http://www.toratoratora.com/ourstory.html>; Moreno Aquari, Interview by Author, Reading, Pa, June 4, 2016; "Collection/CAF Fleet," Commemorative Air Force, accessed January 4, 2018, <http://ghostsquadron.org/aircraft>.

<sup>86</sup> Killen, *The Luftwaffe*, 70-71; "Messerschmitt/ Hispanio Buchon HA1112-M1L – N109BF," EAA, accessed January 9, 2017 <https://www.eaa.org/en/eea-museum/museum-collection/aircraft-collection-folder/1947-messerschmitt-hispanio-buchon-ha1112-m1l---n109bf>; "Messerschmitt Me-109," Erikson Aircraft Collection, accessed, January 9, 2017, <http://www.ericksoncollection.com/aircraft/#/messerschmitt-me-109ha-1112/>.

were given to a stunt pilot, Connie Edwards, as payment and were left in a hanger space for years. Others were sold to various individuals. While many of the planes used in the movie have not flown since 1969, the film made it a popular practice for flying museums to purchase Buchons and turn them into Messerschmitts, when they become attainable. Although even the replica Me-109s are rare but they still have more flying examples than the original aircraft, of which there are only two flying in the United States. The Me-109 was is a crucial part of Second World War history, and having flying examples, replica or real is important so the public may experience this aircraft.<sup>87</sup>

Not all replica aircraft were transformed from one plane to another for use in films. It has become more of a common for wealthy individuals, or museums to actually build a replica aircraft from scratch or purchase a starter kit from an aeronautics company to help guide them. The founder of the Old Rhinebeck Aerodrome, Cole Palen, made the practice of home building aircraft popular in the mid-1960s. Although Palen specialized in building World War I era aircraft, potential aircraft builders and aviation enthusiasts look to Palen as the father of home building aircraft and have followed his lead by attempting to recreate aircraft that would otherwise be lost or extremely rare.<sup>88</sup>

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<sup>87</sup> "Messerschmitt/ Hispanio Buchon HA1112-M1L – N109BF," EAA, accessed January 9, 2017 <https://www.eaa.org/en/eea-museum/museum-collection/aircraft-collection-folder/1947-messerschmitt-hispano-buchon-ha1112-m1---n109bf>; "Messerschmitt Me-109," Erikson Aircraft Collection, accessed, January 9, 2017, <http://www.ericksoncollection.com/aircraft/#/messerschmitt-me-109ha-1112/>; Mike Spalding, Interview by Author, Reading, Pa, June 4, 2016; Guttman, "Movie Messerschmitts," 4.

<sup>88</sup> Chris Bulko, Interview by Author, Bethlehem Pa, April 3, 2015; "About Cole and Rita Palen," The Old Rhinebeck Aerodrome, accessed April 10, 2015, <http://oldrhinebeck.org/about-cole-and-rita-palen/>.

Three of the most notable home built aircraft are operated by the Military Aviation Museum. Two of these three notable aircraft are extremely rare Focke-Wulf 190s. The first Focke-Wulf 190, or FW-190, was built by a private collector in 2010 and was acquired by the Military Aviation Museum in 2015. This aircraft represents the majority of FW-190s that flew for the Luftwaffe. The second aircraft, and the second FW-190 is also a reproduction, but built by the museum. This particular FW-190 is the D-9, or "Dora" variant, making it even more rare than museum's other FW-190. The D-9 was built with a longer a nose in hopes that it would increase the fighter's effectiveness at high altitude against bombers. This FW-190 is one of a kind. The final World War II replica aircraft that the Military Aviation Museum operates is a Messerschmitt Me-262, the world's first operational jet engine fighter. The Me-262 was arguably one the greatest developments of the Second World War and proved to a difficult match for Allied aircraft. However, late war, introduction, short flight times, and lack of significant numbers diminished the aircraft's potential. There are no original Me-262s left in flying condition, and even static examples are few and far between. The Military Aviation Museum's Messerschmitt was built and first flown in 2011 and has become a centerpiece of their collection. These flying replications of rare aircraft are great examples of living history and allow for people to experience them doing what they were designed to do, instead of sitting behind velvet ropes.<sup>89</sup>

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<sup>89</sup> Killen, *The Luftwaffe*, 158-159, 292-295; "Focke Wulf FW-190," Military Aviation Museum, accessed January 10, 2018, <http://militaryaviationmuseum.org/aircraft/wwii-aircraft/>; "FW-190D Dora," Military Aviation Museum, accessed January 10, 2017, <http://militaryaviationmuseum.org/aircraft/wwii-aircraft/>; "Messerschmitt Me-262 Schwable,"

From restoration to routine maintenance, flying museums do all they can to keep as many historic warbirds flying as possible. Through a large network of dedicated professionals and volunteers these museums achieve their goals and further their mission. To ensure that aircraft can be experienced by generations to come and experience living memory, some museums have begun to install modern technology in the planes and have updated various specifics to make them safer to fly. Moreover, some organizations use replica Axis aircraft so that people will have the opportunity to experience the aircraft that are either no longer in existence or are uncommon. Overall, while each flying museum may have different philosophies or practices, they each go above and beyond in preserving living history.

### Chapter 3: Airshows: Living Memory and Living Monuments

Each year millions of Americans flock to airports all over the country to attend airshows.<sup>90</sup> Many of these spectacles dazzle audiences with death defying stunt flying, wing walking, and other various aerobatic performances. Many of these events also showcase the military aircraft from the Second World War. It is during these events that the general public gets the chance to fully experience these historic aircraft by being able to see them fly, touch them, and potentially spend time inside them. Airshows are the living history events that most deeply affect the memory of World War II aviation.<sup>91</sup>

This chapter will investigate the impact that airshows have on memory and World War Two Aviation by looking at various events and performances by multiple organizations. It will also explore the history of post war airshows, the various types of airshows, veteran interaction with aircraft at airshows, and airshow economics. All of

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<sup>90</sup> "Air Show Facts," About Air Shows, International Council of Air Shows, accessed May 17, 2018, <https://www.airshows.aero/Page/AboutAS-Facts>.

<sup>91</sup> Chance Babin, "Working the Air Shows: Events are a target-rich area for recruiting," *Citizen Airman: The Official Magazine of the Air National Guard and Air Force Reserve* 70, no.3 (June 2018): 28.

these factors combine not only to create a memorable experience for those who attend airshow events, but also effect the overall commemoration of the war, those who served in it, and the aircraft.

Since 1909 airshows have captivated audiences all over the world. Prior to World War I, people would flock to airfields as pilots preformed stunts that awed the crowds. These early shows, and later the First World War, helped to captivate the masses attention on aviation. Following the Great War, airshows underwent a major change, as flight groups, the military, and individual pilots began to tour the country to make shows accessible to more people. At this time, during the 1920s, the most popular type of airshow was known as barnstorming. Barnstorming became the golden age of airshows and featured airplane rides for spectators, death defying stunt flying, and an event known as wing walking, where a person or people would walk across the wings of a biplane while in flight. Also during this era, the U.S. National Air Championship Races began, in which the best pilots competed against one another one closed circuit courses. Although less of a spectacle than the airshows, the air races still wowed audiences as they were displays of speed and precision flying. Moreover, these races also showcased the latest and greatest innovations in aviation.<sup>92</sup>

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<sup>92</sup> "Air Shows: An International Phenomenon," Centennial of Flight, accessed May 17, 2018, <https://www.centennialofflight.net/essay/Social/airshows/SH20.htm>; "The History of the International Council of Air Shows," International Council of Air Shows, accessed May 17, 2018, <https://www.airshows.aero/CMS/History>; Linda Shiner and Caroline Sheen, "50 Years of Air Racing," *Air & Space Smithsonian* 3, no. 28 (August 2013): 18-20; David V. Cresson, "History of Air Show Aerobatics," *American Aviation Historical Society Journal* 2, no. 61 (Summer 2016), 112-115.

From the end of World War I to the beginning of the Second World War, airshows and air races displayed the greatest pilots and the best and newest aircraft. However, World War II altered airshows. During and immediately following the war, the vast majority of airshows were put on by the military. While these airshows provided audiences with an exciting experience, it was short lived. By the end of the Second World War, airshows had lost some of the allure they once held over the general public because airplanes were no longer a novelty. However, in the late 1950s airshows began a resurgence, with the help of newly organized flying museums dedicated to preserving the historic World War II aircraft, and other organizations who set up annual airshows. These two factors led to a renewed interest airshows in general, and sparked a new public interest in warbirds.<sup>93</sup>

Flying museums assisted in creating innovative airshow features and new genres, thanks to their mission of restoring and flying historic aircraft. Instead of audiences attending to see stunt flying, they came for an immersive living history experience; they began to witness World War II aircraft not only flying, but also performing combat and bombing demonstrations. By the end of the 1960s, not only had warbirds become a fixture at almost every airshow, but annual airshows were being established all over the country that solely featured World War II aircraft. These specialty airshows not only attracted the typical aviation enthusiasts, but also military history buffs, and even

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<sup>93</sup> Centennial of Flight, "Air Shows: An International Phenomenon"; International Council of Air Shows, "The History of the International Council of Air Shows"; Rodger Hudson, "RAF Display 1934," *History Today* 11, no. 65 (November 2015): 26. "Our History and Mission," Commemorative Air Force, accessed May 17, 2018, <https://commemorativeairforce.org/about>.



