

THE ROLE OF LIGHT ATTACK/ARMED RECONNAISSANCE AIRCRAFT
IN COUNTERISURGENCY: A COMPARATIVE CASE STUDY OF
ALGERIA AND THE VIETNAM WAR

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General Studies

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ABSTRACT

THE ROLE OF LIGHT ATTACK/ARMED RECONNAISSANCE AIRCRAFT IN COUNTERINSURGENCY: A COMPARATIVE CASE STUDY OF ALGERIA AND THE VIETNAM WAR, by Major Mark R. Heusinkveld, 74 pages

The need for a Light Attack/Armed Reconnaissance (LAAR) aircraft in counterinsurgency (COIN) is a topic that will often be debated as the conflict in Afghanistan continues and the United States Air Force (USAF) looks at how it can use airpower to continue to support the fight. For this reason, a study of the use of LAAR aircraft in the past is important. Presented in this thesis are two historical case studies of past LAAR aircraft used in counterinsurgencies: the French Air Force in Algeria and the USAF in the Vietnam War. Both provide examples of distinct command and control arrangements with similar timeframe and aircraft types. Both case studies provide insight to the effectiveness and efficiency of LAAR aircraft in those conflicts. This thesis questions if the LAAR aircraft's capabilities increased overall mission accomplishment and were these increases directly attributable to the LAAR performance. The thesis also studies the evolution of LAAR aircraft as the conflicts progressed. With an understanding of the types, command and control, and effectiveness of LAAR aircraft in counterinsurgencies, this thesis concludes with recommendations for future research in order to make an informed decision about LAAR aircraft in the future.

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ACRONYMS

AF	Air Force
CAS	Close Air Support
COIN	Counterinsurgency
FLN	National Liberation Front
G.A.T.A.C.	Groupes Aériens Tactiques
LAAR	Light Attack/Armed Reconnaissance
SVN	South Vietnamese
US	United States
USAF	United States Air Force
VNAF	Vietnamese Air Force

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CHAPTER 1

INTRODUCTION

As the counterinsurgency (COIN) fight in Afghanistan continues to progress, some observers question if the United States Air Force (USAF) is truly “all in” with regard to updating capabilities and tactics. A case study of French operations in Algeria and United States (US) operations in the Vietnam War could provide some insight. Although neither France nor the United States met their strategic objectives, the use of light and outdated attack aircraft was important to operational and tactical success in those small wars. A comparative case study of the use of Light Attack/Armed Reconnaissance (LAAR) aircraft in the two operations will provide insight as the USAF decides how to move forward in this conflict.

The primary question this thesis will answer is were the LAAR aircraft used in Algeria and the Vietnam War well suited for the mission of interdiction and close air support (CAS) in those counterinsurgencies? The USAF is considering buying multiple LAAR aircraft in order to provide better fire support to ground forces engaged in COIN operations in Afghanistan.¹ Before the US Department of Defense spends money on an unproven weapons system, a study of how previous COIN operations have used similar aircraft warrants research.

Background

There has been much discussion about the best use of airpower in COIN operations, specifically with regard to current operations in Afghanistan. In both the French operations in Algeria, as well as the US COIN in the Vietnam War, LAAR aircraft were antiquated World

War II era aircraft. Flying low, slow, and in the threat envelope, these pilots were able to identify and attack targets as well as conduct airstrikes in support of ground troops. Many have heralded the use of these aircraft as an effective method for insuring that airpower is remaining close to the fight.

Primary Research Question

Were the LAAR aircraft used in Algeria and the Vietnam War well suited for the mission of interdiction and CAS in those COIN operations?

When considering the use of LAAR in Algeria and the Vietnam War the effectiveness of the interdiction and CAS these aircraft provide is of primary concern. A LAAR aircraft does not have the firepower or the self-protection capability to operate on its own to conduct other missions, such as strategic attacks. Although modern CAS procedures were not in effect throughout much of the conflicts in Algeria and the Vietnam War, the interdiction and CAS mission was essentially the same.

Secondary Research Questions

1. Was the overall mission accomplishment directly attributable to LAAR aircraft performance and capabilities?
2. If not, how effective was the use in contributing to mission accomplishment?
3. Was the usefulness due to the capabilities that low and slow aircraft provide?

The above questions will try to determine if the LAAR aircraft used in Algeria and the Vietnam War were effective and efficient in their mission.

This second set of questions will try to determine if the LAAR were the best types of aircraft for the mission.

1. Did France and the US use the older aircraft because they were best suited for the mission, or did they use them because they were what the AFs' had to offer at the time?

2. Did LAAR aircraft and aircrew reduce risk of collateral damage or fratricide?

3. Did the LAAR aircraft and aircrew provide friendly troops with better psychological coverage?

4. Did the command and control model used by France and the US improve the effectiveness of LAAR aircraft?

Psychological effect is difficult to determine, but inferences are made based on request for firepower from aircraft on the friendly side and fear of certain types of aircraft from the enemy. Also, the command and control organizations present different models for LAAR aircraft use in the future.

