

The Enlisted Pilot, Helping Solve Operational Readiness: Burge, Yeager, and the RQ-4

A Monograph

by

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2018

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REPORT DOCUMENTATION PAGE

Form Approved
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|---|-------------------------|--|--|---|--|
| 1. REPORT DATE (DD-MM-YYYY) 12-04-2018 | | 2. REPORT TYPE Master's Thesis | | 3. DATES COVERED (From - To) June 2017 – April 2018 | |
| 4. TITLE AND SUBTITLE The Enlisted Pilot. Helping Solve Operational Readiness: Burge, Yeager, and the RQ-4 | | | | 5a. CONTRACT NUMBER | |
| | | | | 5b. GRANT NUMBER | |
| | | | | 5c. PROGRAM ELEMENT NUMBER | |
| 6. AUTHOR(S) Lt Col Bradley Baker | | | | 5d. PROJECT NUMBER | |
| | | | | 5e. TASK NUMBER | |
| | | | | 5f. WORK UNIT NUMBER | |
| 7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) U.S. Army Command and General Staff College ATTN: ATZL-SWD-GD Fort Leavenworth, KS 66027-2301 | | | | 8. PERFORMING ORGANIZATION REPORT NUMBER | |
| 9. SPONSORING / MONITORING AGENCY NAME(S) AND ADDRESS(ES) Advanced Military Studies Program | | | | 10. SPONSOR/MONITOR'S ACRONYM(S) NUMBER(S) | |
| 12. DISTRIBUTION / AVAILABILITY STATEMENT Approved for Public Release; Distribution is Unlimited | | | | | |
| 13. SUPPLEMENTARY NOTES | | | | | |
| 14. ABSTRACT <p>In 2016, the United States Air Force (USAF) testified to Congress that it was struggling to meet its operational requirements due to a massive shortage in pilots. The service was short 1,555 pilots with fighter pilots alone accounting for 1,211 of the unfilled seats. The USAF has taken multiple approaches to attempt to solve the problem with limited success. One of the many possible solutions to the problem is the expansion of the enlisted pilot program. In 2016, the USAF started the Enlisted Remotely Piloted Aircraft Pilot Program. However, for the USAF to improve its pilot manning and meet its operational requirements, senior leaders need to consider expanding aircraft eligibility of its enlisted pilot program to include manned and lethal aircraft. The USAF must move past several fallacies of enlisted personnel that are limiting one of the many necessary solutions to solving the operational readiness problem.</p> <p>This monograph first introduces you to three enlisted soldiers that overcame bias towards enlisted personnel to earn their pilot wings: Vernon Burge, William Ocker, and Chuck Yeager. Next, an examination of policy and personnel during World War II is completed. The examination provides examples of the bias towards both enlisted pilots and women pilots prior to their necessary use during the conflict. Additionally, the monograph looks at current organizations that do not require a college degree to become a pilot. The paper examines the US Army Flight Warrant Officer Program and the Federal Aviation Administration's requirements to obtain a private pilots license. Finally, the paper dissects the fallacies that are preventing the USAF from evolving: judging an individual based on their background without considering their capability, the appeal to tradition and common practice, and searching for the perfect solution. The monograph proposes the USAF reexamine its past to enable evolution of aviators, as well as conducting an unbiased and logical examination of allowing enlisted pilots to fly manned and lethal aircraft.</p> | | | | | |
| 15. SUBJECT TERMS Enlisted Pilots, Flying Sergeants, Operational Readiness, Vernon Burge, William Ocker, Chuck Yeager, USAF, Pilot Shortage, RQ-4, US Army Warrant Officer, Flight Warrant Officer, Fallacies, Army Air Corps, Army Air Force, FAA | | | | | |
| 16. SECURITY CLASSIFICATION OF: unclassified | | | 17. LIMITATION OF ABSTRACT U | 18. NUMBER OF PAGES 37 | 19a. NAME OF RESPONSIBLE PERSON Lt Col Bradley Baker |
| a. REPORT U | b. ABSTRACT U | c. THIS PAGE U | | | 19b. TELEPHONE NUMBER (include area code) 702-238-2789 |

Monograph Approval Page

Name of Candidate: Lt Col Bradley C. Baker

Monograph Title: The Enlisted Pilot, Helping Solve Operational Readiness:
Burge, Yeager, and the RQ-4

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Abstract

Operational Readiness and the Enlisted Pilot: Burge, Yeager, and the RQ-4 by Lt Col Bradley C. Baker, US Air Force, 39 pages.

In 2016, the United States Air Force (USAF) testified to Congress that it was struggling to meet its operational requirements due to a massive shortage in pilots. The service was short 1,555 pilots with fighter pilots alone accounting for 1,211 of the unfilled seats. The USAF has taken multiple approaches to attempt to solve the problem with limited success. One of the many possible solutions to the problem is the expansion of the enlisted pilot program. In 2016, the USAF started the Enlisted Remotely Piloted Aircraft Pilot Program. However, for the USAF to improve its pilot manning and meet its operational requirements, senior leaders need to consider expanding aircraft eligibility of its enlisted pilot program to include manned and lethal aircraft. The USAF must move past several fallacies of enlisted personnel that are limiting one of the many necessary solutions to solving the operational readiness problem.

This monograph first introduces you to three enlisted soldiers that overcame bias towards enlisted personnel to earn their pilot wings: Vernon Burge, William Ocker, and Chuck Yeager. Next, an examination of policy and personnel during World War II is completed. The examination provides examples of the bias towards both enlisted pilots and women pilots prior to their necessary use during the conflict. Additionally, the monograph looks at current organizations that do not require a college degree to become a pilot. The paper examines the US Army Flight Warrant Officer Program and the Federal Aviation Administration's requirements to obtain a private pilot license. Finally, the paper dissects the fallacies that are preventing the USAF from evolving: judging an individual based on their background without considering their capability, the appeal to tradition and common practice, and searching for the perfect solution. The monograph proposes the USAF reexamine its past to enable evolution of aviators, as well as conducting an unbiased and logical examination of allowing enlisted pilots to fly manned and lethal aircraft.

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Acknowledgements

To the military and civilian staff at SAMS, thank you for your guidance, knowledge, and differing perspectives that will help guide me through my military career and more importantly life. Next, I must thank my wife, who like other military spouses provides unwavering support and receives very little credit. Thank-you for being a wonderful wife, mother, and editor. Finally, my motivation, thank-you Ava and Tess for your love, smiles, and amazing pictures that helped me get through many afternoons working on this paper.

Acronyms

| | |
|--------|--|
| AAF | Army Air Force |
| ADP | Army Doctrine Publication |
| CONARC | Continental Army Command |
| FAA | Federal Aviation Administration |
| FAI | Federation Aeronautique Internationale |
| ISR | Intelligence, Surveillance, and Reconnaissance |
| NAP | Naval Aviation Pilot |
| RPA | Remotely Piloted Aircraft |
| UAV | Unmanned Aerial Vehicle |
| USAF | United States Air Force |
| WAFS | Women's Auxiliary Flying Squadron |
| WASP | Women Airforce Service Pilots |
| WOCS | Warrant Officers Candidate School |

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Introduction

He spotted the black specks from fifty miles away. He was on a bomber escort mission over Germany in 1944 and the twenty-one-year-old American was leading three P-51 squadrons through the sky. The black specs, German Me-109s, never saw him coming. His P-51 got within a thousand yards before the enemy would even react. Just prior to opening fire on one of the Messerschmitts, its German pilot broke left, directly into his wingman. Both German pilots bailed out and it was two kills for the American without a shot being fired. Moments later, he slid his P-51 600 feet behind a 109 and achieved another kill. As he banked away from this third kill he noticed an enemy at his six o'clock. He immediately pulled back on his throttle, rolled up and over, coming in behind the aircraft. As he transitioned to an offensive position he simultaneously used right rudder and the gun to achieve his fourth kill. The aerial engagement continued to dive towards the ground and another dogfight ensued. As the pilots jockeyed for offensive position the ground closed in. The American pulled up at approximately 1,000 feet. The German flew into the ground, becoming the fifth and final kill of the day for the American.¹

In 1946, this same American fighter pilot who became an ace in a day over Europe was hand selected to attend test pilot school.² He would complete the rigorous program and within a year and half he would level off at 42,000 feet and race the X-1 to 1.05 Mach.³ On October 14, 1947 flying ace Chuck Yeager became the fastest man alive.⁴ He only had a high school degree.