Second World War veterans, many of whom had flown, worked on, or were associated with the performing aircraft.<sup>94</sup>

As the Second World War became more of a distant memory, airshow organizers began holding living history events to commemorate special anniversaries of aerial battles and events, such as the Doolittle Raid, specific squadrons, like the Flying Tigers, and even specific aircraft. These special air shows invited the public to celebrate major milestones of the war, but more importantly allowed for them to interact with living history exhibits, as well as those who took part in some of the wars most monumental moments.

In some instances, special anniversary air shows began as reunions for those who took part in a particular event or belonged to a specific squadron. One group, for which this is the case, is the Doolittle Raiders.<sup>95</sup> Within two weeks of the attack on Pearl Harbor, President Roosevelt wished to launch a direct attack on Japan, and the Japanese war industry. However, coordinating such an attack, against the island nation was no small feat, and the president was told realistically the attack would take months to plan. Although the scheme would take longer than Roosevelt had wished, he gave the order for the military to devise a strategy to attack. The architects of the attack were the navy's Captain Francis Low and the Army Air Force's Lt. Col. James "Jimmy" Doolittle, who understood that their two branches of the military had to work in tandem to make

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<sup>94</sup> Moreno Aquiri, Interview by Author, Reading, PA, June 4, 2016; Stan Musik, Interview by Author, Reading, PA, June 4, 2016; Commemorative Air Force, "Our Mission and History"; Babin, "Working the Air Shows"; Cresson, "History of Air Show Aerobatics," 115-117, 119.

<sup>95</sup> "Doolittle Raider Reunions," Doolittle Raider, accessed May 19, 2018, <http://www.doolittleraider.com/reunions.htm>

the attack a possibility. Low and Doolittle devised that the only way to successfully bomb Japan was to launch a flight of light bombers from an aircraft carrier, based off the east coast of the country, bomb their target, and continue west, where they could land safely in China. With this blueprint the military was given the green light. Once given the approval Doolittle selected the new B-25 Mitchell twin-engine bomber, to be the aircraft that would actually make the attack.<sup>96</sup>

After months of planning the United States finally launched its plan against Japan on April 18, 1942. On that morning, Lt. Col. Doolittle led a flight of sixteen B-25s off the deck of the *USS Hornet*, however due to a the sighting of Japanese patrol boat the bombers were forced to launch earlier than planned. Once over Tokyo the sixteen B-25s attacked several military targets, both bombing and strafing them. Once their attack was over, the raiders set a course for China; however, it was during this part of the mission that problems arose. Due to the fact that the flight was forced to take off earlier than expected, it changed the fuel consumption of the aircraft, leaving the B-25s dangerously low on fuel once the attack was complete. One bomber was so low on fuel, following the bombing, that it was forced to fly, and crash land in Soviet territory, the other fifteen aircraft either crash-landed or were bailed out of along the Chinese coast, which was Japanese occupied territory. Of the eighty men who started the mission five were interned by the Russians, two men drowned, one was killed while bailing out of his

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<sup>96</sup> Robert B. Kane, "The Doolittle Raid: 75 Years Later," *Air & Space Power Journal* 31, no. 1 (Spring 2017), 72-74; Susan Zimmerman, "Piecing Together the Doolittle Raid," *History Magazine* 14, no.1 (October/November 2017), 8-10; Scott M. James, "The Navy Targets Tokyo," *Naval History* 2, no. 29 (April 2015), 28-30.

aircraft, eight men were taken prisoner by the Japanese army, of which three were executed for war crimes and another died while in prison.<sup>97</sup>

The remaining sixty-nine raiders were aided by Chinese guerillas, who led them to safety. Although Doolittle initially deemed his attack a failure, it served as a morale boost for the American public, as this was the first attack on Japan since Pearl Harbor. Moreover, the raid demoralized the Japanese, who believed their home island was impervious to attack, as a foreign enemy had not attacked them since the thirteenth century. Overall, each member of the Doolittle Raid was hailed as hero in the United States and they were all awarded the Distinguished Flying Cross, moreover, Lt. Col. Doolittle was awarded the Congressional Medal of Honor and was promoted to Brigadier General.<sup>98</sup>

Almost immediately following the end of the war, General Doolittle began to plan the first official raider reunion. Doolittle personally reached out to each surviving member of his attack on Tokyo, and invited them for weekend of fun and remembrance in Miami, Florida in December 1945.<sup>99</sup> This first reunion began an almost yearly tradition in which the raiders would meet in a variety of cities, rehash their old war stories, and remember fallen friends. However, as years passed some of the reunions evolved from just the raid participants, into a living history event that was open to the

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<sup>97</sup> Kane "The Doolittle Raid," 75-78; Zimmerman, "Piecing Together the Doolittle Raid," 10-11; James, "The Navy Targets Tokyo," 26, 30-33.

<sup>98</sup> Kane "The Doolittle Raid," 75-78; Zimmerman, "Piecing Together the Doolittle Raid," 10-11; James, "The Navy Targets Tokyo," 26, 30-33.

<sup>99</sup> Lt. General J. H. Doolittle, Letter to Lt. Col. Robert G. Emmens, 27 November, 1945.

public. As the focus of some of these events shifted it became commonplace, beginning in the late 1960s, to have at least one B-25 in attendance at the reunion, of which a select few were painted with the Doolittle Raider's insignia. Throughout the 1980s and 1990s the reunions remained popular, but it also became common for the Doolittle Raiders to meet at airshows to be honored and watch as flying museums reenacted their attack on Japan. Between the reunions and the airshows, the Doolittle Raid became one of the most memorialized events of the war.<sup>100</sup>

Although General Doolittle passed away in 1993, reunions and memorial flights were still held yearly until 2013. Throughout the 2000s the attendance at the get-togethers grew sparser as some of the surviving members of the raid had health issues and others passed on. By the 71<sup>st</sup> anniversary reunion, held in 2013, there were only four living members of the original eighty men who attacked Japan. Those four made the decision to make the 71<sup>st</sup> reunion, the last one. In the years following the final reunion three of the final four raiders passed away, leaving Lt. Col. Richard "Dick" Cole, Doolittle's copilot, as the lone surviving member of the attack.<sup>101</sup>

While the final reunion was held in 2013, it was not the last major celebration of the Doolittle Raid. In 2017, for the 75<sup>th</sup> anniversary of the raid, two major airshow celebrations were put together. The first major event took place April 17 and 18, 2017

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<sup>100</sup> "Doolittle Raider Reunions," Doolittle Raiders, accessed May 19, 2018, <http://www.doolittleraider.com/reunions.htm>; C.V. Glines, "Mission Accomplished," *Aviation History* 4, no. 24, (March 2014), 21.

<sup>101</sup> Glines, "Mission Accomplished," 21; C.V. Glines, "Doolittle Raiders Drink a Final Toast," *Aviation History* 4, no. 24 (March 2014), 10; Doolittle Raider, "Doolittle Raider Reunions; Albin Krebs, "James Doolittle, 96, Pioneer Aviator Who Led First Raid on Japan, Dies," *New York Times*, September 28, 1993, B13; Brendan Manley, "Doolittle Raiders Down to One Man," *Military History* 4, no. 33 (November 2016), 12.

at the National Museum of the U.S. Air Force, located in Dayton Ohio. At 101 years old Dick Cole acted as the master of ceremonies to help commemorate the Doolittle Raid. The two-day public event featured authors, speakers, a film screening, and most importantly an airshow made up entirely of B-25s. While only eleven B-25s were able to attend this event they still admirably reenacted the raiders take off from the deck of the *USS Hornet*. From there, the bombers performed several flyovers in tight formations to show the audience how Doolittle and his men executed their attack. The two-day living history event was capped with the screening of a new documentary about the raid, and a question and answer session with Cole and the children of various other raiders.<sup>102</sup>

Following the event at the National Museum of the U.S. Air Force, the 75<sup>th</sup> Anniversary of the Doolittle Raid was again celebrated with a living history event at the annual EAA Airventure airshow in Oshkosh, Wisconsin. The event took place on the evening of July 26 and featured sixteen B-25s. Just as he had been in Ohio, Dick Cole was in attendance and saluted each bomber and its crew as they taxied passed him on their way to the runway. The B-25s took off and performed a similar show to one that was put on at the National Museum of the U.S. Air Force. Both of these events, and some of the larger reunions not only remind the public of the history and significance of