Significance

Although less expensive than a more complex aircraft, fielding a LAAR aircraft and deploying it to Afghanistan is not without costs. Prior to spending tax dollars on a LAAR aircraft for COIN operations, it is imperative that USAF leaders understand the circumstances around previous LAAR aircraft use. These circumstances include the development of the aircraft, their use in the operations, and the command and control structures that were in place. Leaders must consider issues beyond just the selection of an airframe. This study will examine two cases of LAAR aircraft use and serve to provide insights into the primary and secondary research questions.

Assumptions

This thesis assumes that the US will continue to be engaged in COIN operations as well as other low intensity conflicts. It also assumes that the US will use LAAR aircraft for interdiction and CAS missions and not advisory or training roles. Finally, it assumes that a different type of aircraft necessitates change in command and control organizational structures, or updated structures are considered.

Definitions

Close Air Support. CAS is air action by fixed and rotary-wing aircraft against hostile targets that are in close proximity to friendly forces and that require detailed integrations of each air mission with the fire and movement of those forces.²

Interdiction. An action to divert, disrupt, delay, or destroy the enemy's military surface capability before it can be used effectively against friendly forces, or to otherwise achieve objectives.³

Light Attack/Armed Reconnaissance Aircraft. A light weight propeller driven aircraft capable of operating off austere airfields with minimum maintenance in an attack role.

Limitations

This thesis will focus on a historical perspective based on data collected during the conflicts as well as doctrine written before and after the conflicts. In order to gauge effectiveness, opinions of previous authors are used. The study of LAAR aircraft will be limited to aircraft in Algeria and the Vietnam War. The intent is to find insight from LAAR aircraft used in past COIN operations.

Delimitations

This thesis will not address current research on modern COIN LAAR aircraft of the USAF except to understand requirements currently under consideration. Additionally, the author will not make any recommendations for a specific COIN aircraft for the future, but simply look at the capability. This thesis does not address classified or FOUO documents.

¹Steven J. Tittel, “Cost, Capability, and the Hunt for a Lightweight Ground Attack Aircraft” (Master’s Thesis, Command and General Staff College, Fort Leavenworth, KS, 2009).

²Joint Chiefs of Staff, Joint Publication (JP) 3-09.3, *Close Air Support (CAS)* (Washington, DC: Government Printing Office, 2009).

³Joint Chiefs of Staff, Joint Publication (JP) 3-03, *Joint Interdiction* (Washington, DC: Government Printing Office, 2007).

CHAPTER 2

LITERATURE REVIEW AND RESEARCH METHODOLOGY

Literature Review

This study examines the use of LAAR aircraft by the French AF in Algeria and the USAF in the Vietnam War. In areas where both countries used LAAR aircraft, they had total air dominance, similar to the current situation in Afghanistan. The French and the US used LAAR aircraft in the support of ground forces and independent actions even though aircraft with greater technological advances were available, only in smaller numbers.

The following chapter discusses the historical literature used to answer the primary and secondary questions presented in the previous chapter. First, a previous Master's Thesis which discusses both cases in this paper is covered. The chapter moves on with an assessment of the literature regarding French operations in Algeria with a focus on aircraft use. This literature primarily uses secondary sources to include books, reports, and Master's Theses. Next, the chapter will discuss the literature surrounding US LAAR aircraft operations in the Vietnam War. Once again, the primary sources include books, RAND reports, and Master's Theses.

In April 2005, Major Arthur D. Davis, a USAF officer, wrote a Master's Thesis entitled "Back to the Basics: An Aviation Solution to Counter Insurgent Warfare." This paper focused on the French LAAR aircraft use in Algeria and the US COIN experience in the Vietnam War. He used the case study to recommend a LAAR aircraft for use in today's environment. The paper's primary goal is the justification of an LAAR aircraft for use in Iraq and Afghanistan. He argues the current fighter inventory is unsuitable for COIN operations and recommends adding an LAAR aircraft to the USAF inventory. The historical analysis of

Algeria and the Vietnam War is minimal, but he brings out pertinent points to justify his argument. Major Davis does not discuss the differences in command and control organizational structures nor does he compare the two conflicts in the hopes of finding insight into the success or failure.¹

There are numerous books, journal articles, and Master's Theses on French operations in Algeria from 1954 to 1962. The difficulty is in finding primary, or many times secondary, sources that deal strictly with LAAR aircraft. The literature documents the French Army's experience well and numerous insights from this literature have guided current US COIN doctrine. Many times though, the literature leaves out the LAAR aircraft's role in the conflict or only mentions it briefly.

Two books written about the French experience in Algeria provide in depth accounts of the entire conflict but have little specific insight into the use of LAAR aircraft. The first is entitled *A Savage War of Peace: Algeria 1954-1962* by Alistair Horne. Horne's book is a superlative historical record widely read and acclaimed. He provides an overview of the COIN from beginning to end. Although highly recommended, it provides little information about LAAR aircraft. Roger Trinquier, a French regimental commander in Algeria, writes a second source *Modern Warfare: a French View of Counterinsurgency*. Although this is not an historical account, it provides great insight into the French model of COIN warfare. An excellent primary source for information on French aircraft used in Algeria is *A History of French Military Aviation* by Charles Christienne and Pierre Lissarague. Although the section on Algeria is quite small, it provides a detailed look at the progression of the French AF.