Yeager grew up in Hamlin, West Virginia, one of the poorest areas in the United States at the time.⁵ According to Yeager, "I never thought about going to college; Dad just wasn't that well

¹ Chuck Yeager and Leo Janos, *YEAGER* (New York, NY: Bantam Books, 1985), 56-57.

² "Mach Buster," chuckyeager.com, accessed February 15, 2018, www.chuckyeager.com/1945-1947-mach-buster.

³ Tom Wolfe, *The Right Stuff* (New York, NY: Picadro, 1979), 44.

⁴ *Ibid.*, 46.

off. I wasn't much of a scholar, but I was always eager to acquire practical knowledge about things that interested me."⁶ Not a lot was going on for Yeager in 1941, other than chasing girls and playing pool and poker with local friends. When an Army Air Corps recruiter came to town he decided to enlist for two years.⁷ Not long after becoming an aircraft mechanic he would apply to become a "Flying Sergeant." Yeager would complete pilot training, selected as the best in his group.⁸ The enlisted soldier from West Virginia was going to be a fighter pilot.

75-years later in 2016, the United States Air Force (USAF) testified to Congress that it was struggling to meet its operational requirements due to a massive shortage in pilots. The service was short 1,555 pilots with fighter pilots alone accounting for 1,211 of the unfilled seats.⁹ Multiple factors have caused this operational readiness issue, most notably the high operational pace required by military pilots and the attractive demand for pilots in the commercial airline industry. The USAF has taken multiple approaches to attempt to solve the problem with limited success; including the offer of bonuses worth up to thirty-five thousand dollars a year and an attempt to reduce non-flying workloads.¹⁰ In 2016, it also started the Enlisted Remotely Piloted Aircraft Pilot Program; the first-time enlisted personnel have been eligible to become pilots since World War II. All enlisted airmen between the ranks of Staff Sergeant and Senior Master Sergeant and are retainable for six years from course graduation are eligible to apply.¹¹ All

⁵ Tom Wolfe, *The Right Stuff*, 35.

⁶ Chuck Yeager and Leo Janos, *YEAGER*, 10.

⁷ *Ibid.*, 12.

⁸ *Ibid.*, 13.

⁹ Karen Parrish, "Congress Probes Military Pilot Shortage," US Department of Defense, March 30, 2017, accessed January 14, 2018, <https://www.defense.gov/News/Article/Article/1135200/congress-probes-military-pilot-shortage/>.

¹⁰ *Ibid.*

¹¹ Amaani Lyle, "AF opens enlisted RPA pilot program to all AFSCs," US Air Force, August 29, 2016, accessed January 14, 2018, www.af.mil/News/Article-Display/Article/928640/af-opens-enlisted-rpa-pilot-program-to-all-afscs/.

graduates of the program will operate the RQ-4, a remotely piloted aircraft (RPA) used for Intelligence, Surveillance, and Reconnaissance (ISR).¹²

For the USAF to improve its pilot manning and meet its operational requirements senior leaders need to consider expanding aircraft eligibility of its enlisted pilot program to include manned and lethal aircraft. When considering enlisted personnel as pilots of manned and lethal aircraft the USAF must move past several fallacies. Those fallacies include making judgements about an individual based solely on their background and not individual capability, appealing to tradition and common practice, and searching for a perfect solution.¹³ The USAF must move past the stigmas that enlisted personnel are not intelligent enough and they are too immature for lethal decision making. The USAF is limiting the enlisted pilot program because of its reliance on erroneous and or incorrect assumptions. These fallacies are limiting one of the many necessary solutions to solving the operational readiness problem.

To move forward, the USAF should look back at the success as illustrated by Chuck Yeager and other enlisted pilots. The number of enlisted pilots peaked during World War II. After policy changes in 1941, enlisted pilots and civilian females helped the United States overcome pilot shortages and improve operational readiness, ultimately aiding the Allied victory. A more contemporary example is the US Army Flight Warrant Officer Program and the Federal Aviation Administration, both of which do not require a college degree for piloting aircraft. Are there more Chuck Yeager's stuck in the poorest regions of America? Could the E-3 aircraft maintainer become a USAF pilot without a college degree? Why does the US Army and not the USAF allow high school graduates to enter pilot training? An enlisted pilot program that expands aircraft

¹² Amaani Lyle, "AF opens enlisted RPA pilot program to all AFSCs."

¹³ Neil Brown and Stuart Keeley, *Asking the Right Questions: A Guide to Critical Thinking*, 8th ed. (Saddle River, NJ: Pearson Prentice Hall, 2007), 83-98.

eligibility to manned and lethal aircraft and considers civilians without college degrees could help solve the USAF pilot shortage.

The First Enlisted Pilots

The United States Army initiated the use of military aviation during the American Civil War. Four days after President Abraham Lincoln's call for soldiers, two members of the Rhode Island 1st Regiment carried two balloons from Providence to Washington DC.¹⁴ The Rhode Island Regiment would have minimal success with its balloons. However, Thaddeus S.C. Lowe, a civilian from Cincinnati, became the most successful aeronaut during the Civil War. On June 24, 1861, Lowe made his first ascent and reported no large Confederate forces approaching the nation's capital. A few months later, Lowe directed artillery fire from a balloon while using a system of visual signals to communicate to the gunners.¹⁵ Although this circumstance proved successful, balloons would have little impact on the outcome of the Civil War and would not be used again by American forces for over thirty years.

At the start of the Spanish-American War the US Army Signal Corp's balloon section had only one balloon. Sergeant William Ivy, a stunt balloonist in his free time, and his wife, had built the Army's only balloon in 1896.¹⁶ On June 30, 1898, Sgt. Ivy made the first ascent during the conflict, confirming the location of the Spanish fleet in the harbor at Santiago. With his ascent in 1898, Sgt. Ivy, an enlisted soldier, became the US military's first pilot. When the Wright Brothers conducted their first flight in 1903 the military eventually took notice and six years later the US Army purchased a Wright aeroplane. The Army would then begin to make changes to its doctrine, organization, and training to bring the airplane into its force structure.

¹⁴ Juliette Hennessy, "The United States Army Air Arm: April 1861 to April 1917" (monograph, Office of Air Force History, 1958), 1.

¹⁵ *Ibid.*, 5.

¹⁶ *Ibid.*, 13.

The first task was to hire and train the personnel for this new venture. According to the War Department, the government had no interest in training enlisted men to become pilots and instead planned to pull from its officer ranks.

It is not the policy of the War Department to train enlisted men in flying aeroplanes. Their military training is such that very few enlisted men are qualified to observe military operations and render accurate and intelligent reports of what they see from an aeroplane. Another objection is that very few enlisted men have sufficient knowledge of mechanics to appreciate the stresses to which an aeroplane is subjected during certain maneuvers.¹⁷

Even at the inception of aviation, national and military leadership held a bias against enlisted personnel. With minimal research and mostly opinion, leaders made decisions about pilot qualifications based on their academic and military service backgrounds without considering their capabilities. The War Department made assumptions that enlisted personnel did not have the intelligence nor the mechanical knowledge to operate an airplane. Even though the War Department did not approve of enlisted soldiers becoming pilots, several men would break through this barrier to prove they had just as much desire, intelligence, and knowledge to pilot aircraft. Enlisted pilots Vernon Burge and William Ocker are two examples of enlisted troops who overcame the fallacies of senior leaders.

Vernon Lee Burge

In January 1912, Corporal Vernon Burge was ordered to Fort McKinley, Philippines. Burge had become one of the Army's most experienced aviation mechanics and now was charged with delivering and assembling a Wright aeroplane to Fort McKinley.¹⁸ Lieutenant Frank Lahm commanded the newly created aviation school at Fort McKinley and after several flights he became proficient and was ready to teach officers. Lahm needed two volunteers, but only one officer volunteered for flight training. Burge volunteered knowing that Lahm needed another

¹⁷ Lee Arbon, *They Also Flew: The Enlisted Pilot Legacy of 1912-1942* (Washington, DC: Smithsonian Institute, 1992), 3.

¹⁸ *Ibid.*, 16.

student, and surprisingly Lahm agreed. Burge began his flying career on April 5, 1912 and two months later he satisfied the Federation Aeronautique Internationale (FAI) requirements for an aviator's certificate.¹⁹ Even though the War Department scolded Lahm for training Burge, Burge continued to fly.

Burge would continue his career at the forefront of aviation. Two months after arriving at Fort Sam Houston, the 1st Aero Squadron supported General Pershing's expedition against Pancho Villa. The only operational flying squadron in America deployed to Casas Grandes, Mexico. The primary responsibilities of the 1st Aero Squadron were reconnaissance and message delivery.²⁰ As Sergeant-Major of the 1st Aero Squadron, Burge played a large role in the first deployment of American airplanes.