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<sup>102</sup> "75<sup>th</sup> Anniversary of the Doolittle Raid," National Museum of the U.S. Air Force, accessed May 21, 2018, <https://www.nationalmuseum.af.mil/Upcoming/Doolittle-Tokyo-Raid-75th-Anniversary/>; Andrew V. Pestano, "Last Surviving Doolittle Raid Pilot Commemorates 75<sup>th</sup> Anniversary," *UPI*, April 18, 2017, [https://www.upi.com/Top\\_News/US/2017/04/18/Last-surviving-Doolittle-Raid-pilot-commemorates-75th-anniversary/6341492524671/](https://www.upi.com/Top_News/US/2017/04/18/Last-surviving-Doolittle-Raid-pilot-commemorates-75th-anniversary/6341492524671/)

the Doolittle Raid, but also they allow for individuals to have an immersive historical experience, in which they can connect with those who lived through the actual event.<sup>103</sup>

Specialty airshows can commemorate more than just a particular event, some shows celebrate the achievement and service of individual squadrons. One such squadron that has been commemorated is the American Volunteer Group, or AVG, better known as the Flying Tigers. Arguably, the Flying Tigers are one of the most recognizable WWII squadrons, thanks in part to the trademark shark face nose art and unit insignias painted on their P-40 Warhawks.<sup>104</sup> In September of 2016 during the yearly Atlanta Warbird Weekend, the 75<sup>th</sup> anniversary of the AVG was celebrated. Sponsored by the Dixie Wing of the Commemorative Air Force, the goal of the weekend was to educate the public about the history and service of the Flying Tigers, as well as offer individuals the chance to interact with living monuments. The event featured a large gathering of P-40s, from flying museums all over the country, most of which were painted with some kind homage to the American Volunteer Group. Throughout the

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<sup>103</sup> "Commemoration of Doolittle Raid 75<sup>th</sup> Anniversary at AirVenture 2017," EAA, accessed May 21, 2018, <https://www.eaa.org/en/airventure/eea-airventure-news-and-multimedia/eea-airventure-news/eea-airventure-oshkosh/04-17-2017-commemoration-of-doolittle-raid-75th-anniversary-at-airventure-2017>; Meg Jones, "Last Doolittle Raider Remembers Historic Mission 75 Years Ago at EAA Airventure," *Journal Sentential*, July 26, 2017, <https://www.jsonline.com/story/news/local/milwaukee/2017/07/26/last-doolittle-raider-remembers-historic-mission-75-years-ago-eea-airventure/513483001/>.

<sup>104</sup> "P-40E Warhawk," Fagan Fighters, accessed October 21, 2017, <http://www.fagenfighterswwiimuseum.org/aircraft/desertshark/desertshark.html>; "Curtis P-40 Warhawk," American Air Power Museum, accessed October 21, 2017, <http://americanairpowermuseum.com/2014/01/01/curtiss-wright-p40-warhawk/>; Commemorative Air Force Headquarters, "Fighters"; "WWII Aircraft," Military Aviation Museum, accessed October 21, 2018, <http://www.militaryaviationmuseum.org/images/Aircraft%20Images/P-40.jpg>; Roger D. McGrath, "The Flying Tigers," *New American* 32, no. 19 (October 10, 2016): 35-39.

airshow, the Warhawks dazzled the audience with precision formation flying and aerobatic stunts. Moreover, two surviving Flying Tigers were on hand to talk about their experience with the unit and help educate attendees about the featured aircraft. Airshows such as these not only help to commemorate the war but also helps bring awareness to aspects that could be overlooked in a more standard airshow setting.<sup>105</sup>

While the majority of specialty airshows focus on either certain events or squadrons, a select few choose to observe the service of a specific aircraft. The most notable of these shows was the Gathering of Mustangs and Legends. From September 27 – 30, 2007, over 100 P-51 Mustangs descended on Columbus, Ohio. It remains the largest gathering of a single type of warbird since the end of the Second World War. The weekend prominently featured the D model Mustangs, as they are the most common, however, a handful of C models were in attendance, along with one A model. Moreover, several former Mustang pilots were on hand to reconnect with the famed aircraft they once flew. Throughout the actual flying portion of the weekend several Mustangs performed aerobatic demonstrations as well flew in large group formations. Although an airshow such as the Gathering of Mustangs and Legends has not been attempted since 2007, it served as a powerful living history experience that

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<sup>105</sup> "Blockbuster Lineup of Aircraft, WWII Veterans for CAF Atlanta Warbird Weekend," *Warbird News*, September 15, 2016, <http://warbirdsnews.com/warbirds-news/warbird-collections/commemorative-air-force-news/blockbuster-lineup-aircraft-wwii-veterans-atlanta-warbird-weekend.html>; "AVG Events," American Volunteer Group, accessed May 23, 2018, <https://flyingtigersavg.com/avg-events/>; "Commemorating the Flying Tigers," *Warbird News*, October 1, 2016, <http://warbirdsnews.com/warbirds-news/commemorating-flying-tigers.html>.

commemorated arguably the most well recognized and legendary aircraft of the Second World War.<sup>106</sup>

Throughout the history of WWII airshows, veterans have played a special role. Not only have they attended these events to be honored and commemorated, but they have also been an integral part in these events by delivering lectures and speeches, doing meet and greets with the general public, and as recently as the late 1990s, performing as pilots in the actual airshow. Throughout the entirety of a week or weekend long airshow, there are often times several events that take place away from the flight line. Many events feature reenactment camps, flea markets with WWII memorabilia, various kinds of period entertainment, and a series of speakers.<sup>107</sup> While authors and historians also appear on the speakers list, the lived experience of veteran airmen often attracts the largest audiences around the speaker's area. These speakers, who are willing to share their stories, help to bring a realistic and personal perspective to the commemorative event. Some veterans are not as comfortable taking center stage, but are still willing to share their experiences with smaller audiences. Former

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<sup>106</sup> Jon Guttman, "Gathering of Mustangs & Legends," *Aviation History* 18, no. 4 (March 2008), 11; "P-51's Attending," The Gathering of Mustangs and Legends, accessed October 21, 2017, <http://www.gml2007.com/p51attending.shtml>; "Legends Attending," The Gathering of Mustangs and Legends, accessed October 21, 2017, [http://www.gml2007.com/l\\_attending.shtml](http://www.gml2007.com/l_attending.shtml); "The Final Round Up," Stallion 51, accessed October 21, 2017, <https://www.stallion51.com/events/air-shows-2/>.

<sup>107</sup> Mike Urban, "WWII Battle Comes Alive on Streets of Reading," *The Reading Eagle*, June 7, 2014; "Mid Atlantic Air Museum's 28<sup>th</sup> Annual World War II Weekend," Mid Atlantic Air Museum, accessed October 23, 2017, <https://www.maam.org/maamwwii.html>; Moreno Aquari, Interview by Author, Reading, Pa, June 4, 2016; Mike Spalding, Interview by Author, Reading, Pa, June 4, 2016; "Features and Schedule," Mid Atlantic Air Museum, accessed October 23, 2017, [http://www.maam.org/wwii/ww2\\_sched.htm](http://www.maam.org/wwii/ww2_sched.htm).



service members often sit at squadron or unit designated tables, and great people and share stories as they come up to them. Furthermore, these smaller, less formal interactions allow for the greater public to have a much more personal experience with a veteran. While these speakers and honored guests are still a fixture at most airshows, over the years their attendance has begun to dwindle as age and health issues have made travel more difficult for the elderly veterans.<sup>108</sup>

Apart from being speakers and engaging with audiences, veterans have also played a more direct role at airshows. After the end of the Second World War many pilots either stayed in the service or continued flying as either a career or hobby. As their former wartime aircraft became available to the public and historic airshows became popular, some veterans found their way back into the cockpits of their former planes. Two of the most notable WWII veterans who returned to their aircraft for the purposes of airshows are Chuck Yeager and Bud Anderson. Yeager and Anderson flew two of the most recognizable Mustangs during war, *Glamorous Glennis* and *Old Crowe* respectively, and from the mid 1970s to the late 1990s and early 2000s were regular pilots at airshows in which they would fly P-51s painted with the same schemes and names as their original aircraft. Anderson and Yeager were far from the only veterans to help commemorate WWII through living monuments, however the advanced age of