A thesis similar to the one presented here is an Air War College paper entitled "Airpower in Counterinsurgency" by Colonel Robert Hardie from 1967. This report is a

comparative case study of the British-Malayan Emergency of 1948 to 1960 and the French-Algerian War of 1954 to 1961. The comparison involves effective use of airpower in COIN. The French-Algerian section begins with a discussion of the background of the conflict then continues to show how the hostilities escalated. The use of airpower in Algeria first began as a strictly peacetime application of air defense and transport.²

As the hostilities intensified, the flexibility of the French aircraft became critical to success. To facilitate the new support required, the French AF reorganized into an operational chain of command responsive to the ground forces. This reorganization took two years to complete but the product proved to be flexible and responsive by 1956.³ The structure attached the aircraft to the ground commander at the divisional level with the Advanced Air Command and the Army Division Zone. These two commands joined in a central location called the Joint Operations Center. Due to this operational chain of command, the French forces were able to fight as a single unified force, which provided maximum flexibility and speed of reaction.⁴ The T-6 Texan primarily provided reconnaissance, air patrol, and fighter support. The T-6 was a workhorse for the French and provided the majority of the fixed wing firepower. This World War II era trainer was perfect for the terrain and requirements of the French. In closing, Hardie states, “From a cost-effectiveness standpoint, development of an aircraft to be used solely as a counter-insurgency aircraft cannot be justified.” This statement may be a bit peremptory, as a student at a USAF School wrote it at a time when the AF was fighting for a large strategic capability.

An article by the Concepts Division of the Aerospace Studies Institute, entitled “Guerrilla Warfare and Airpower in Algeria, 1954-1960,”⁵ goes into detail about the types of aircraft used by the French. France’s first LAAR aircraft was the T-6. It was a workhorse

aircraft providing firepower throughout much of the war.⁶ In all, there were 242 T-6 aircraft used in Algeria and they flew 14,225 CAS sorties.⁷ The primary mission of the T-6 was as a reconnaissance aircraft but the effectiveness of T-6 air cover was evident in their success in 1958 and 1959. During this time, it protected several hundred convoys, with only 2 attacks (one in a city and one in a canyon).⁸ As the war progressed, World War II era aircraft met increasing firepower requirements and aircraft such as the P-47 armed with .50 caliber machine guns met those demands. The institute argued that the French used this heavy firepower primarily for the preparation of drop zones prior to troop landings and for chasing out rebels in emplacements.

The literature is quite extensive for the USAF operations in the Vietnam War. It documents well the use of LAAR aircraft and there is much information regarding specific data such as number of attacks and sorties flown. Much of the literature is written by students in various USAF Schools, and is very pro-USAF. A primary source used for this thesis is the biography of Colonel Heinie Aderholte entitled *Air Commando One* by Warren A. Trest. Colonel Aderholte was the driving force behind the use of LAAR aircraft in the USAF following the Korean War. His struggles with both USAF bureaucracy as well as the battles with US Army command provides insight into the command and control relationships while LAAR aircraft were first brought to the Vietnam War, as well as struggles while the war escalated.

The use of airpower by the USAF in COIN began with Operation Farm Gate in Vietnam. In *Relegated to the Backseat*, Edward B. Westermann summarizes Farm Gate in a quite critical manner. He states that Farm Gate highlights the specific roles and missions of airpower in COIN and warns against over reliance on technology. In order to expand service

capability in the COIN role, General Curtis E. LeMay ordered the establishment of a special command, in 1961, designed to aid in the training of indigenous air forces. LeMay's intention is certainly debatable and some say he regarded the mission as a passing fad.⁹ Westermann posits that LeMay was most concerned with the Army's development of light aircraft and insuring the USAF was the only airpower branch of service. With very little guidance, Farm Gate flew an array of World War II aircraft including the T-28 Trojan.¹⁰ Westermann states that although the mission of Farm Gate was to train Vietnamese Air Force (VNAF) pilots, in actuality the American pilots would have the direct combat role, with VNAF observers in the back seat.

Westermann comes to two conclusions. First, Farm Gate reveals the necessity of a clear chain of command and an explicit mission statement when using LAAR aircraft in COIN.¹¹ If the mission of the aircraft and pilots is to be CAS, and not training and advising, then this must be very clear to the leadership of the units as well as all members.

Westermann's second conclusion is that the appropriate technology is essential when fighting in a COIN environment. He states that the USAF's obsession with advanced technology prevented the USAF leadership from committing all efforts into the COIN environment.