Burge eventually received a commission in 1917, followed by command of the 280th Aero Squadron.²¹ In October 1941, Colonel Vernon Burge completed his last flight after logging a total of 4,667 hours and fifty-five minutes during his twenty-nine years as a pilot for the US.²² Burge is a great example of an enlisted soldier that took advantage of an opportunity to become a pilot and then progressed within the military aviation ranks due to his desire and capability.

When examining the story of Vernon Burge, the USAF should learn that enlisted troops have the desire and capability to become qualified pilots. Like the Army in 1912, the USAF does not have enough officers to fill all the required cockpits. Similar to Burge, many enlisted troops may desire the opportunity to become a pilot but did not have the means and or opportunity to attend college after high school. The USAF needs to examine the desire of the current enlisted

¹⁹ Lee Arbon, *They Also Flew*, 2.

²⁰ *Ibid.*, 27-29.

²¹ *Ibid.*, 33.

²² *Ibid.*, 114.

force, the capabilities of those who desire to become a pilot, and the overall requirements that the USAF has mandated for individuals to become pilots.

Adjustments to military advancement can provide flexibility to airmen and more options for the USAF to meet operational readiness. Burge entered the Army in 1907 as a Private and retired in 1941 as a Colonel. By expanding the enlisted pilot program, the USAF will provide pilot opportunities to all ranks. Enlisted troops could enter the service and immediately begin pilot training or after a set amount of time or after a specific grade, get the option to apply to become a pilot. Enlisted airmen could begin flying RPAs and later transition to fixed wing aircraft. Both professional and military educational opportunities would remain, allowing the USAF to develop leaders and provide opportunities for advanced degrees. These few examples would not only help operational readiness but could also help recruiting and retention.

William Ocker

Corporal William Ocker was posted as a guard at Fort Myer, Virginia when the Wright Brothers demonstrated their plane for the army in 1909. A few years later, while stationed at Fort McKinley, Philippines, he watched planes take-off and land each day. Ironically, it was Vernon Burge soaring through the Philippines skies.²³ This exposure to aviation was instrumental in his desire to become a pilot. In September 1912, Ocker forfeited his rank of Sergeant and re-enlisted in the Signal Section. After re-enlisting, he requested a transfer to the Aviation Section. The request was approved by his commanding officer, Capt. William “Billy” Mitchell, who confided to Ocker that he too was applying for reassignment to the Aviation School.²⁴

Stationed at North Island, California, Ocker became an expert mechanic. During his free time, he worked as a mechanic at the nearby Glenn Curtiss Flying School.²⁵ Glenn Curtiss was an

²³ Lee Arbon, *They Also Flew*, 18.

²⁴ *Ibid.*, 22.

aviation pioneer, a rival to the Wright Brothers, and lacked a high school education, established his first flying school in California for flight experiments and instruction.²⁶ Instead of collecting money for his work, Ocker exchanged his services for flying lessons. After completing his flying lessons, Ocker took a month off to practice for his FAI aviator test. Since aviation was still relatively new, Ocker's aviator test had a small crowd watching, including The San Diego Union newspaper. Ocker's ability to fly was so superior to what anyone had seen, during the test a small newspaper was placed on the runway to challenge him during his landings. According to the paper:

Ocker's last and by far the most spectacular test was made when he ascended to the height of 1200 feet, shut off the motor as required under the Aero Club rules, and then volplaned to the ground. The copy of the *Union* was held in place by a couple of stones and although the aviators present wagered that the young birdman could not repeat his two previous performances, Ocker astounded them by piloting the big Curtiss speed scout again squarely on the small section of newspaper.

"It was the most remarkable series of landings ever made by a student flying for a pilot's license," said Francis Wildman. "Ocker's mastery of the machine was superb, and his feat of landing three times on a newspaper is one which few expert birdmen can duplicate."²⁷

Ocker would receive FAI certificate 293 in April of 1914. He remained at North Island for the next three years as a mechanic and pilot. Ocker was well known for his superb aviator test in San Diego, however he was more widely known for his aviation knowledge and testing. While still working as a mechanic at the Curtiss Flying School, Ocker tested a stabilizing device on a Curtiss flying boat. The device's purpose was to reduce the strenuous controls that pilots had to endure while flying.²⁸ The device was a pre-cursor to present day aircraft trimming systems. In 1916, Ocker began working with Captain Clarence Culver, a radio specialist that was

²⁵ Lee Arbon, *They Also Flew*, 22.

²⁶ William Trimble, *Hero of the Air: Glenn Curtiss and the Birth of Naval Aviation* (Annapolis, MD: Naval Institute Press, 2010), 104.

²⁷ Lee Arbon, *They Also Flew*, 23-24.

²⁸ *Ibid.*, 22.

experimenting with airborne radio. According to Arbon, “the most noteworthy of these tests occurred when Ocker flew Culver from North Island to Santa Monica and back with a transmitter powerful enough to be heard at most receiving stations along the way.”²⁹ The two soldiers continued experimenting with air-to-ground and air-to-air communications. These tests would provide important stepping stones for radio communication in aircraft. However, Ocker’s most noteworthy work was his research and testing regarding blind flight.

In 1932 Ocker and Carl Crane published a book called, *Blind Fight in Theory and Practice*. The purpose of the book according to Ocker and Crane, “was to present a complete study of the principles and practice of flight without exterior visual references.”³⁰ Blind flight is the ability to control an airplane while unable to maintain visual reference.³¹ In 1926, Ocker determined the need for blind flight training. According to Ocker, “the pilot, unless trained in the art of blind flying, will come to grief in bad weather. The cause of crashes in bad weather, when there is no outside visual reference must be laid principally to the inability of the pilot, because of his lack of blind flight training.”³² The book examines the fallacies that a human can control a plane while in weather without instruments. Ocker and Crane stress the importance of using instrument indicators and the creation of a display and indicator that can make interpretation easier. Ocker and Crane created the paradigm shift from seat-of-your-pants flying to instrument flying. Ocker and Crane’s research enabled both commercial and military aviation to operate more effectively in weather and their principles are the foundation of present day instrument flying.

²⁹ Lee Arbon, *They Also Flew*, 30.

³⁰ William Ocker and Carl Crane, *Blind Flight in Theory and Practice* (San Antonio, TX: Naylor Printing Company, 1932), Preface.

³¹ *Ibid.*, 1.

³² *Ibid.*, 3.

Ocker's passion for flying began when he saw the Wright Brother's execute a flying demonstration and it continued through the many meticulous lessons received at the Curtiss Flying School. Ocker received a commission in 1917 and became the first commander of the flying field at Essington, Pennsylvania.³³ Ocker's desire, intelligence, and knowledge made him a great mechanic and pilot, but Ocker is best remembered as an innovator. His innovations led to breakthroughs in aircraft trimming systems, radio communication, and instrument flying. Ocker both changed the fundamentals of piloting and became a commissioned officer without a college degree. Like Yeager, Ocker had a mechanical mind that was right for aviation and creativity. As the USAF attempts to solve readiness problems and develop approaches for near peer adversaries, the institution needs to recruit as many creative thinkers as possible, even those without college degrees. Ocker is a great example of an innovative enlisted soldier that was given an opportunity and made tremendous impacts in aviation.

Many officers and civilian leaders believed that pilot wings only belonged to officers, however Vernon Burge and William Ocker demonstrated how desire, intelligence, and knowledge can successfully propel airmen of any rank into the wild blue yonder. Let us not forget, while highly capable and intelligent, Orville and Wilbur Wright did not have college degrees. Improving technology has changed many aspects of aircraft, however the fundamentals of flying remain the same, making Burge, Ocker, and Yeager relevant to the enlisted pilot discussion. Examining the history of the enlisted pilot should teach the USAF to judge an individual more on their capability than their background.

Policy and Personnel During World War II

The Army Air Corps did not have the manpower necessary to defeat the Luftwaffe when Germany invaded Poland in 1939. Even after Germany invaded France in May 1940 it was still

³³ Lee Arbon, *They Also Flew*, 32.

unable to support a large-scale war effort. It was not until the summer of 1941 that the Army Air Force's (AAF) leadership began making drastic personnel decisions to support the much anticipated two-front war. An increase of enlisted pilots and inclusion of female pilots proved to be very effective in helping the Allies achieve victory during World War II. Seventeen AAF enlisted pilots became aces, thirty enlisted pilots would participate in the Himalayan Airlift, and 1,102 female pilots were trained to relieve male pilots for combat duty.^{34 35} The air arm of the US Army played a significant role in the Allied victory, however the lack of anticipation and appeal to common practice almost prevented the air campaign from being a decisive factor in victory during World War II.