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<sup>108</sup> Moreno Aquari, Interview by Author, Reading, Pa, June 4, 2016; Mike Spalding, Interview by Author, Reading, Pa, June 4, 2016; National Museum of the U.S. Air Force, “75<sup>th</sup> Anniversary of the Doolittle Raid”; Mid Atlantic Air Museum “Mid Atlantic Air Museum’s 28<sup>th</sup> Annual World War II Weekend”; Mid Atlantic Air Museum, “Features and Schedule.”

veterans, along with the stresses of flying high horse power aircraft ended this practice in the early 2000s.<sup>109</sup>

Although not all former airmen have taken an active role in airshows, many attended and continue to attend these commemorative events to have their service recognized, share their experience with family and loved ones, and once again interact with the pieces of technology that they spent so much time in and around during the war. Each historic airshow ensures that they recognize and honor all service members in attendance at the event. They do this by having veterans identify themselves during specific portions of the airshow as well as other times throughout the various festivities during the week or weekend. It is also during these historic airshows that veterans have a chance to interact with their former aircraft and explain what they meant to them during their service to their families. Furthermore, flying museum's also help veterans reconnect with their former aircraft in multiple ways. First and foremost, flying museums are almost always willing to give veterans who served in WWII a chance to sit in or tour their former aircraft. Often times, flying museums let former airmen, and their families, sit in the cockpit, or their assigned position depending on what their job was, and listen as they reminisce about their days in the service. It is at this time that many family members hear stories from their veteran they had never heard before.<sup>110</sup>

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<sup>109</sup> Carl von Wodtke and Jon Gutman, "Chuck Yeager," *Aviation History* 8, no. 6 (July 1998): 26; Stan Musik, Interview by Author, Reading, Pa, June 4, 2016.

<sup>110</sup> Moreno Aquari, Interview by Author, Reading, Pa, June 4, 2016; Mike Spalding, Interview by Author, Reading, Pa, June 4, 2016; Stan Musik, Interview by Author, Reading, Pa, June 4, 2016; David Hench, "Aircraft in Portland Stir Memories of World War II," *Press Herald*, September 18, 2013; Commemorative Air Force, "Sending all our veterans best wishes,"

Just sitting in the airplane is not the only way that veterans can interact with their former aircraft. Some veterans or will purchase a ride in a warbird so that they once again get the opportunity to fly in their former aircraft. Although, flying museums make the experience memorable for all who purchase rides, they go above and beyond with veterans by trying to make the experience as realistic as possible. This includes coordinating with other historic aircraft s to fly in formations or to fly “protection” for bombers. These experiences often elicit an emotional response from veterans as the weight of moment of being back in their former aircraft, or flying in their former aircraft, is not lost on them. Many former pilots and aircrew felt a kinship with their aircraft throughout the war and being around the same planes again can bring back those same feelings. Although the population of WWII airmen is declining, they have still played a critical role in putting on historic airshows and have helped to shape the living memory and living monuments of the Second World War. Moreover, the relationship between the flying museums, veterans, and aircraft is one that is irreplaceable and key part of commemorating WWII aviation.<sup>111</sup>

The interactions that take place at airshows between veterans, flying museums, and aircraft are incredibly important. However, equally as important are the

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Facebook Photo, November 10, 2017, <https://www.facebook.com/CommemorativeAF/photos/a.345518077509/10155772232092510/?type=3&theater>; Mikaela Rodenbaugh, “It’s the Closest Thing to being a Bird: WWII Veterans Reunited With Wartime Planes at Wings of Freedom Tour,” *Coloradoan*, July 15, 2018.

<sup>111</sup> Moreno Aquari, Interview by Author, Reading, Pa, June 4, 2016; Stan Musik, Interview by Author, Reading, Pa, June 4, 2016; Sarah Wu, “World War II Aircraft Soar into Seattle,” *Seattle Times*, June 23, 2018; Nathaniel Cline, “Flying Legend: 95 Year Old War II Vet Takes Off from Leesburg,” *Loudoun Times-Mirror*, August 31, 2018; Ashley Goudeau, “Veteran Takes Flight in WWII Combat Plane,” *Wisconsin Rapids Tribune*, 11/11/2015.

interactions with flying museums, aircraft, and the general public. One of the major goals of airshows is to educate their audiences about WWII and about the aircraft from that conflict. In part, this is done through various kinds of interactions. Most airshows allow for patrons to directly interact with the living monuments as they are stationed in various locations around the airport, which the event is being held. Most aircraft are available for the public to walk up to, take pictures with, and touch within reason. The aircraft's pilot, or a member of the organization it belongs too, is generally near by ready and willing to answer any questions about their aircraft. They will also give a brief history lesson about the general use of their aircraft during the war, specifics about the aircraft they own, and will also explain a little bit about their organization and how they acquired that aircraft.<sup>112</sup>

Some flying museums also give tours of their larger aircraft such as bombers and cargo planes. The most popular aircraft that are open for tours are the B-17, the B-29, and the C-47. Although the aircraft tours are not guided, those who wish to participate are given a brief history lesson about the aircraft and what they will see when they enter the plane. Once inside, visitors walk from nose to tail and get and see where the various crewmembers were stationed. Many planes that are open for tours also have a museum aspect with removable plaques, pictures and fact sheets that indicate certain jobs and tell stories about the plane. This experience allows for the airshow audience to

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<sup>112</sup> Moreno Aquari, Interview by Author, Reading, Pa, June 4, 2016; Mike Spalding, Interview by Author, Reading, Pa, June 4, 2016; Stan Musik, Interview by Author, Reading, Pa, June 4, 2016; Mid Atlantic Air Museum, "Features and Schedule."

become personally acquainted with an aircraft, museum, or even potentially the flight crew.<sup>113</sup>

The final way that the public gets to interact with warbirds is through the actual airshows by being able to witness these living monuments fly. Historic airshows offer the general public a unique chance to watch historic perform various stunts such as formation flying and aerobatic demonstrations, among others. A member of the organization who is hosting the event often narrates the airshow. The narrator's job is to keep the audience engaged and informed on what they are seeing and often give brief history lessons about the type of plane flying and the role that it played during the war.<sup>114</sup> Rob Reider, one of the most distinguished airshow announcers in the country has stated that his job is to help, "try to put the audience into the cockpit."<sup>115</sup> During the airshow audiences are often dazzled by the performances, sights, and sounds they experience. Although no two historic airshows are the same, they each offer an education in WWII military aviation to all those in attendance. Moreover, these events touch the senses of those in attendance. Not only are the sights awe inspiring but the

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<sup>113</sup> Moreno Aquiri, Interview by Author, Reading, Pa, June 4, 2016; Mike Spalding, Interview by Author, Reading, Pa, June 4, 2016; <https://www.commemorativeairforce.org/pages/About-the-CAF>; Mid Atlantic Air Museum, Facebook Photo, June 2, 2018, <https://www.facebook.com/274053473932/photos/a.366347178932/10156663548008933/?type=3&theater>; "B-17 Movie Memphis Belle," National Warplane Museum, accessed November 3, 2018, <https://nationalwarplanemuseum.com/rides-1>.

<sup>114</sup> Moreno Aquiri, Interview by Author, Reading, Pa, June 4, 2016; "Rob Reider," Rob Reider.com, accessed November 3, 2018, <http://www.robreider.com>.

<sup>115</sup> Rob Reider in "Rob Reider," Rob Reider.com, accessed November 3, 2018, <http://www.robreider.com>.

sound of piston driven engine and the smell of burning fuel can make show goers feel as though they are on a Second World War airfield.<sup>116</sup>

Flying museums and other warbird perseveration groups, who put on airshows and fly historic aircraft, often rely on private donations and grants to stay operational. The cost of restoring and flying WWII aircraft can range from the hundreds of thousands to millions of dollars. Putting airshows together can also be costly. However, airshows offer a chance for organizations to raise money through the sale of admission tickets, merchandise, ride sales, and donations. Almost each airshow or airshow type event has some sort of admission ticket that must be purchased.<sup>117</sup> Prices and ticket types vary, depending on if the airshow is only one day, a weekend, or a weeklong event. While prices of admission tickets differ for each airshow a single day costs between \$20 and \$50. A two or three day ticket package for a weekend or weeklong show most commonly costs around \$80, and a weeklong pass will cost show goers around \$125. Some flying museums, which are located on larger plots of land, will allow for airshow attendees to camp on their grounds for a nominal fee.<sup>118</sup>

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<sup>116</sup> Mid Atlantic Air Museum, "Features and Schedule"; "Airshow Roster," Mid Atlantic Air Museum, accessed November 4, 2017, [https://www.maam.org/wwii/ww2\\_acft.htm](https://www.maam.org/wwii/ww2_acft.htm).

<sup>117</sup> Moreno Aquari, Interview by Author, Reading, Pa, June 4, 2016; Mike Spalding, Interview by Author, Reading, Pa, June 4, 2016; Meg Godlewski, "How to Put on an Airshow: The Experts Speak," *General Aviation News*, January 25, 2008.