Another secondary source is a thesis by Major Robert K. Abernathy, entitled "Weapons of Choice," which debates the propeller versus jet controversy and ultimately decides in favor of propeller-powered aircraft as the appropriate technology in a COIN.¹² Abernathy begins his thesis with a background on why the LAAR aircraft were originally used and states that this information is critical for the reader to understand. He states that insurgent forces will use the cover of terrain and population to employ hit and run tactics with small units. Abernathy believes that LAAR aircraft are the right choice because of their

ability to loiter longer and deliver a more accurate weapon.¹³ He claims that in the Vietnam War, interdiction efforts along the Ho Chi Minh Trail were secondary, but for LAAR aircraft, it was the primary focus.¹⁴ Abernathy uses Office of the Secretary of Defense data to perform a cost analysis of targets per sorties and aircraft. Abernathy's data is interesting but fails to account for the modern threat, which could be deadly to LAAR aircraft operating now. Abernathy concludes his thesis with an excellent discussion of the command and control difficulties the USAF encountered in the Vietnam War.

The final source is a book by James S. Corum and Wray R. Johnson, entitled *Airpower in Small Wars*. The authors wrote the book because they felt it was difficult to find good readings that covered the history of airpower in COIN, while instructors at the USAF School of Advanced Airpower Studies. The book is a comprehensive history of airpower in small wars through the twentieth century up to the present.¹⁵ The book's wide range of wars and aircraft do not allow for detail on each subject. The authors spend a lot of time on the political history of the small wars, and the airpower portion is often missing details. Also, the authors favor LAAR aircraft for COIN in almost all cases, with little discussion of the need for technological advances.

Research Methodology

This thesis is a comparative case study of LAAR aircraft use by the French in Algeria and the US in the Vietnam War. The study will focus on the use of LAAR aircraft in these operations and highlight differences between the approaches of the US and France. A thorough examination of how the differences, when found, changed the effectiveness of the LAAR aircraft is also conducted.

The conflicts in Algeria and Vietnam are convenient to use for a variety of reasons. First, both are COIN wars that occurred on different continents from the nations that were operating the aircraft. Second, both of the conflicts occurred after airpower entered the jet age, but there were still a plethora of propeller driven light aircraft remaining. Finally, the approaches of the two nations contain fundamental differences which provide insight on LAAR aircraft use today.

Research includes sources from the Combined Arms Research Library through my own research as well as the use of the library staff. The most relevant sources are from historical documentations of LAAR aircraft operations in Algeria and the Vietnam War. Accounts of LAAR aircraft targets are especially useful.

First data is gathered and analyzed on the background of the conflicts to include how the LAAR aircraft entered the wars. Next, this study will examine how France and the US used the LAAR aircraft and changes in tactics and equipment that occurred during the conflicts. The research will then focus on the background of command and control organizational structures for both the French and the US. Once data gathering is complete, the researcher will compare and contrast LAAR aircraft use between the French in Algeria and the US in the Vietnam War. Finally, the thesis will conclude with insights from the comparison that leaders can apply to the current COIN in Afghanistan.

¹Major Arthur D. Davis, “Back to the Basics: An Aviation Solution to Counter Insurgent Warfare” (Master’s Thesis, Air Command and Staff College, Maxwell AFB, AL, 2005), 15.

²Robert L. Hardie, “Airpower in Counterinsurgency Warfare (Professional Study no. 3373, Air War College, Maxwell AFB, AL, 1967), 35

³Ibid., 36.

⁴Ibid., 37.

⁵The Aerospace Studies Institute is located at Maxwell AFB, Alabama and is part of Air University.

⁶Aerospace Studies Institute, Concepts Division, *Guerrilla Warfare and Airpower in Algeria, 1954-1960* (Maxwell AFB, AL: US Aerospace Studies Institute, 1965), 62.

⁷Ibid., 63.

⁸Ibid.

⁹Edward B. Westermann, “Relegated to the Backseat: Farm Gate and the Failure of the US Air Advisory Effort in South Vietnam, 1961-1963,” in *Military Advising and Assistance: From Mercenaries to Privatization 1815-2007*, ed. Donald J. Stoker (London: Routledge, 2008), 127.

¹⁰Ibid., 128.

¹¹Ibid., 144.

¹²Robert K. Abernathy, “Weapons of Choice: The ‘Propeller versus Jet’ Controversy and the ‘Appropriate Technology’ Dilemma” (Maxwell AFB, AL: Air University Press, June 2000), 4.

¹³Ibid., 5.

¹⁴Ibid., 12.

¹⁵James S. Corum and Wray R. Johnson, *Airpower in Small Wars* (Lawrence, KS: University Press of Kansas, 2003), xi.

CHAPTER 3

ANALYSIS OF FRENCH IN ALGERIA

As the USAF seeks to best integrate airpower with ground forces, a debate continues about the use of LAAR aircraft in the COIN in Afghanistan. For this reason, a historical study of the use of LAAR aircraft is essential. This research investigates the use of LAAR aircraft by the French in the Algerian War and by the US in the Vietnam War. The primary question to consider is if the use of LAAR aircraft in Algeria and Vietnam improved the effectiveness and efficiency of airpower in those conflicts? The US and France used comparable types of aircraft while involved in similar types of counterinsurgencies. The first aspect of this question is whether the LAAR aircraft's capabilities increased overall mission accomplishment and if so, were these increases directly attributable to the actual use of LAAR aircraft? The second aspect is if the capabilities of the LAAR aircraft were best suited for the mission, or if the AF s' just did their best with the pool of aircraft they had on hand at the time. This chapter will focus on the French in Algeria.