Policy

In 1926, legislation stated, "On and after July 1, 1929, and in time of peace, not less than 20 per centum of the total number of pilots employed in tactical units of the Air Corps shall be enlisted men."³⁶ Brigadier General Benjamin Foulois, the acting Chief of Staff of the Air Corps, supported the new legislation thinking this would finally resolve the confusion over the admittance of enlisted pilots, bombardiers, and gunners. However, getting organizations to accept enlisted pilots proved more difficult than Foulois expected. The Air Corps never achieved the legislative quota of a twenty percent manning level.³⁷

In January 1939 the President instructed the War Department to reorient the defensive plans under hemispheric lines rather than national. Correspondingly, the department requested an increase in Air Corps personnel officers to 3,203 and enlisted to 45,000. The personnel increase

³⁴ Lee Arbon, *They Also Flew*, 133-150.

³⁵ "A History of the Women Airforce Service Pilots," National WASP WWII Museum, accessed December 18, 2017, <http://waspmuseum.org/index.html>.

³⁶ Lee Arbon, *They Also Flew*, 167.

³⁷ *Ibid.*, 76.

would allow the Air Corps to man the additional 3,032 planes it was requesting.³⁸ The legislation became law in April 1939, H. R. 3791, but within a few months it was deemed insufficient for hemispheric defense.³⁹ After Germany invaded Poland in September 1939, the Air Corps immediately began drafting plans to increase the pilot-training- program to 12,000 personnel during 1940 and 30,000 personnel in 1941 in anticipation of entering the war.⁴⁰

With war looming on the horizon, the increase in personnel to attend pilot training was necessary, however the process and policies made achieving the required number of pilots difficult. Many believed the regulations should include enlisted men of the regular army and reserve officers. During the hearings for the Aviation Student Act in 1939, Edgar Brown, president of the United Government of Employees, Inc., referenced an editorial from the New York Daily News while appearing before the House Committee on Military Affairs.⁴¹ The editorial, titled “Rickenbacker Didn’t Go to College,” stated:

We move that these college requirements be discarded and that our flying forces be permitted to pick their material wherever they can find good material. The object, in building up our fighting equipment, is to get planes that can fly better than anybody else’s planes, driven by pilots that can pilot and air fight better than anybody else’s pilots. The possibility that we may pick up some pilots who don’t know a cosine from a dodecahedron, or the proper way for a gentleman and an officer to navigate a teacup, is of very minor importance. We bet there are a lot of taxicab drivers who could be turned into swell combat pilots.⁴²

In 1940 the Air Corps began commissioning enlisted pilots as officers.⁴³ However the policy in place prevented the Air Corps from creating new enlisted pilots. The requirements for

³⁸ Army Air Forces Historical Studies, *Revised Edition Legislation relating to the AAF Personnel Program 1939-1945 No 16* (Headquarters, Army Air Forces, May 1946), 5.

³⁹ *Ibid.*, 10.

⁴⁰ *Ibid.*, 11.

⁴¹ Army Air Forces Historical Studies, *Revised Edition Legislation*, 11.

⁴² *Ibid.*, 12.

⁴³ Lee Arbon, *They Also Flew*, 114.

entering pilot training required a flying cadet to be a male, a current regular army officer, or have at least two years of college work, and be able to pass a very strict entrance examination.⁴⁴ By December 1940 the Air Corps realized it needed to both recruit more pilots and ease the existing requirements to fly.⁴⁵ The War Department proposed creating the new grade of aviation student, allowing enlisted men of the regular Army and of other components of the Army the opportunity to apply for pilot training. The bills were introduced in April and would become law on June 3, 1941.⁴⁶

The War Department Bureau of Public Relations began notifying potential enlisted candidates of the change on June 4, 1941. However, the regulation required a few surprising stipulations to the eager enlisted men. Regardless of current rank, students would be awarded the rating of pilot, obtain the rank of staff sergeant, and were forbidden from marrying for three years following graduation. Figures were not calculated as to how many did not pursue pilot training because of these stipulations, but many accepted the reduction in rank and a few put wedding plans on hold. The first class of 122 aviation students reported to Muskogee, Oklahoma in August 1941.⁴⁷

By 1942, no educational requirements were needed to become an aviation cadet or aviation student as the training requirements for both were roughly the same.⁴⁸ The only difference between the two were career opportunities after graduation. According to the Historical Study, *Legislation Relating to the AAF Personnel Program*, “The Air Corps was confronted with the problem of how to deal with those graduates among enlisted men who were good officer material and those graduates among the cadets who, because of lowered requirements, did not measure up the desired

⁴⁴ Army Air Forces Historical Studies, *Revised Edition Legislation*, 11.

⁴⁵ *Ibid.*, 12.

⁴⁶ Army Air Forces Historical Studies, *Revised Edition Legislation*, 12.

⁴⁷ Lee Arbon, *They Also Flew*, 122.

⁴⁸ *Ibid.*, 42.

qualifications for commissioned officers.”⁴⁹ The solution was the creation of the Flight Officer. The provision allowed graduates of pilot training to be either appointed Flight Officers or commissioned Second Lieutenants. According to the Air Corps, the proposed legislation would create a more democratic process allowing leadership to choose who would become a Second Lieutenant or Flight Officer based on their talents.⁵⁰ The Flight Officer Act would become Public Law 658 in July 1942.⁵¹ By March of 1943 all enlisted pilots were promoted to Flight Officer and all but a few commissioned to Second Lieutenants.⁵²

A similar enlisted aviator program existed in the Navy. The Naval Aviation Pilot (NAP) was an enlisted Sailor or Marine that had earned the rating of pilot.⁵³ The program began in 1916 and would continue till 1973.⁵⁴ NAPs would get their first combat test during the Banana Wars of the 1920s and 1930s.⁵⁵ They would also play a significant role in the Pacific Campaign during World War II, 131 total NAPs existed at the start of the war, five would become aces.⁵⁶ While policy was slightly different between the Army and the Navy, the concept of enlisted pilots was comparable. Like Flying Sergeants, NAPs played a decisive role during World War II.

Leading up to the US entering World War II, the Army refused to allow enlisted personnel to attend pilot training. Even though it was clear in 1940 that not enough college educated pilots

⁴⁹ Lee Arbon, *They Also Flew*, 42.

⁵⁰ Army Air Forces Historical Studies, *Revised Edition Legislation*, 43.

⁵¹ Lee Arbon, *They Also Flew*, 151.

⁵² *Ibid.*, 150.

⁵³ John Curatola, “Enlisted Wings of Gold,” *Flying Leathernecks Log Book*, Fall/Winter 2012, 1.

⁵⁴ *Ibid.*, 6.

⁵⁵ *Ibid.*, 2.

⁵⁶ *Ibid.*, 4.

were going to meet the operational needs of the Army Air Corps, it was not until the summer of 1941, with war on the horizon, that legislation allowed enlisted personnel to attend pilot training. Today's USAF must prevent making the same mistake. Many could argue the USAF is limiting its options by accepting similar common practices and traditions that were accepted prior to World War II, only college graduates can fly manned aircraft. The USAF must complete the necessary research to develop the processes and programs that allow the organization to take advantage of their talented enlisted personnel. Reflecting on World War II and moving beyond the faulty assumptions of common practice and tradition will lead the USAF to be operationally ready.

Personnel

In addition to enlisted men getting the opportunity to fly, as early as 1940 the Army Air Corps considered using women pilots.⁵⁷ The personnel decision to allow women to pilot aircraft was very similar to enlisted men. Initially, military leaders did not feel women had the capability to fly and disregarded their need in the war effort until it was almost too late.

In 1939 Miss Jacqueline Cochran, the three-time Aviatix trophy winner for being considered the world's most outstanding female pilot, proposed to Mrs. Franklin Roosevelt the need for women pilots in case of national emergency. Cochran proposed that women could be used for behind the lines work, allowing male pilots to focus on combat duty. According to Cochran, "This requires organization and not at the time of emergency but in advance we have about 650 licensed women pilots in this country. Most of them would be little use today, but most of them could be of great use a few months hence if properly trained and organized."⁵⁸ Cochran

⁵⁷ Army Air Forces Historical Studies, *Women Pilots with the AAF 1941-1944 No 55*, (Headquarters, Army Air Forces, March 1946), 2.