<sup>118</sup> "WWII Weekend Tickets," Mid-Atlantic Air Musuem's 28<sup>th</sup> Anniversary World War II Weekend, accessed November 10, 2017, [https://www.maam.org/wwii/ww2\\_tickets.htm](https://www.maam.org/wwii/ww2_tickets.htm); "Buy Your EAA Airventure Oshkosh Tickets," EAA Airventure Oshkosh, accessed November 10, 2017, <https://www.eaa.org/en/airventure/eea-airventure-tickets>; "National Warplane Museum Airshow," National Warplane

Admission tickets and camping fees are just the beginning of how historic aviation organizations make money during airshows. Each flying museum that attends an airshow, as well as the host organization, is more than willing to take donations.<sup>119</sup> The hosting organization will sometimes ask for donations to help fund a specific project. The host also has the capability of showing off the plane that they are working on and how far through the restoration project they are. Since its inception in the early 1990s, the Mid-Atlantic Air Museum's World War Two Weekend has also doubled as a fundraiser for the museum's attempt to resurrect the P-61 Black Widow. Over the years donations to MAAM have helped to nearly complete the restoration project. The 2014 and 2015 airshows each year raised over \$10,000, which was matched by an anonymous donor and allowed the museum to purchase the two propellers needed for the Black Widows engines.<sup>120</sup>

The hosting organization is not the only group that benefits from donations during an airshow. Flying museums will often set up tents near where their aircraft are located on the airfield. These tents are places where audience members can go for information, to purchase merchandise, or to make a donation. Flying museums are

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Museum, accessed November 10, 2017, <https://nationalwarplanemuseum.com/airshow>; "Ticket Information," Wings Over Dallas, November 10, 2017, <https://wingsoverdallas.org/ticket-information/>.

<sup>119</sup> "Support the Commemorative Air Force," Commemorative Air Force accessed November 10, 2017, <https://commemorativeairforce.org/pages/Support-the-CAF>; Moreno Aquari, Interview by Author, Reading, Pa, June 4, 2016.

<sup>120</sup> "The Widows Web," Mid-Atlantic Air Museum, accessed November 10, 2017, [http://www.maam.org/p61/\\_p61help.html](http://www.maam.org/p61/_p61help.html); "The Restoration," Mid-Atlantic Air Museum, accessed November 10, 2017, [http://www.maam.org/p61/\\_p61help.html](http://www.maam.org/p61/_p61help.html).

willing to take any donations and extremely grateful for any contribution they receive as that money helps further restoration projects, and other costs associated with operating historic aircraft. Proceeds from all donations made to flying museums go directly towards maintaining and restoring historic aircraft.<sup>121</sup> Similar to donations, flying museums also want people to become members of their organizations. Each group has different membership options, which vary in price, that allow for members to be as active as they please. Memberships often come with some benefits that include presales on airshow tickets, merchandise, as well as updates and newsletters. A yearly membership can cost between \$40 and \$200, and a lifetime membership can cost between \$500 and \$2,400. Additionally there multiple other types of membership packages available, all of which have varying degrees participation and price. Furthermore, some organizations, like the Commemorative Air Force, offer an honorary rank or title to their members as a thank you for their patronage.<sup>122</sup>

Although donations and memberships are the easiest and most affordable avenues for people to contribute to the cause of preserving warbirds, some flying museums also have the capability to sell airplane rides. Such rides are given in almost

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<sup>121</sup> Commemorative Air Force “Support the Commemorative Air Force”; “Mid-Atlantic Air Museum Donations and Sponsorships,” Mid-Atlantic Air Museum, accessed November 10, <http://www.maam.org/donation.htm>; “Donations,” Military Aviation Museum, accessed November 10, <https://militaryaviationmuseum.org/donations/>; Moreno Aquiri, Interview by Author, Reading, Pa, June 4, 2016.

<sup>122</sup> “Membership,” Commemorative Air Force, accessed November 10, 2017 <https://commemorativeairforce.org/pages/CAF%20membership>; “Membership,” Mid-Atlantic Air Museum, accessed November 10, 2017, <http://www.maam.org/members.html>; “Become a Member of the Museum,” Military Aviation Museum, accessed November 10, 2017, <https://militaryaviationmuseum.org/members/>; “Join EAA,” EAA, accessed November 10, <https://www.eaa.org/eaajoin-eaa/individual>.



all aircraft that can accommodate a pilot and passenger(s), including single seat aircraft such as the P-51 Mustang, that have been converted to have two seats. The most popular ride-airplanes at historic airshows include: the Fairchild PT-19, the AT-6 Texan and its variants, the C-47 Skytrain, the B-25 Mitchell, the B-17 Flying Fortress, the B-29 Superfortress, the SBD Dauntless, the TBM- Avenger, the P-40 Warhawk, the Supermarine Spitfire, and the P-51 Mustang. Rides can be booked online or by phone months in advance before an airshow or aircraft appearance, and it is highly recommended to make reservations, as they do tend to sell out before the show date.

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The cost for a flight in each of these aircraft varies, however, trainers are most often the least expensive, while bombers and fighter aircraft are the most expensive, pending on certain factors. Furthermore, flying museums offer several flight packages for patrons to choose from, however the most frequently purchased and most affordable packages offer customers a half hour ride. The price for a half hour flight in a trainer aircraft ranges from \$195 to \$400. A ride in a cargo or transport plane like a C-47 often cost about \$150, and aircraft such as the Dauntless and Avenger charge between \$895 and \$1,195.<sup>124</sup> Another popular aircraft that most airshow goers want to fly in are

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<sup>123</sup> Moreno Aquiri, Interview by Author, Reading, Pa, June 4, 2016; Stan Musik, Interview by Author, Reading, Pa, June 4, 2016; "Aircraft Rides," Commemorative Air Force, Accessed November 15, 2017, [https://commemorativeairforce.org/aircraft\\_rides](https://commemorativeairforce.org/aircraft_rides).

<sup>124</sup> Moreno Aquiri, Interview by Author, Reading, Pa, June 4, 2016; "T-6 Texan," Commemorative Air Force, accessed November 15, 2017, <https://www.airpowersquadron.org/t-6-texan>; "Fairchild PT- 13," Commemorative Air Force, accessed November 15, 2017, <https://www.airpowersquadron.org/fairchild-pt19>; "Rides," National Warplane Museum, accessed November 15, 2017, <https://nationalwarplane.org>

the bombers. Bomber aircraft offer multiple seats for patrons, and are often the most available aircraft to schedule rides. Ride tickets for small bombers, like the B-25, charge roughly \$450 per seat. However, larger bombers that can accommodate more passengers alter their rates for various positions in the aircraft. The B-17 has the ability to carry eight passengers, along with a four-person flight crew; the cheapest seats are in the rear of the aircraft near the radio room and waist guns and cost \$450. Tickets that are more expensive cost between \$700 and \$850 and allow a patron to sit the navigator and bombardier seats respectively. B-29s have a similar set up for rides but can hold an additional two passengers and is more expensive. The five gunner seats in the B-29 retail for \$570, and are the lowest priced tickets. Navigator, radio operator, and aft cockpit seats all sell for \$1,145 and the flight observer's seat costs \$1,345. Finally, the most expensive seat is the bombardier seat, located directly in the nose of the airplane, and totals \$1,595. While the bombers are popular and the easiest aircraft to book flights in, the most popular aircraft that people want to fly in are the fighters.<sup>125</sup>

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warplanemuseum.com/rides-1; "Take a Flight into History," Mid-Atlantic Air Museum, accessed November 15, 2017, <http://www.maam.org/rides.html>; "Warbird Rides," 28<sup>th</sup> Annual World War II Weekend, accessed November 15, 2017, [http://www.maam.org/wwii/ww2\\_rides.htm](http://www.maam.org/wwii/ww2_rides.htm); "Warbird Rides," Dixie Wing Commemorative Air Force, accessed November 15, 2017; <http://dixiewing.org/warbird-rides/>.

<sup>125</sup> 28<sup>th</sup> Annual World War II Weekend, "Warbird Rides"; "Take a Ride," B-17 Texas Raiders, accessed November 15, 2017, <https://b17texasraiders.org/index.php/texas-raiders/rides-tours/fly-on-tr>; "Flight Experiences," Central Texas Wing, accessed November 15, 2017, <https://www.centraltexaswing.org/rides/>; "You are Booking a B-29 Ride," CAF Air Power History Tour, accessed November 15, 2017, <https://www.airpowersquadron.org/book>; "Ride in B-29 Doc," B-29 Doc's Friends, accessed November 15, 2017, <https://www.b29doc.com/rides/>; National Warplane Museum, "History."