Organization

The five sections below allow for further analysis of the LAAR aircraft use by the French in Algeria. Each section builds upon the previous to provide an overall picture of the use of LAAR aircraft. The first section discusses the background of the French Algerian conflict and the role of the LAAR aircraft at the beginning of the COIN. As the conflict progressed, the types of aircraft also evolved. The next section will discuss the types of LAAR aircraft used and includes specific performance parameters. Next, there is an examination of the command and control of LAAR aircraft in Algeria. The fourth section

will address any correlation between the performance characteristics and capabilities, command and control relationships, and effectiveness rates. The final section analyzes the limited data available regarding collateral damage, fratricide, and psychological effects of the aircraft.

Conflict Background The French in Algeria

A look at the background of the conflict offers insight into why the French used certain types of aircraft and how the use of those aircraft changed. This section is by no means comprehensive and numerous books cover the conflict backgrounds and include airpower specific lessons.¹ Instead, this section will focus on the accidental or planned use of LAAR aircraft in COIN operations in Algeria from 1954 to 1962.

Algeria is a large country; four times the size of France but only a small portion along the coast has ever been permanently inhabited.² From the Mediterranean coastline, the landscape consists of fertile coastal land with mountain ranges to the south. South of the mountain ranges is the Sahara Desert. The varied and largely uninhabited terrain makes Algeria a difficult place to maintain order.³ The now independent country of Algeria had been a French colony since 1830 when French expeditionary forces landed on a beach west of Algiers, the capital and largest city.⁴ In order to pacify the North African tribal area, the French placed colonists within the country and had little regard for who previously owned the land or what importance the land was to the indigenous tribes. Although the government encouraged Frenchmen to settle in Algeria, numerous other people of European descent immigrated. Europeans in the country had political and economic privileges denied to the local population, including French citizenship. As time progressed and two world wars were fought in Africa, Algerians were called into service for the French, but gained few rights as a

result.⁵ Years of intolerance by the French and political frustrations for indigenous Algerians culminated with attacks across the country on All Saints' Day in 1954 by the *Front de Libération Nationale* or National Liberation Front (FLN).⁶ The initial French reaction did not help pacify the country. French troops indiscriminately rounded up suspects and sent them to prison. The French used aircraft to attack suspected insurgent concentrations throughout the country in addition to indiscriminate air strikes.⁷ If an Algerian was merely a passive observer to the conflict before prison, following a prison term they were certainly passionate supporters of the FLN. Although the attacks brought little reaction from French citizens in France, they forced the French administration to react with a buildup of military forces in the region in order to save face.⁸ This buildup included aircraft to support the ground forces.

In 1955, the French began a three-pronged approach to pacify the country and stop the insurgency. LAAR aircraft were essential to two of the three prongs. First, they set up local governments run by the French Army to govern, take civic action, and distribute propaganda.⁹ Second, they established the Morice Line along the border of Tunisia and Morocco where the FLN sought sanctuary and supplies. The Morice Line consisted of barbed wire, electric fences, mines, and ground surveillance radar.¹⁰ Roving patrols of ground troops and aircraft surveillance insured the FLN was unable to penetrate the line. Attacks from both the air and the ground constituted the final prong of the strategy. These conventional operations caused much deliberate and collateral damage and were often more of a detriment to the counter-insurgency than an advantage.¹¹

The French had experience with the use of aircraft in support of ground troops in a similar situation while in an earlier war of decolonization in Indochina from 1946 to 1954.¹² As the French command responded to increased FLN attacks with increased numbers of

troops, *L'Armée de l'air* deployed numerous assets to use against the FLN. They built dozens of airstrips throughout the country to facilitate the use of airpower and made upgrades to the already established bases.¹³ Based on lessons learned in Indochina, the French saw the role of airpower to be four-fold: intelligence, transport, command and control, and firepower. Dedicated aircraft such as the Max Holste 1521 Broussard, as well as the LAAR aircraft in support of ground troops, carried out intelligence both on the Morice Line and in the interior via aerial observation and reconnaissance. The French AF used transports for movement from one airfield to another and helicopters for movement from one zone to the other without the need for airstrips.¹⁴ Command and control was also conducted with flying army command posts entrusted with the execution of certain missions. Fires were brought to bear on the enemy with the LAAR aircraft. This included armed reconnaissance missions where the LAAR aircraft overflow prescribed zones and attacked objectives independently, missions of accompanying or protecting troops, and preplanned attacks.¹⁵

The government saw tactical success along the Morice Line from 1955 to 1958 with 95 percent of all infiltrations blocked.¹⁶ However, the war was causing unrest in mainland France, a country that had already endured military failure in World War II and Indochina. In 1958, Charles de Gaulle placed French AF General Maurice Challe as the commander in Algeria with orders to secure quick results. Challe devised a plan to build on the previous commander's success and set up "hunter" companies to find and kill or capture insurgents in the vast interior. The hunter companies consisted of both French and local soldiers and used unconventional techniques to locate enemy forces. They were mobile, traveled lightly, and carried powerful radio equipment. Once the enemy was located, the hunters would call in

airstrikes and alert conventional troops.¹⁷ LAAR aircraft at airstrips located throughout the country were an important part of the success of this plan.