⁵⁸ Ibid.

also recognized that Germany, Russia, England, and France were using female pilots and she firmly believed that the American public supported her, but Washington DC did not.⁵⁹

In 1940 the Plans Division proposed using 100 women pilots, as co-pilots, in transport squadrons and for ferrying aircraft.⁶⁰ The proposal would enable the release of male pilots to fly in combat. However, The Chief of the Air Corps, Major General Henry “Hap” Arnold turned down the proposal, suggesting that women pilots should release male pilots in the commercial airline industry, allowing males to transition to Army service.⁶¹ Over the next year and a half it was projected that 12,000 training planes were going to be transported from factories to bases within the US. The delivery would require approximately 200 pilots, and according to the report it would be “uneconomical” for combat training pilots to ferry the planes.⁶² On 25 August 1941, even after the Air Corps acknowledgement in December 1940 that they needed to create more pilots, General Arnold again disapproved of using women pilots:

The use of women pilots serves no military purpose in a country which has adequate manpower at this time. The use of male pilots gives valuable training to a reserve for military purposes.

The use of women pilots presents a difficult situation as to housing and messing of personnel at Air Corps Stations. The use of male pilots presents no such problem.⁶³

After multiple proposals and organizational discussions, in early September 1942 General Arnold saw the writing on the wall and changed his stance and approved women pilots to ferry aircraft.⁶⁴ Within a few days, the Air Staff established standards and began recruiting. On

⁵⁹ Army Air Forces Historical Studies, *Women Pilots*, 2.

⁶⁰ *Ibid.*, 3.

⁶¹ *Ibid.*, 4.

⁶² *Ibid.*, 6.

⁶³ *Ibid.*, 8.

⁶⁴ *Ibid.*, 16.

September 10, 1942 the War Department announced the establishment of an experimental unit, the Women's Auxiliary Ferrying Squadron (WAFS).⁶⁵

Over a twenty-seven month period during World War II women conducted 12,650 ferrying operations, totaling 9,224,000 miles.⁶⁶ The Women Airforce Service Pilots (WASP), created in July 1943, merging the WAFS and the Women's Flying Training Detachment, would be deactivated in December of 1944.⁶⁷ Even if many questioned the capability of women pilots, senior leadership eventually recognized their benefit. General Arnold stated, "Their very successful record of accomplishment has proved that in any future total effort the nation can count on thousands of its young women to fly any of its aircraft."⁶⁸

The appeal to common practice and tradition slowed effective policy changes towards personnel, specifically enlisted and women pilots. In addition, leadership was slow to consider the capabilities of both groups. These fallacies prevented the US from using all its personnel assets in preparation and during the early stages of World War II. Unlike World War II, the USAF may not have the ability or time to make a 3,000 percent expansion to their pilot cadre. If the USAF is going to be operationally ready for the next major conflict it must examine its policies and make sure it is taking advantage of the talented personnel within its service. In 1942 the AAF finally examined the capabilities of women pilots and realized their operational benefit. It is time for the USAF to look beyond its officers and examine the capabilities of all its personnel.

⁶⁵ Army Air Forces Historical Studies, *Women Pilots*, 17.

⁶⁶ *Ibid.*, 67.

⁶⁷ Shannon Collins, "WASPs: First women in history to fly for Army Air Corps," US Army, March 16, 2016, accessed December 18, 2017, https://www.army.mil/article/164374/wasps_first_women_in_history_to_fly_for_army_air_corps.

⁶⁸ Army Air Forces Historical Studies, *Women Pilots*, 103.

Aviation without a College Degree

As the USAF attempts to resolve its shortage of pilots it can look to the US Army and the Federal Aviation Administration (FAA). Both provide examples of how individuals become pilots without first earning a college degree. The US Army's Flight Warrant Officer program allows civilians to graduate high school and begin flight school immediately after Warrant Officer Candidate School (WOCS). The FAA allows citizens to obtain a private pilot certificate at the age of seventeen. Examining the history, training process, and leadership education of both the Flight Warrant Officer Program and private pilot certificate path is necessary to help alleviate and examine alternatives to the current USAF readiness issues.

US Army Flight Warrant Officer

The first Warrant Officers in the US Military can be traced to the US Navy in 1775. Like the British Royal Navy, the Warrant Officer was considered a technical expert but was not commissioned to command. The official birth of the US Army Warrant Officer occurred in July 1918 with the establishment of the Army Mine Planter Service. Forty Warrant Officers were authorized to serve as masters, mates, chief engineers, and assistant engineers.⁶⁹

The National Security Act of 1947 established the USAF as an independent service. As Army Aviation attempted to evolve without the USAF it would rely on Warrant Officers to help establish Army Aviation. The first training class of Warrant Officer Pilots started at Fort Sill in 1951.⁷⁰ However, Warrant Officer Pilots were limited to a few aircraft based on the limitations of the Army Tables of Organization and Equipment.⁷¹ The Army Aviation School was officially

⁶⁹ "Army Warrant Officer History," Warrant Officer Historical Foundation, May 31, 2015, accessed January 2, 2018, www.warrantofficerhistory.org/Hist_of_Army_WO.htm.

⁷⁰ Richard P. Weinert Jr., *A History of Army Aviation-1950-1962* (TRADOC Historical Monograph Series, US Army TRADOC, 1991), 20.

⁷¹ *Ibid.*, 70.

established in January 1953 at Fort Sill. During the first six months of operation the school would graduate 478 officers and Warrant Officers. Officers and Warrant Officers would train and graduate together.⁷²

Prior to the Korean War the Army had begun developing an Army Aviation Officer Career Program, however the program was put on hold during the Korean conflict. In 1955, General Matthew Ridgway, Chief of Staff of the US Army, directed a reorganization of Army Aviation. The reorganization would cement the Flight Warrant Officer as a permanent staple within Army Aviation. The reorganization was directed for many reasons. First, only four percent of aviation officers were over the rank of major. Second, the Army needed a career program that would attract and retain officers. Third, the Army required commissioned officers to man staff positions within their branch, which meant they were not flying.⁷³ Army aviation would not become its own branch until 1983.⁷⁴ One of the many recommendations to the reorganization was the increase in Flight Warrant Officers.⁷⁵ Continental Army Command (CONARC) recommended converting forty-two percent of rated aviator spaces to Warrant Officers. According to *A History of Army Aviation – 1950-1962*, “This recommendation was based on previous CONARC view that aviator duty positions requiring tactical or technical knowledge in addition to skill as a pilot should be filled by Warrant Officers.”⁷⁶ In 1961, the Army was approximately 500 pilots short of its requirement.⁷⁷ Again, the Army began to train additional

⁷² Richard P. Weinert Jr., *A History of Army Aviation-1950-1962*, 95.

⁷³ *Ibid.*, 112.

⁷⁴ Frank W. Tate, “Army Aviation as a Branch, Eighteen Years After the Decision” (monograph, School of Advanced Military Studies, Second Term AY 00-01), ii. accessed January 2, 2018, www.dtic.mil/dtic/tr/fulltext/u2/a394423.pdf.

⁷⁵ Richard P. Weinert Jr., *A History of Army Aviation*, 112.

⁷⁶ *Ibid.*, 122.

⁷⁷ *Ibid.*

Warrant Officers and converted commissioned officer positions to Warrant Officers.⁷⁸ The Flight Warrant Officer has filled a shortage of pilots for the Army on multiple occasions. Additionally, the leaders of the Army recognized the benefit of having highly specialized individuals focused on flying. Army flight training trains commissioned officers and Warrant Officers together, the training establishes a standard and provides the Army with Flight Warrant Officers that are both technical experts and leaders capable of making lethal decisions like their commissioned officer counterparts.

US Army Flight Warrant Officer Training and Education

The standard for Flight Warrant Officers has not diminished. Like their commissioned officer counterparts, they participate in multiple levels of rigorous training prior to becoming an Army Aviator. The Army allows both civilians and current Army enlisted personnel to apply for Warrant Officer Flight Training. The general requirements are: high school diploma, 18 years old and no older than 33, achieve a qualifying score on the Selection Instrument for Flight Training, earn a minimum of 110 on the General Technical section of the Armed Forces Vocational Aptitude Battery test, and pass a flight physical.⁷⁹ All Warrant Officers attend WOCS, according to the US Army website, “The school is designed to assess candidates’ potential as Warrant Officers and prepare them for service in 16 of the Army’s 17 branches (the Special Operations branch trains and appoints its own Warrant Officers).”⁸⁰ The course follows a similar path to Officer Candidates School, focusing on experimental learning events, adaptive leadership principles, and classroom theory studies and discussion.⁸¹ WOCS requires graduates that are

⁷⁸ Richard P. Weinert Jr., *A History of Army Aviation*, 122.