Fighter plane ride sales often sell out weeks in advance before an airshow, generally depending on how many fighter aircraft are capable of providing such a service. Of all the Second World War fighter aircraft, only three of them have been fairly regularly converted to two seat aircraft; the P-40 Warhawk, the Supermarine Spitfire, and the P-51 Mustang. The cheapest of the fighter plane rides comes in the Warhawk, which roughly costs a participant \$1,000. While the Warhawk is not as storied or legendary as the Mustang or Spitfire, it is still a noteworthy historic aircraft that is a favorite among some warbird enthusiasts. Potentially the most expensive fighter plane to purchase a ride in is the British Supermarine Spitfire. There are only two Spitfires capable of giving rides in the United States and only one gives rides year round, which is owned and operated by Mile High Skyride, located in Aspen, Colorado. A ride in either Spitfire roughly costs around \$2,000, however the Mile High Skyride Spitfire does not travel to many airshows and the other Spitfire is unable to accommodate passengers during airshows due to certain FAA regulations. The most popular fighter plane that gives rides is the P-51 Mustang. Mustangs have arguably become the face of World War Two aviation and is generally readily available for rides at most airshows, as it is the most sought after ride ticket. There are multiple Mustangs that are able to carry a passenger and give rides. The price of a thirty-minute Mustang ride varies greatly depending on the aircraft and which organization, or branch of an organization operates the plane. Remittance ranges from \$1,195 to a little over \$2,000, however booking a flight online sometimes comes with a \$100 discount. Moreover, Mustang rides have become so popular and sought after that at least one company, Stallion 51 in Kissimmee

Florida, has been created to give people the opportunity to purchase rides year round.<sup>126</sup>

Even though the prices for warbird rides are exceptionally costly, they create a lifetime memory for those who buy a flight, the money also goes directly towards maintaining the aircraft. Both aviation enthusiasts and WWII veterans alike who purchase these rides do so to feel close to piece of history or relive something from their pasts, and refer to the experience as unforgettable. Apart from giving people the opportunity to fly in a historic aircraft, one of the major factors behind giving rides is that all money made helps in maintaining the aircraft. A major issue that arises is fuel costs. Fuel costs involved in flying historic aircraft is great, and many organizations rely on fuel sponsors for their airshow performances. However, for rides and some other appearances flying museums are forced to pay for fuel themselves. The high price of the ticket helps keep fuel cost down, and allows for flying museums to continuously fly their aircraft. Although the prices of warbird rides are high, there is a hidden benefit for those able to purchase them. Because many museums are 501c nonprofit

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<sup>126</sup> 28<sup>th</sup> Annual World War II Weekend, "Warbird Rides"; Moreno Aquari, Interview by Author, Reading, Pa, June 4, 2016; "Texas Warhawk P-40," Texas Flying Legends Museum, accessed November 15, 2017, <http://texasflyinglegends.org/index.php/project/texas-warhawk-p-40e/>; "Take a Flight," North Bay Air Museum, accessed November 15, 2017 <http://www.northbayairmuseum.org/take-flight/>; "Warbird Rides," Mile High Skyride, accessed November 15, 2017, <http://www.milehighskyride.com/warbird/warbird.htm>; Dixie Wing Commemorative Air Force, "Warbird Rides"; "P-51 Rides," The CAF's P-51 Gun Fighter, accessed November 15, 2017, <http://www.p51gunfighter.com/airplane-rides>; "P-51 Mustang Orientation Flights," Stallion 51, accessed November 15, 2017, <http://www.stallion51.com/mustang-flight-ops/orientation-flights/>.

organizations, and money from ride sales goes to maintaining the aircraft, patrons can write off part the expense as a donation on their taxes.<sup>127</sup>

With various events taking place throughout the course of an airshow, from speakers and flea markets, to rides and airplane tours, it may seem possible that the flying portion of the airshow might be overshadowed. Hopefully this is not the case, as the show for most is the most anticipated moment for the event. Moreover, each historic airshow is unique in how they are put together depending on what aircraft are in attendance, however, there are some similarities from airshow to airshow. Most historic WWII airshows begin with liaison aircraft. These small planes, also known as grasshoppers, were militarized versions of planes such as the Piper J-3 Cub, and were used on the battlefield to help infantry troops locate enemy tank columns and troop locations. During the airshow a number of liaison aircraft take off together and fly tail-to-tail performing several show passes. After the liaison aircraft land, the trainer airplanes are generally the next to perform.<sup>128</sup>

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<sup>127</sup> 28<sup>th</sup> Annual World War II Weekend, “Warbird Rides”; Moreno Aquari, Interview by Author, Reading, Pa, June 4, 2016; “Texas Warhawk P-40,” Texas Flying Legends Museum, accessed November 15, 2017, <http://texasflyinglegends.org/index.php/project/texas-warhawk-p-40e/>; “Take a Flight,” North Bay Air Museum, accessed November 15, 2017 <http://www.northbayairmuseum.org/take-flight/>; “Warbird Rides,” Mile High Skyride, accessed November 15, 2017, <http://www.milehighskyride.com/warbird/warbird.htm>; Dixie Wing Commemorative Air Force, “Warbird Rides”; “P-51 Rides,” The CAF’s P-51 Gun Fighter, accessed November 15, 2017, <http://www.p51gunfighter.com/airplane-rides>; “P-51 Mustang Orientation Flights,” Stallion 51, accessed November 15, 2017, <http://www.stallion51.com/mustang-flight-ops/orientation-flights/>.

<sup>128</sup> Moreno Aquari, Interview by Author, Reading, Pa, June 4, 2016; “Scheduled Air Show Performers List,” 28<sup>th</sup> Annual World War II Weekend, accessed November 20, 2017, [https://www.maam.org/wwii/ww2\\_acft.htm](https://www.maam.org/wwii/ww2_acft.htm); “Schedule,” Wings Over Dallas, accessed November 20, 2017, <https://wingsoverdallas.com/>.

Since there are multiple types of trainers, sometimes this portion of an airshow may be split into two or three parts. Often, the most highlighted plane during trainer demonstrations is the AT-6 Texan and its variants. Texans will often fly a tight formation and one will perform an aerobatics routine. Following the trainers, combat aircraft such as single and twin-engine fighters, torpedo planes, and dive-bombers take to the sky. There are multitudes of ways that airshows set up this portion of their program, but among the most popular is splitting the aircraft into European and Pacific Theatre. Although the aircraft for each event differs, some aircraft that are featured for the European theatre at airshows are the P-51 Mustang, the P-47 Thunderbolt, the Supermarine Spitfire, the P-63 King Cobra, the De Havilland Mosquito, and the P-38 Lightning among others. Pacific airshow planes frequently include the F4F Wildcat, F4U Corsair, the Curtis Helldiver, the TBM Avenger, and the SBD Dauntless. Also, the P-40 Warhawk is featured during this part of the airshow but can be flown during either part as the Warhawk was used in both theatres of operation. During their performance time, these aircraft make several high speed, low altitude show passes. Once several of these passes are completed as a group many of these aircraft will perform dazzling aerobatics as a display of the aircrafts ability and how they handled in combat. Because

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org/schedule/; "Airventure 2017, Daily Airshow Schedule Set," EAA, accessed November 20, 2017, <https://www.eaa.org/en/airventure/eea-airventure-news-and-multimedia/eea-airventure-news/eea-airventure-oshkosh/06-21-2017-airventure-2017-daily-air-show-schedule-set>.

this portion of the airshow features some of the most popular aircraft along with the aerobatics, it is often one of the most anticipated acts.<sup>129</sup>

Next, the airshow features the Cargo and transport aircraft and the bombers. The transport and Cargo aircraft, most commonly the C-47, will perform a few show passes and generally that is all. However, some airshow have begun incorporating a type of reenactment with paratrooper jumps. This event is dependent on wind conditions but can be performed more times than not. During this reenactment, specially trained skydivers jump from a C-47 in full WWII uniforms using replica 1940s parachutes. Jumping demonstrations have helped to make the transport aircraft portion of an airshow more exciting to audiences. The second most anticipated part of an airshow is the bomber flights. Bombers that attend airshows most frequently are the B-25, the B-17, and the B-29. Although there are only two B-29s capable of flight, they both strive to attend as many airshows as possible. Similar to all the other aircraft the bombers fly several low altitude show passes for the audiences but some will open their bomb bay doors for effect. Albeit larger and considerably slower than the rest of the aircraft that are shown off, the bombers are constantly favorites among airshow audiences.<sup>130</sup>

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<sup>129</sup> Moreno Aquiri, Interview by Author, Reading, Pa, June 4, 2016; "Scheduled Air Show Performers List," 28<sup>th</sup> Annual World War II Weekend, accessed November 20, 2017, [https://www.maam.org/wwii/ww2\\_acft.htm](https://www.maam.org/wwii/ww2_acft.htm); "Schedule," Wings Over Dallas, accessed November 20, 2017, <https://wingsoverdallas.org/schedule/>; "Airventure 2017, Daily Airshow Schedule Set, accessed November 20, 2017, <https://www.eaa.org/en/airventure/aaa-airventure-news-and-multimedia/aaa-airventure-news/aaa-airventure-oshkosh/06-21-2017-airventure-2017-daily-air-show-schedule-set>.