According to James Corum and Wray Johnson, “the new high performance Dassault fighters and F-86 Sabrejets were unsuitable for the conditions of counterinsurgency warfare.”¹⁸ The French AF certainly had more equipment at their disposal, but instead chose to use aircraft such as the T-6 Texan, T-28 Trojan, and the Douglas A-1 Skyraider in addition to a light bomber force of A-26s. One reason for the choice of aircraft was the importance that the French placed on the value of persistence and presence over the battlefield. The Morice Line required aircraft that could loiter over the area and search for infiltrations. The hunter companies needed aircraft forward deployed to austere locations to insure rapid reaction. In addition, the French did not see Algeria as merely a colony that was in upheaval but a part of metropolitan France.¹⁹ With light aircraft, the French AF could make sure that the vast and remotely populated country knew of their presence. Only LAAR aircraft could loiter low and slow over villages to show that the French military was here to stay. High performance, fuel hungry jet aircraft would not have fulfilled this strategic objective.

Due to Algeria’s large expanses of desert with numerous places for rebel forces to hide, the French AF needed a large force of aircraft.²⁰ Additionally, since the French placed aircraft at each division, technical and logistical problems required the use of simple aircraft using a minimum level of parts and maintenance training. The French AF lacked sufficient resources to employ high performance and maintenance intensive jet aircraft in the conflict, given these constraints. Therefore, the primary attack aircraft at the beginning of the conflict was the T-6 Texan. The attrition of T-6s due to maintenance and combat forced the French AF to bring the T-28 and A-1 into action. Although LAAR aircraft had fewer inherent

problems, the dispersion of units entailed heavy costs in both technical personnel and in equipment.²¹

As the French war in Algeria progressed, tactics evolved. At the beginning of the war, transport and intelligence was the primary role of the French AF, but *L'Armee de l'air* role became very offensive. A-26s bombed villages when French troops came under attack nearby. The attacks destroyed schools and civilians in markets perished. This had the adverse effect of bolstering Algerian support for the FLN instead of reducing it. Press coverage and shocking pictures of injured children also reduced support for the war in mainland France, drew international attention, and outraged the Arab world.²² In the end, the French scored a military victory but did not achieve the desired political end state. Great hostility built between the French military and the Algerian people. The war lost support on the home front, hurt the economy, and tore the political fabric of the nation apart. Charles de Gaulle negotiated with the FLN in 1962 and granted independence to Algeria.²³

Although the FLN ultimately achieved Algerian independence, the use of airpower in the war was successful at the end.²⁴ The French began with indiscriminate airstrikes on suspected insurgents that increased the population's support for the rebels. As the war progressed, interdiction by French A-26s on the Morice Line cut off FLN supplies by 70 percent. Additionally, LAAR aircraft were very successful in direct support of hunter companies that constantly harassed the enemy, reduced their freedom of movement, and isolated them from the population.²⁵ The rugged, easy to maintain, and efficient LAAR aircraft were available in large quantity and had the endurance required by the French.

Aircraft Types

Although it may seem that with a LAAR aircraft, the lower and slower the better, in actuality the French continued to upgrade to larger and faster aircraft able to carry more ordnance. The move by the French from the T-6 to the T-28 brought them an aircraft 100 miles per hour faster with almost double the payload. When the T-6 combat and maintenance losses required a new airframe, the French saw a need for more firepower and answered with newer, although still old, aircraft with greater capability. Although upgrades were made, the French did not upgrade directly to a strictly jet powered fighter force for missions in Algeria. Fuel consumption rates in jet aircraft reduce loiter time. With the move up from T-6s to A-1s, T-28s, and A-26s, ordnance capability was increased, but so was loiter time available. Although loiter time is dependent on many variables, looking at the range capabilities of the aircraft shows that the upgrades in aircraft brought upgrades in loiter time. The French found the right balance in the combination of T-28s, A-1s, and A-26s. Just as important to the success of the LAAR aircraft was the way the French AF organized the command and control structure to insure efficient and effective employment.

See Appendix A for specific performance information regarding aircraft types.

Command and Control

In addition to the use of the proper aircraft for COIN in Algeria, the French also had to adapt their command and control structure to maximize the efficiency and effectiveness of the LAAR aircraft. At the start of the conflict, the French AF concentrated their efforts primarily on support of the land and sea forces through reconnaissance, fire, and transport. The French AF soon realized they needed to change the way they organized their forces to better support the ground operation. This reorganization took two years to complete. In order

to be most effective, they modeled their command and control structure on the army while using LAAR aircraft. In 1956, the French AF organized their units into tactical air groupings also known as *Groupes Aériens Tactiques* (G.A.T.A.C.) a French Acronym, meaning “Aerial Tactical Groups.” These groupings aligned with the French Army’s geographical boundaries that separated the army divisions. In all, there were three primary G.A.T.A.C.’s and each of them had their own air command posts located at the division headquarters. Since the command posts were collocated in each geographical region, the organizations were able to provide “continuous combined control of operations” within the operational command posts.²⁶ The beauty of this organizational structure was that the command had the flexibility to adjust operations as they were underway and maintain order with great coordination between the maneuver elements on the ground and the airborne assets. In addition, since the French Army was collocated with the French AF command post, the army allowed the G.A.T.A.C. to maintain complete control over all light aircraft activity in the sector, to include helicopter flights.