⁷⁹ “Careers and Jobs,” US Army, accessed January 2, 2018, <https://www.goarmy.com/careers-and-jobs/current-and-prior-service/advance-your-career/warrant-officer.html>.

⁸⁰ *Ibid.*

⁸¹ US Army Combined Arms Center, “Warrant Officer Candidate School,” US Army, accessed January 2, 2018, <http://usacac.army.mil/organizations/cace/wocc/courses/wocs>.

committed to doing what is right legally, morally, and ethically.⁸² Discussing legal, moral, and ethical decisions is necessary since the Army requires Flight Warrant Officers to make lethal decisions while flying. After WOCS, aviation students begin flight training. As previously noted, commissioned officers and Warrant Officers go through aviation training together, both receiving the same exact flight training.

The Flight Warrant Officer is a technical aviation expert but also has some general responsibilities beyond aviation. Warrant Officers are expected to provide advice and solutions to commanders, execute policy, lead special purpose units when necessary, concentrate on unit effectiveness and readiness, and train, mentor, and counsel subordinates.⁸³ According to US Code Title 10, “a Warrant Officer may be assigned to perform duties that necessarily include those normally performed by a commissioned officer.”⁸⁴ In most cases the responsibilities of a Warrant Officer and a commissioned officer are very similar. However, while in the air, both commissioned officers and Warrant Officers must rely on the exact same aviation training they have received to accomplish their mission. Flight Warrant Officers also have opportunities and mandatory requirements to complete professional military education. Warrant Officer Basic Course, Warrant Officer Advanced Course, Warrant Officer Intermediate Level Education, and Warrant Officer Senior Service Education are examples of the primary courses made available to Warrant Officers as they progress in rank.⁸⁵ Even though they are not commissioned officers,

⁸² US Army Combined Arms Center, “Warrant Officer Candidate School.”

⁸³ Tennessee State Guard, “Responsibilities, and Authority of Warrant Officers at the Company Level”, Task Number 020-320-0001, August 10, 2003, accessed January 2, 2018, http://tsg3.us/tmsg_lib/pldc_school/wobc/tmsg_020_0001_duties_wo/tmsg_020_0001.pdf.

⁸⁴ “10 US Code,” Cornell Law School, accessed February 20, 2018, <https://www.law.cornell.edu/uscode/text/10/3548>.

⁸⁵ US Army Combined Arms Center, “Warrant Officer Courses,” US Army, accessed January 2, 2018, <http://usacac.army.mil/organizations/cace/wocc/courses>.

Fight Warrant Officers have a tremendous responsibility and have access to professional education and training that enables the Army to allow them to make lethal decisions.

US Army and US Air Force Similarities and Differences

There are similarities and differences between US Army Aviation and USAF aviation. To further examine why the USAF allows only officers to pilot manned and lethal aircraft, one must study the differences between the mission and culture of the two services.

Aviation Mission

USAF Volume 1 Basic Doctrine stresses both a global and strategic perspective. Global vigilance, global reach, and global power allows the USAF to anticipate threats and provide strategic reach.⁸⁶ Additionally, the USAF believes that airpower can be simultaneously applied across the strategic, operational, and tactical levels of war.⁸⁷ The range, speed, and flexibility of the USAF provide airmen with global responsibilities. According to USAF Volume 1 Basic Doctrine, “The Air Force does not view or use airpower organically to support Service component objectives; the Air Force employs airpower to achieve the joint force commander’s objective and to complement the other components of the joint force.”⁸⁸ The mission of the USAF provides insight to why it believes only officers should fly manned and lethal aircraft. Even though it is not directly stated, leaders believe only officers should pilot aircraft because of the potential strategic implications. For decades, USAF leadership has felt the risk is too high to have an enlisted soldier make a strategic decision.

The USAF has an air centric perspective, while the US Army has a land centric perspective. According to Army Doctrine Publication (ADP) 3-0, Operations, “Army forces, as

⁸⁶ US Department of the Air Force, *USAF Basic Doctrine Volume 1* (Washington, DC: Government Printing Office, 2015), 4.

⁸⁷ *Ibid.*, 25.

⁸⁸ *Ibid.*, 23.

part of the joint force, contribute to the joint fight through the conduct of unified land operations.”⁸⁹ The Army’s combined arms team includes aviation but it also includes infantry, armor, field artillery, air defense artillery, and engineers.⁹⁰ The aviation arm of the Army is essential to unified land operations; however, its primary purpose is to support ground forces. The Army believes military forces could accomplish a strategic objective, however they consider it rare.⁹¹ According to ADP 3-0, Operations, “Hypothetically, military forces might accomplish a strategic objective through a single tactical action, eliminating the need for operational art. In reality, the scale of most modern conflicts and the ability of enemy forces to retain their operational capacity—even in the face of significant tactical defeats—make this an exceptionally rare event.”⁹²

The differing perspectives on aviation are important to understand. The USAF views its pilots as strategic, operational, and tactical operators. The US Army views its pilots as a support asset to ground forces. These perspectives provide insight to why the US Army allows Warrant Officers to be pilots and why the USAF does not. As the USAF faces operational readiness issues, leaders must determine their comfort level with risk. Are leaders willing to risk not being prepared for the next conflict, or are they willing to accept risk with enlisted pilots flying manned and lethal aircraft? The USAF does not need to change its strategic perspective, but it must consider changing its assumptions of who can be pilots.

⁸⁹ US Department of the Army, Army Doctrine Publication (ADP) 3-0, Operations (Washington, DC: Government Printing Office, 2016), 1.

⁹⁰ US Department of the Army, Army Doctrine Reference Publication (ADRP) 3-90, Offense and Defense (Washington, DC: Government Printing Office, 2012), 1-3.

⁹¹ US Department of the Army, Army Doctrine Publication (ADP) 3-0, 4.

⁹² Ibid.

Aviation Culture

In 1954 Congressional leaders began questioning the USAF's stance on all pilots being officers that were college trained.⁹³ Congressional leaders felt the high standards were a luxury and not a necessity.⁹⁴ According to the monograph, "USAF Considerations in Implementing a Specialized Pilot Program," the USAF representative to Congress stated, "that warrants were not used because technological developments required highly educated commissioned aviators."⁹⁵

Again in 1979, Congress asked the USAF to revisit Warrant Officers as pilots.⁹⁶ The USAF rejected Congress saying USAF policy required all pilots to have a college degree. In a letter to an Army Counterpart, Maj General Morris stated the official USAF position.

The potential flexibility for future utilization and development of a pilot trainee who has a college degree is significantly higher than the potential for the one without a degree. Completion of the degree is predictive of the probability of completing training in highly complex systems as well as the ability to cope with the demanding decision/judgement, multitask environment of a pilot in today's weapons systems. Additionally, the college trained officer has a higher management potential as a senior officer.⁹⁷

From 1947 to 2015, USAF culture has clearly promoted that pilots need to be officers with a college degree. In 2016 the paradigm changed slightly with enlisted airmen being trained to fly the RQ-4. However, past and current USAF culture may be limiting the ability to examine enlisted pilots flying other aircraft. Is a paradigm that was established in 1912, officer pilots, preventing leadership from solving operational readiness problems in 2018? The US Army has encouraged specialization among its Warrant Officers since 1951 and on multiple occasions it has

⁹³ Stephen Sniteman, "U.S. Air Force Considerations in Implementing a Specialized Pilot Program" (master's thesis, US Army Command and Staff College, 1980), 39.

⁹⁴ *Ibid.*, 40.

⁹⁵ *Ibid.*

⁹⁶ *Ibid.*, 44.

⁹⁷ *Ibid.*, 49.

helped the service solve readiness and retention problems. The USAF must examine the US Army's perspective and culture regarding the Flight Warrant Officer to overcome its operational readiness issues.

Aviation Safety

It is difficult to compare the overall effectiveness of USAF Aviation to US Army Aviation; however, the following information provides a broad comparison between aviation safety statistics. The examination provides a common ground that allows the reader to broadly compare the USAF, a service predominantly of commissioned officer aviators to the US Army, a service whose majority are Warrant Officers. Currently Warrant Officers make up fifty-nine percent of the current students at flight school.⁹⁸ The following statistics compare the Class A and Class B mishap rates of the two services. The two services definitions of a Class A and Class B mishaps are very similar. A Class A mishap is defined as costing 2 million dollars or more and or a fatality or permanent disability occurring.⁹⁹ A Class B mishap is defined as costing between 500 hundred thousand or more but less than 2 million dollars and or a permanent partial disability.¹⁰⁰ There are other minor caveats to the definitions. Examine the references for additional information.