<sup>130</sup> Moreno Aquiri, Interview by Author, Reading, Pa, June 4, 2016; "Scheduled Air Show Performers List," Mid-Atlantic Air Museum's 28<sup>th</sup> Anniversary World War II Weekend,

The final portion of an airshow is arguably the most moving, and influential on war memory. Traditionally, this aerobatic stunt is flown last, however it can be flown during any portion of an airshow. Known as the, "Missing Man Formation," this flight configuration pays tribute to all the fallen airmen who sacrificed their lives. The Missing Man uses four aircraft, generally fighter planes, flying in a standard flight formation, also referred to as the four-finger formation. After takeoff the aircraft meet up miles outside the airport and position their planes into the proper formation. From there, the pilots fly directly towards the airfield from which they departed. As the aircraft become visible again to the audience, *Taps* is played over loudspeakers. Once in front of the runway, the plane directly to the left of the flight leader begins to climb away from the formation and head west. This symbolizes the death of pilot and their ascension to the afterlife, as part of pilot folklore is that when a pilot dies he, "heads west."<sup>131</sup>

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accessed November 20, 2017, [https://www.maam.org/wwii/ww2\\_acft.htm](https://www.maam.org/wwii/ww2_acft.htm); "Schedule," Wings Over Dallas, accessed November 20, 2017, <https://wingsoverdallas.org/schedule/>; "Airventure 2017, Daily Airshow Schedule Set," EAA accessed November 20, 2017, <https://www.eaa.org/en/airventure/eea-airventure-news-and-multimedia/eea-airventure-news/eea-airventure-oshkosh/06-21-2017-airventure-2017-daily-air-show-schedule-set>.

<sup>131</sup> Moreno Aquari, Interview by Author, Reading, Pa, June 4, 2016; "Scheduled Air Show Performers List," Mid-Atlantic Air Museum's 28<sup>th</sup> Anniversary World War II Weekend,, accessed November 20, 2017, [https://www.maam.org/wwii/ww2\\_acft.htm](https://www.maam.org/wwii/ww2_acft.htm); "Schedule," Wings Over Dallas, accessed November 20, 2017, <https://wingsoverdallas.org/schedule/>; "Airventure 2017, Daily Airshow Schedule Set," EAA, accessed November 20, 2017, <https://www.eaa.org/en/airventure/eea-airventure-news-and-multimedia/eea-airventure-news/eea-airventure-oshkosh/06-21-2017-airventure-2017-daily-air-show-schedule-set>.; Daniel Ford, "High Honor: The Origin of the Missing Man Formation," *Air and Space Magazine*, May, 2001, <https://www.airspacemag.com/military-aviation/high-honor-2041010/?page=3>.



The Missing Man Formation has somewhat of a hazy history, as it is unclear as to when or how it began. However, many historians and researchers point to WWI for the origin, as returning aircraft would fly over their airfields so the ground crews could count the number of returning planes. Throughout the 1930s and 1940s the formation again evolved; first with doing flyovers at funerals for high ranking government and military officials, and then later with returning bomber flights from WWII leaving open spaces in their formations for the planes that had been lost during the mission. When flown, this formation most often commemorates the lives, legacies, and sacrifices of veteran airmen. However, the formation has also been flown in honor of those who have spent their lives and careers devoted to persevering historic aircraft. In May 2016 American Airpower museum pilot Bill Gordon was killed after being forced to perform a water landing on the Hudson River after his P-47 Thunderbolt suffered engine trouble. Gordon spent much of his life working for various flying museums and furthering the agenda of living history. Following his untimely passing, a bevy of Missing Man Formations were flown, at multiple airshows, in his honor and to commemorate his dedication to historic aircraft. Overall, the Missing Man is arguably the most impactful moment in an airshow by commemorating all those who served and all those who spent their lives in service of preserving historic aircraft.<sup>132</sup>

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<sup>132</sup> Moreno Aquiri, Interview by Author, Reading, Pa, June 4, 2016; "Scheduled Air Show Performers List," 28<sup>th</sup> Annual World War II Weekend, accessed November 20, 2017, [https://www.maam.org/wwii/ww2\\_acft.htm](https://www.maam.org/wwii/ww2_acft.htm); "Schedule," Wings Over Dallas, accessed November 20, 2017, <https://wingsoverdallas.org/schedule/>; "Airventure 2017, Daily Airshow Schedule Set, accessed November 20, 2017, <https://www.eaa.org/en/airventure/eea-airventure-news-and-multimedia/eea-airventure-news/eea-airventure-oshkosh/06-21-2017-airventure-2017-daily-air-show-schedule-set.>; Daniel

Airshows by their very nature are special commemorative events that have a larger impact on war memory as whole. While airshows are not reenactments in the traditional sense they do have a similar if not more profound influence on living history. The reason that these events are so influential compared to other reenactments is that those in attendance are actually seeing aircraft from the actual conflict perform the duty for which they were designed. Those in attendance get the chance to experience historic aircraft up close and are able to directly interact with these pieces of commemorative technology. Another manner in which airshows differ from other reenactments is that airshows are put on to educate the public and allow them to experience history first hand, whereas in a standard Civil War or any other type of war reenactment, those who get the most from the experience are those individuals participating in the event.<sup>133</sup>

The main goal of each flying museum that attends an airshow is to provide a living history experience to the public through their airplanes.<sup>134</sup> Stan Musik, a long time Commemorative Air Force member and one the museum's Corsair pilots believes

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Ford, "High Honor: The Origin of the Missing Man Formation," *Air and Space Magazine*, May, 2001, <https://www.airspacemag.com/military-aviation/high-honor-2041010/?page=3>.

<sup>133</sup> Moreno Aquiri, Interview by Author, Reading, Pa, June 4, 2016; "Scheduled Air Show Performers List," 28<sup>th</sup> Annual World War II Weekend, accessed November 20, 2017, [https://www.maam.org/wwii/ww2\\_acft.htm](https://www.maam.org/wwii/ww2_acft.htm); "Schedule," Wings Over Dallas, accessed November 20, 2017, <https://wingsoverdallas.org/schedule/>; "Airventure 2017, Daily Airshow Schedule Set, accessed November 20, 2017, <https://www.eaa.org/en/airventure/eea-airventure-news-and-multimedia/eea-airventure-news/eea-airventure-oshkosh/06-21-2017-airventure-2017-daily-air-show-schedule-set>; Daniel Ford, "High Honor: The Origin of the Missing Man Formation," *Air and Space Magazine*, May, 2001, <https://www.airspacemag.com/military-aviation/high-honor-2041010/?page=3>.

<sup>134</sup> Moreno Aquiri, Interview by Author, Reading, Pa, June 4, 2016; Mike Spalding, Interview by Author, Reading, Pa, June 4, 2016.

that, “living history has become much more of concept and is more impactful than just reading history out of a book. It’s the difference between seeing a stuffed eagle versus watching an eagle fly. You see one of these aircraft fly and it makes a huge difference in seeing what people had and have to do to keep these airplanes flying.”<sup>135</sup> Moreover, Musik, and many others in the warbird community believe that living history events, such as airshows, and living history in general, are among the most effective ways to teach people about this important juncture in history.<sup>136</sup>

Airshow events help to create a sense of connection, realness, and relevancy the audiences. As Stan Musik alluded to, the importance of living history lies with an audience actually being able to experience history first hand, allowing them to connect to the time period. These events also make the history of World War II real and relevant for those in attendance. This is done by the audience interacting with the pieces of commemorative technology that actually served in the Second World War, and were a part of major historical events. Instead of reading or seeing films about events, aircraft, and soldiers, living history undertakings afford people the opportunity to directly connect with the people and machines that served, to more fully appreciate the gravity, and importance, of the history.<sup>137</sup>

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<sup>135</sup> Stan Musik, Interview by Author, Reading, Pa, June 4, 2016.

<sup>136</sup> Moreno Aquari, Interview by Author, Reading, Pa, June 4, 2016; Mike Spalding, Interview by Author, Reading, Pa, June 4, 2016; Stan Musik, Interview by Author, Reading, Pa, June 4, 2016.