The French AF provided itself with a command and control structure that allowed fast and flexible support to the ground forces against a mobile enemy that was more familiar with the environment.²⁷ These operational structures were modeled after the French Army’s organization. The downside to this organization was the lack of efficiency across the entire country of Algeria, and the increased overhead required. If a major operation required more air support than another, it was more difficult for them to get all assets in place to make that happen. Aircraft were not in limitless supply and could not be airborne at all times. It would be impossible for each sector to have twenty-four hour coverage without borrowing assets from other sectors. In an environment where each commander only had responsibility for his

own sector, the likelihood of a commander readily giving up aircraft to another sector was low. In addition, since each G.A.T.A.C. required its own command post, the cost in overhead was much greater. Every sector needed its own command post, radios, and finally the personnel to run it all. The decentralized employment of resources had some negatives, but it achieved outstanding results. They were credited with the destruction of 40 to 50 percent of armed groups personnel and material and left the insurgency profoundly disrupted.²⁸

The French saw airpower in Algeria as primarily responsible for support of the ground forces. With air commanders subordinate to the division commander in a specific sector, there was no question about how the aircraft would be used. The French decentralized the command of the air assets to the individual command post responsible for specific sectors. There is, of course, a downside to this organizational structure. Without overall situational awareness of the entire conflict, aircrews will have difficulty supporting ground forces that happen not to be in their sector. This could lead to enemy sanctuaries close to the dividing lines of the sectors. In addition, timely and effective mission execution in another sector was less likely if it did not benefit the ground commander who owns the aircraft, even if it was good for the conflict as a whole.

Effectiveness and Efficiency

In the end, Algeria became an independent nation after French citizens lost the will to continue fighting in a far off land. In this section, effectiveness and efficiency are closely related. Effectiveness is simply the ability of the LAAR aircraft to achieve the desired outcome. Efficiency is the ratio of LAAR aircraft sorties to targets hit. Previous studies covered in chapter 2 of this thesis are the sources for this data. The data can be difficult to compare.

Most studies conclude the French use of LAAR aircraft to be successful in supporting the ground forces but hard data is difficult to find.²⁹ Looking at specific numbers of sorties flown by the T-6 offers some insight. In all, the French used 242 T-6 aircraft in Algeria and they flew 14,225 sorties. Anecdotal evidence states that during the period of 1958 and 1959, the T-6 protected several hundred convoys of French troops. The French claim that the enemy attacked only two convoys during this time. One was in a city that proved difficult for the LAAR aircraft to support and the other in a canyon with similar problems.³⁰ Although this is a small snapshot in time, it suggests the effectiveness of the French ground support model and the psychological effect that constant air support can provide to ground troops. With a minimum number of convoys attacked, the French troop's confidence in their air support was certainly high. Although the eventual outcome was a loss, the French COIN war from 1954 to 1960 was successful in stopping the large-scale insurgents. At the highest point, the FLN had 40,000 regular soldiers and 80,000 irregulars. By 1960, only about 10,000 to 12,000 men were still fighting in small groups of 12 or less. The French had sealed off around 30,000 FLN soldiers in Tunisia and Morocco, along with supplies from those areas using the Morice Line.³¹ Certainly, not all of this success is due to LAAR aircraft alone, but given the French model, they certainly had a positive effect. The study of other modern day effects, such as collateral damage, fratricide, and psychological support find limited results.

The French were quite unconcerned with collateral damage and in fact, targeted civilian populations quite often. On 8 February 1958, the French took stern action in retaliation for an ambush on French troops. A-26s leveled the village of Sakiet in a matter of minutes, killing eighty civilians.³² With photos of a wrecked school and injured civilians throughout the press, the French lost a major propaganda battle and outraged the Arab world.

Although collateral damage was not a concern of the French, it played a part in the eventual outcome of the war.

There are numerous accounts of LAAR providing support to ground troops that could provide insight into its psychological effectiveness on them. In an account of unilateral action from the air, French AF Colonel Jacques Mitterrand describes the importance of reconnaissance from the LAAR aircraft. The French AF detected a rebel band in the Southern desert and attacked for three days and nights. When ground forces reached the area, they captured 40 rebels and 95 camels worth of equipment and weapons.³³ If not for the LAAR aircraft reconnaissance, the rebels would have been able to outflank the French troops.