⁹⁸ Captain Jeremy Jacobson, request for information by author, 1-145 Aviation Regiment, Fort Rucker, March 9, 2018.

⁹⁹ US Department of the Air Force, Air Force Instruction 91-204, *Safety Investigations and Reports* (Washington, DC: Government Printing Office, 2014), 20.

¹⁰⁰ US Army Combat Readiness Center, "Army Accident Classification Chart," accessed January 2, 2018, https://safety.army.mil/Portals/0/Documents/REPORTINGANDINVESTIGATION/TOOLS/Standard/Army_Accident_Classification_pre12272013.pdf.

Table 1. Aviation Safety Statistics: Accident Rates FY 17, 16, and 15

| | FY 17 | FY16 | FY 15 |
|--|---------------|---------------|---------------|
| USAF | Class A: 0.75 | Class A: 0.74 | Class A: 1.12 |
| | Class B: 2.20 | Class B: 2.60 | Class B: 2.41 |
| USAF Fighter and Attack Aircraft Only | Class A: 1.64 | Class A: 1.84 | Class A: 2.24 |
| | Class B: 2.58 | Class B: 3.23 | Class B: 2.47 |
| US ARMY | Class A: 3.2 | Class A: 2.7 | Class A: 2.1 |
| | Class B: 3.2 | Class B: 1.9 | Class B: 2.3 |

Sources: Data from US Army Combat Readiness Center, "US Army Accident Information," last modified January 6, 2018, accessed January 7, 2018, <https://safety.army.mil/Portals/0/Documents/STATISTICS/Standard/PublicReports/AviationAccidentStatisticsFiscalYearEndData.pdf>; USAF Safety Center, "Flight Safety Statistics," last modified September 30, 2017, accessed January 7, 2018, www.safety.af.mil/Portals/71/documents/Aviation/End%20of%20Year%20statistics/FY17.pdf.
 Note: Aviation rates are calculated per 100,000 flight hours.

When examining the above safety statistics a few things should be considered before drawing a conclusion. The US Army operates far fewer aircraft with the current inventory consisting of the CH-47, AH-64, UH-60, UH-72, OH-6, C-12 and a few Unmanned Aerial Systems. Additionally, the US Army does not conduct long range mobility operations, but missions that are typically much shorter in duration. A precise conclusion to the above statistics is hard to reach, however it allows one to see the similarities in safety rates between the two services. When considering if enlisted troops and or Warrant Officers are necessary to help fix the USAF retention problems, these statistics provide a glimpse at the similar safety numbers between the USAF and US Army.

The Flight Warrant Officer has been an asset the Army has used for over sixty-five years. During retention problems, the Flight Warrant Officer has given the US Army flexibility to increase pilots by recruiting from individuals in high school and or seasoned enlisted personnel. Additionally, the US Army provides similar training between commissioned officers and Warrant Officers in each of its separate candidate schools and provides identical training when

commissioned and Warrant Officers attend flight school. The US Army has developed a technical expert in the Flight Warrant Officer that has both the ability and capability to lead and make lethal decisions. Examining the history and training of the Flight Warrant Officer while also comparing the similarities and differences between the two services is necessary for the USAF in its attempt to fix the pilot shortage. The US Army has produced a lethal and effective aviation officer without a college degree for the past sixty-five years.

Federal Aviation Administration (FAA)

The FAA is a US Government organization that is a branch of the Department of Transportation. According to the FAA website, “Our continuing mission is to provide the safest, most efficient aerospace system in the world.”¹⁰¹ The origins of the FAA date back to the Air Commerce Act that passed in 1926. The legislation established an organization to foster air commerce, issuing and enforcing traffic rules, licensing pilots, certifying aircraft, establishing airways, and operating and maintaining aids to air navigation. The organization would continue to grow with the aviation industry and would become the FAA in 1958, becoming an independent government organization responsible for civil aviation safety.¹⁰²

The precursor to the FAA, The Aeronautics Branch of the Department of Commerce issued the first pilot certification to William MacCracken in April 1927.¹⁰³ Since 1927 the FAA has been the lone organization responsible for issuing pilot certificates in the US. The current requirements to become a private pilot do not include a college degree. The requirements are more focused on practical training and proficiency of flying an aircraft. To be eligible for a

¹⁰¹ Federal Aviation Administration, “Our Mission,” last modified April 23, 2010, accessed January 2, 2018, <https://www.faa.gov/about/mission/>.

¹⁰² Federal Aviation Administration, “A Brief History of the FAA,” last modified January 4, 2017, accessed January 2, 2018, https://www.faa.gov/about/history/brief_history/.

¹⁰³ “The First Pilot and Mechanic Licenses Issues,” *Aviation Online Magazine*, accessed on January 2, 2018. http://avstop.com/history/pilot_lic/first_pilots_and_mechanic_licens.htm.

private pilot certificate in a single engine aircraft a person must be at least seventeen years of age and be able to read, speak, write, and understand English. An individual that pursues a private pilot certificate will complete the appropriate training in accordance with the Federal Regulation, Title 14 Aeronautics and Space, Part 61. The primary areas within the Federal Regulation are aeronautical knowledge, flight proficiency and aeronautical experience. The perspective student pilot must receive ground training from an authorized instructor or complete a home-study course to obtain the required aeronautical knowledge required by the regulation.¹⁰⁴ Additionally, the student pilot must be proficient in all aspects of visual flight. Preflight procedures, takeoffs, landings and go-arounds, navigation, emergency operations and postflight operations are just a few of the many areas that a student pilot must be proficient. Finally, to achieve the required aeronautical experience the student must log at least forty hours, twenty of those hours from an authorized instructor and a minimum of ten hours of solo flight training. Additionally, the regulation requires cross-country flying, night flying, and a minimum number of takeoffs and landings. The regulation provides clear guidance for the requirements to be issued a private pilot certificate and a college degree is not required. Additionally, no college degree is required to receive a commercial pilot certificate or an airline transport pilot certificate.¹⁰⁵

The US Army Flight Warrant Officer Program and the FAA provide two examples of aviation organizations that do not require a college degree to fly. The US Army provides its Flight Warrant Officers with the same aviation training that its commissioned officers receive. Additionally, the US Army provides professional military education to educate its Warrant Officers. Based on both the training and education, the US Army Flight Warrant Officer is

¹⁰⁴ US Federal Regulation, *Title 14, Chapter 1, Subchapter D, Part 61, Certification: Pilots, Flight Instructors, and Ground Instructors*, last modified January 2, 2018, accessed January 7, 2018, https://www.ecfr.gov/cgi-bin/text-idx?c=ecfr&sid=40760189a03dfea0b501608f33820a45&rgn=div5&view=text&node=14:2.0.1.1.2&idno=14#se14.2.61_13.

¹⁰⁵ Ibid.

capable of operating an aircraft and making moral and lethal decisions. The FAA regulations provide a pilot with the practical experience required to safely operate an aircraft. The FAA appears not to be interested in forcing individuals to obtain degrees that are not applicable to the required task of operating an aircraft. The benefit of having a college degree is unquestionable with certain occupations. However, the USAF is limiting itself to a smaller pool of aviators since USAF pilots are required to be commissioned officers. Both the US Army and the FAA provide examples of organizations that focus on education and training that is applicable to the task at hand, flying an aircraft. For the USAF to continue to be the world's most premier air force, it must study the perspective, culture, and policies of organizations like the US Army and the FAA. The USAF must make sure it is not requiring unnecessary qualifications, such as a college degree, as it evolves in the 21st century.

Fallacies

The USAF must overcome fallacies to evolve. The three fallacies that are preventing the evolution are: judging a person by their background without considering their capability, appealing to tradition and common practice, and searching for a perfect solution. Overcoming these fallacies will allow the USAF to better reflect on the past, evaluate the present, and prepare with an open mind for the future.

Judging a Book by its Cover

In 1912, the War Department said enlisted pilots did not have sufficient knowledge to pilot aircraft.¹⁰⁶ In 1954, the USAF told Congress that technological developments required highly educated commissioned officers.¹⁰⁷ Again, in 1979 the USAF would not consider Warrant

¹⁰⁶ Lee Arbon, *They Also Flew*, 3.

¹⁰⁷ Stephen Sniteman, "U.S. Air Force Considerations in Implementing a Specialized Pilot Program" (master's thesis, US Army Command and Staff College, 1980), 40.