<sup>137</sup> Moreno Aquari, Interview by Author, Reading, Pa, June 4, 2016; Mike Spalding, Interview by Author, Reading, Pa, June 4, 2016; Stan Musik, Interview by Author, Reading, Pa, June 4, 2016; 28<sup>th</sup> Annual World War II Weekend, “Testimonials.”

World War Two airshows offer audiences a variety of spectacles from aerobatic demonstrations, airplane rides, and tours along with an opportunity to engage with a unique roster of aircraft and special guests for every show. Airshows commemorate many different aspects of World War Two aviation. While some airshows focus on specific groups, squadrons, or events, and others celebrate the military aviation of the war as a whole, both are equally as important in how they represent war memory. Allowing the general public to directly interact with commemorative technology gives them a living history experience that is notably memorable. Whether it is bombers, trainers, or fighter aircraft each plane played an overall vital part of the war effort and are historically significant. Although these aircraft can be learned about through classes, books, and other outlets, actually having the opportunity to experience a historic warbirds first hand truly makes history come alive.<sup>138</sup>

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<sup>138</sup> Moreno Aquari, Interview by Author, Reading, Pa, June 4, 2016; Mike Spalding, Interview by Author, Reading, Pa, June 4, 2016; Stan Musik, Interview by Author, Reading, Pa, June 4, 2016; Centennial of Flight, "Air Shows: An International Phenomenon."

## Conclusion

Apart from the organizations that have dedicated themselves to preserving WWII aircraft, the memory of World War Two aviation has also permeated both pop culture and American culture. It has been more than sixty years since any of the WWII warbirds have been in service, but the history and memory of these aircraft have not been forgotten. In the mid 1960s the Ford Motor Company named its new muscle car the “Mustang” when one of the car’s designers suggested the name after reading about the famed P-51. Similarly, the British car company, Triumph, named their small two-seat sports car the Spitfire after the RAF fighter. While the Spitfire ended production in 1980, the Mustang has remained in continuous production since its release in 1964 and has garnered a large fan base, many of which appreciate the origin of the iconic car’s name. Ford, along with some Mustang owners, have also applied customized paint jobs to their cars to resemble the top WWII fighter; several of these car owners have also arranged for photo shoots of their car with an actual P-51. Moreover, at the annual Oshkosh Airventure airshow in 2018, Ford unveiled a special edition Mustang painted in

RAF Eagle Squadron colors, to commemorate the Service of the handful of Americans who fought in the Battle of Britain.<sup>139</sup>

WWII aviation has also permeated into popular culture. War films have almost always been popular. Aviation films since the 1960s have greatly influenced memory. Apart from restoring real planes to use in the movies, the films have also helped bring to life several stories from the war covering nearly every branch of the military. Even war films that have not directly focused on aviation, such *Saving Private Ryan*, have praised the importance of airpower in WWII. However, while films have reached a large audience, another medium has introduced a new generation to the aircraft of WWII. Video games have long been popular but since at least the late 1990s as a stream of games based around the air war in WWII have been released. Some of these games' story lines are historically ambiguous, or indeed fiction, yet the games allow the player to take control of some of the most popular airplanes of the war, and bring a new appreciation of these aircraft to a generally younger audience. Overall, flight games have become so popular and influenced memory in such a way that some museums, such as the Smithsonian Air and Space Museum have installed interactive flight simulators, where for around \$40 a museum patron can enter a virtual reality pod, and

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<sup>139</sup> "It's a Plane! It's a Horse! No, It's the Ford Mustang and One of the Worlds Favorite Cars," Ford Media Center, accessed November 25, 2017, [https://media.ford.com/content/fordmedia/fna/us/en/features/it\\_s-a-plane--its-a-horse--no--its-the-ford-mustang-and-one-of-t.html](https://media.ford.com/content/fordmedia/fna/us/en/features/it_s-a-plane--its-a-horse--no--its-the-ford-mustang-and-one-of-t.html); "Triumph Spitfire History," Triumph Spitfire History, accessed November 25, 2017 <http://www.triumphspitfire.nl/spithistory.html>; "Mustangs painted like Mustangs," Pinterest, November 25, 2017, <https://www.pinterest.com/pin/71987294016989508/>; "2018 Eagle Squadron Mustang GT," EAA, accessed July 30, 2018, <https://www.eaa.org/en/eaagatherings/contribute-to-2018-eagle-squadron-mustang-gt>. The Eagle Squadron was an RAF fighter squadron during the Battle of Britain which was made up almost entirely of American pilots who had defected from the U.S. to fight for the British.

can pilot a warbird in combat. These pods were specially designed to interact with how the player moves the flight stick and creates the illusion that that person is actually flying.<sup>140</sup>

The memory of WWII aviation has permeated many aspects of everyday life from cars to entertainment; many groups and museums have dedicated themselves to ensuring that these historic planes remain in flight and are not forgotten. Another entity that has also become dedicated to preserving memory is the United States Military, doing it in two ways. The first is through the naming of some of their aircraft. Currently, there are two types of aircraft in service that have been named in honor of their WWII predecessors. The most recognizable aircraft in service that shares its name, is the A-10 Thunderbolt II. The A-10 has become one of the most beloved aircraft in the American Military and has had a notable service career. Although better known as the Warthog, the A-10 was given the name Thunderbolt II because of its role as a close air support aircraft. This is the same role that made the P-47 Thunderbolt famous and feared in Europe during its service. The other aircraft that bears the name of a WWII fighter is the F-35 Lightning II. Named for the P-38 Lightning, the F-35 was originally designed to be one of the most versatile military aircraft ever built, and was given its name to represent the lessons that were learned in 100 years of aerial combat.

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<sup>140</sup> Mel Sharkskin, "Top 10 Best Warplane Films," *Houston Press*, September 21, 2011; Steven Spielberg, *Saving Private Ryan*, Dreamworks, 1998; Watchmojo.com, "Top 10 Air Combat Games," Filmed May 2015, You Tube Video 7:59, Posted May 2015, <https://www.youtube.com/watch?v=LmrkDoAg4Ec>; "Simulators," Smithsonian National Air and Space Museum, <https://airandspace.si.edu/visit/museum-dc/things-do/flight-simulators>.

Although the F-35 has been wrought with problems since it began production its name still serves as an important homage to a WWII aircraft.<sup>141</sup>

Naming new aircraft after World War II warbirds has been a for the military to commemorate the service of their former aircraft, however, in 2010 the United States Air Force established the Air Force Heritage Flight which serves to commemorate the history of the aircraft that have served in the USAF. The Air Force Heritage Flight's mission is to educate the public about the branch by performing at airshow events, flying current military aircraft like the A-10, F-16, F-22, and F-35, alongside historic aircraft. The organization operates a P-51D Mustang, a P-47 Thunderbolt, and a P-38 Lightning; however, it also operates aircraft from the Korean and Vietnam wars. The flight team is made up of some of the best Air Force pilots and ten civilian pilots who specialize in flying historic aircraft. The Heritage Flight performs forty to sixty demonstrations a year at various airshows all over the country.<sup>142</sup>

World War II aviation has been commemorated in a variety ways including films, video games, and other various media. Consequently, several museums, including the Smithsonian, have dedicated themselves to putting aircraft on display for general public to see. However, the most influential type of commemoration has come from flying museums that have dedicated themselves to preserving, restoring, and flying historical aircraft, thus creating living monuments. These living monuments commemorate the

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<sup>141</sup> "About," Air Force Heritage Flight Foundation, accessed February 7, 2018, <https://www.airforceheritageflight.org/about;>

<sup>142</sup> About," Air Force Heritage Flight Foundation, accessed February 7, 2018, <https://www.airforceheritageflight.org/about;>



war in multiple ways, including paint schemes, nose art, and airshow performances. While the size of flying museums varies, their mission of educating people through commemorative technology and living history is relatively universal. Such museums, along with WWII aviation enthusiasts, make up the loosely organized warbird community. The Second World War was arguably one of the most important events of the twentieth century. As scholars have begun to examine the memory of the conflict in greater detail and with more specific focuses, it is important that the memory of aviation and the airmen who served in WWII be given the same scholarly attention as major battles such as D-Day. The purpose of this thesis is to demonstrate that restored aircraft are indeed moving monuments that have little to no equal in the arena of war memory. This thesis has also helped to provide a stronger bond among the eclectic mix of organizations that make up the community warbird community. Publications, podcasts, websites, individuals, and historical societies help to make up the warbird community and work together to not only further the mission of restoring historic aircraft to flight, but to also produce a wide variety of educational content for those who have an interest in historic military aviation.<sup>143</sup>

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<sup>143</sup> Moreno Aquari, Interview by Author, Reading, Pa, June 4, 2016; Mike Spalding, Interview by Author, Reading, Pa, June 4, 2016; Stan Musik, Interview by Author, Reading, Pa, June 4, 2016.

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