Officers because the completion of a college degree was more predictable of success in the complex environment of aviation.¹⁰⁸ Since 1947, the USAF has given very little consideration to enlisted personnel becoming aviators. Since most enlisted personnel do not have college degrees when entering the military, the USAF have deemed them ineligible to become pilots based on their educational background, not considering their individual capability.

In 1998 the USAF was conducting a study on Unmanned Aerial Vehicle (UAV) training. One of the questions in the study was whether enlisted personnel could be trained to fly the MQ-1 Predator. Six of eight of the selected survey participants believed that enlisted personnel could be trained to fly the MQ-1.¹⁰⁹ However, the entire focus group was concerned with giving enlisted personnel the responsibility to employ a UAV. The group's apprehension was based on the enlisted personnel's requirement for quick and accurate decisions, effective communication, and being responsible for implementing decisions correctly.¹¹⁰ These concerns are justifiable; however, these concerns are present when training any new aviator regardless of rank. While not directly stated, the underlying assumption is enlisted personnel are slower and less accurate when making decisions and may have trouble communicating effectively when compared to officers. These apprehensions and assumptions are based on educational background and not the capability of the individual.

The bias towards enlisted personnel prevents the USAF from examining the capabilities of enlisted airmen. The USAF continues to believe educational background is more important than capability. Having a college degree is certainly beneficial, however how beneficial is it for someone who is flying a plane? Improving technology has reduced the workload of pilots, do you

¹⁰⁸ Stephen Sniteman, "U.S. Air Force Considerations in Implementing a Specialized Pilot Program," 49.

¹⁰⁹ Air Force Research Organization, *USAF Air Vehicle Operator Training Requirements Study*, by Ellen Hall and William Tire, (Brooks AFB, Texas, 1998), 5.

¹¹⁰ *Ibid.*, 6.

need a college degree to operate a fifth-generation aircraft? The blanket judgement over a group of people because of their educational background without considering their capability has prevented the USAF from evolving, further exasperating its operational readiness problem.

We Have Always Done it that Way

Leading up to World War II, General “Hap” Arnold was hesitant to use enlisted and women pilots. While General Arnold gave many reasons, the most obvious reasons were his reluctance to break common practice. Today’s USAF allows only commissioned officers to employ lethal airpower. The responsibility of using lethal force is tremendous, but why can Marine Corporals employ the M249 Squad Automatic Weapon but USAF Staff Sergeants cannot drop a 500- pound bomb? The appeal to tradition and common practice is preventing the USAF from evolving and solving the operational readiness problem.

Since USAF doctrine stresses a global and strategic perspective many believe that lethal force needs to remain with an officer, a lethal strategic mistake made by an enlisted pilot would be unsatisfactory. However, an article by the thirty-first Commandant of the Marine Corps General Charles Krulak discusses the “Strategic Corporal.” General Krulak presents a likely situation where a Corporal must make tactical decisions that could have strategic implications during a humanitarian mission.¹¹¹ General Krulak discusses the changes of the twenty-first century battlefield, “The rapid diffusion of technology, the growth of multitude of transnational factors, and the consequences of increasing globalization and economic interdependence, have coalesced to create national security challenges remarkable for their complexity.”¹¹² The article makes it very clear that with the changing battlefield every soldier could have strategic implications. General Krulak states, “Our Strategic Corporal – firmly grounded in our ethos,

¹¹¹ Charles Krulak, “The Strategic Corporal: Leadership in the Three Block War,” *Marines Magazine*, January 1999, accessed February 27, 2018, www.au.af.mil/au/awc/awcgate/usmc/strategic_corporal.htm.

¹¹² *Ibid.*

thoroughly schooled and trained, outfitted with the finest equipment obtainable, infinitely agile, and above all else, a leader in the tradition of the Marines of old...made the right decision.”¹¹³

Why does the USAF remain adamant that enlisted airmen cannot employ lethal force from the air? Other services have enlisted personnel that employ lethal force, and according to General Krulak, those services are aware of the potential strategic implications. The US Army and US Marines make sure they train and outfit their personnel to be leaders and understand the responsibility of using lethal force. In a time where the USAF cannot produce enough fighter pilots, it has refused to allow enlisted pilots to operate lethal aircraft. The appeal to common practice and tradition is preventing the USAF from evolving and fixing its operational readiness problem.

Perfect Solution

For many years the USAF thought it had the perfect solution for solving operational readiness. Give pilots more money and they will continue to fly in the USAF. However, that solution has proved ineffective. The USAF has limited its options for solving the readiness problem because it has been searching for the perfect solution. There is not one single solution to solving the USAF operational readiness issue, but instead a multi-pronged solution should be considered.

In the past few years the USAF has begun a multi-pronged approach. In 2016, the USAF started training enlisted personnel to pilot RQ-4s. In a 2016 letter USAF Chief of Staff General Dave Goldfein restated the importance and restructuring of squadrons to increase morale. In 2018, the USAF will begin testing a six-month pilot training program, usually a year long, with

¹¹³ Charles Krulak, “The Strategic Corporal: Leadership in the Three Block War.”

fifteen officers and five enlisted airmen.¹¹⁴ The USAF for a long time was looking for that perfect solution, however, it has started to realize it will require multiple solutions to solve its operational readiness problem. The USAF needs to continue to examine different solutions, examining enlisted airmen piloting lethal aircraft is one of the next steps.

The USAF has limited its evolution because of its reliance on erroneous or incorrect assumptions, fallacies. For the USAF to continue to evolve it must begin looking at all personnel based on their background and capability, prevent making decisions solely on tradition or common practice, and realize there is no perfect solution to solving the operational readiness issue.

Conclusion

When Chuck Yeager reflects about his abilities as a pilot he never mentions the need for a college education. Yeager states, “I was born with unusually good eyes and coordination. I was mechanically oriented, understood mechanics easily. My nature was to stay cool in tight spots. All I know is I worked my tail off to learn how to fly, and worked hard at it all the way.”¹¹⁵ Yeager realizes the importance of natural ability, hard work, and experience. So how many current enlisted airmen have similar qualities? The USAF will never know unless it begins moving past the fallacies that are preventing the evolution of the pilot.

As the characteristics of war change, the USAF must change too. This monograph is more about looking at the past to help explore options for the future. The F-22 enlisted pilot may not be the correct answer for solving the fighter pilot shortage, but the USAF needs to complete an unbiased examination of using enlisted pilots. For the USAF to evolve it must move beyond its

¹¹⁴ James Clark, “No, The Air Force Isn’t Really Bringing Back Enlisted Pilots,” *Task and Purpose*, December 7, 2017, accessed March 3, 2018, <https://taskandpurpose.com/no-enlisted-pilots-air-force/>.

¹¹⁵ Chuck Yeager and Leo Janos, *YEAGER*, 319.

fallacies presented in this monograph. The USAF has become a fragile organization, the enlisted pilot can provide the USAF with both redundancy and overcompensation making it stronger when shortages occur.¹¹⁶ The War Department tried preventing Vernon Burge and William Ocker from flying, only considering these gentlemen's background without considering their capability. During World War II, men and women proved that college degrees were not necessary to successfully pilot aircraft. Additionally, the USAF has examined the role of a Warrant Officer on multiple occasions, each time concluding that college degrees are necessary to fly USAF aircraft without providing legitimate research. While the USAF traditions are important they should not restrict the evolution of the service. The USAF must continue to examine a multi-pronged approach to the solve the operational readiness problem.

In a 2008 speech to USAF officers at Maxwell Air Force Base, Secretary of Defense Robert Gates expressed his frustration with the service, "I've been wrestling for months to get more intelligence, surveillance, and reconnaissance assets into the theater. Because people were stuck in old ways of doing business, it's been like pulling teeth...All this may require rethinking long-standing service assumptions and priorities about which missions require certified pilots and which do not."¹¹⁷ Ten years have passed since Secretary Gates gave that speech, and now the USAF is facing an operational readiness problem that places the nation's national security into question. The enlisted pilot that operates manned and lethal aircraft has succeeded in the past and needs to be considered for the USAF to overcome its 1,555 pilot shortage. The USAF enlisted pilot provides the service with options and opportunities, that will enable the USAF to gain and maintain a position of relative advantage.

¹¹⁶ Nassim Nicholas Taleb, *Antifragile* (New York, NY: Random House, 2014), 44.

¹¹⁷ Houston Cantwell, "Operators of Air Force Unmanned Aircraft Systems," *Air and Space Power Journal*, (Summer 2009): 67-77.

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