The French used lessons from Indochina to formulate their operational plan and the lessons drove the types of aircraft that were used. The Challe Plan and Morice Line were resounding successes and LAAR aircraft were critical to their success. The French rejected the use of jet-powered aircraft in favor of light, rugged, and easy to maintain LAAR aircraft that supported the ground forces first. Their decentralized command and control structure was critical to insuring synchronized action between the ground and air units. Unfortunately for the French, these successes happened too late and they had already lost the initiative. The next chapter is a look at how the USAF used similar LAAR aircraft for different reasons, with a drastically different command and control structure.

¹For a comprehensive text on the French in Algeria see Alistair Horne, *A Savage War of Peace: Algeria 1954-1962* (New York: Viking Press, 1978).

²Francois-Marie Gougeon, *The "Challe" Plan: Counter-insurgency Operations in Algeria 12/1958-04/1960*, in *II00, Introduction to Stability Operations* (Fort Leavenworth, KS: Government Printing Office, 2009), 1.

³Jonathan M. House, *Overview of the Algerian Conflict*, in *W100 Advanced Operational Warfighting* (Fort Leavenworth, KS: Government Printing Office, 2009), 1.

⁴Horne, 29.

⁵*Ibid.*, 43.

⁶*Ibid.*, 87.

⁷House, 3.

⁸Horne, 96.

⁹House, 3.

¹⁰*Ibid.*, 4.

¹¹*Ibid.*

¹²Martin Alexander and J. F. V. Keiger, "France and the Algerian War: Strategy, Operations and Diplomacy," *Journal of Strategic Studies* 25, no. 2 (June 2002): 12.

¹³Corum and Johnson, 166.

¹⁴Charles Christienne and Pierre Lissarague, *A History of French Military Aviation* (Washington, DC: Smithsonian Institution, 1986), 466.

¹⁵*Ibid.*

¹⁶Gougeon, 3.

¹⁷House, 5.

¹⁸Corum and Johnson, 167.

¹⁹Horne, 44.

²⁰Christienne and Lissarague, 468.

²¹*Ibid.*

²²Corum and Johnson 172.

²³*Ibid.*, 174.

²⁴*Ibid.*

²⁵Gougeon, 8.

²⁶Christienne and Lissarague, 463.

²⁷Ibid., 464.

²⁸Gougeon, 9.

²⁹For a good case study, see Major Michael A. Thompson, “Lessons in Counterinsurgency: The French Campaign in Algeria” (Master’s Thesis, Air Command and Staff College, Maxwell AFB, AL, April 2008).

³⁰Aerospace Studies Institute, Concepts Division, 62.

³¹A. H. Peterson, G. C. Reinhardt, and E. E. Conger, ed. RM-3653-PR, *Symposium on the Role of Airpower in Counterinsurgency and Unconventional Warfare: The Algerian War* (Santa Monica, CA: The RAND Corporation, 1963), 8-9.

³²Corum and Johnson 172.

³³Peterson, Reinhardt, and Conger.

CHAPTER 4

ANALYSIS OF THE UNITED STATES IN VIETNAM

A historical case study of the use of LAAR aircraft must include the US in the Vietnam War. Detailed review of this conflict could provide insight about the use of LAAR aircraft in the COIN in Afghanistan. The primary question to consider is if the use of LAAR aircraft in Vietnam improved the effectiveness and efficiency of airpower in that conflict? The US and France used comparable types of aircraft while involved in similar counterinsurgencies of the type described in chapter 3. The first aspect of this question is whether the LAAR aircraft's capabilities increased overall mission accomplishment and if so, were these increases directly attributable to the actual use of LAAR aircraft? The second aspect is, if the capabilities of the LAAR aircraft were best suited for the mission or if the USAF did its best with the pool of aircraft it had on hand at the time?

Organization

This chapter has five sections that allow for further analysis of LAAR aircraft use in Vietnam. Each section builds upon the previous to provide an overall picture of the use of LAAR aircraft in Vietnam. The first section discusses the background of the conflict and the role of the USAF LAAR aircraft at the beginning of the COIN. As the conflicts progressed, the types of aircraft also evolved. The next section will discuss the types of LAAR aircraft used by the US and includes specific performance parameters. Next is an examination of the sometimes-difficult command and control of LAAR aircraft. The fourth section will address any correlation between the performance characteristics and capabilities, command and

control relationships, and effectiveness rates. The final section analyzes the limited data available regarding collateral damage, fratricide, and psychological effects of the aircraft.

Conflict Background The United States in Vietnam

Although the US and France entered the conflicts described in this thesis for different reasons, a look at the background of the conflicts offers insight into why certain types of aircraft were used and how the use of those aircraft changed. This section will not address the reasons for US involvement in Vietnam and the initial use of ground troops. Instead, it concentrates on the initial deployment, buildup, and evolution of LAAR aircraft in the Vietnam War.¹

Prior to the French leaving Vietnam in 1954, the US supported the effort by providing aircraft and other equipment to French forces.² With the French withdrawal from Vietnam, the US continued to increase funding and training to the South Vietnamese (SVN) government. This included aircraft as well as pilot training in the US. As President Kennedy and Defense Secretary Robert McNamara called for a reorientation of the US military towards a COIN mindset, AF leaders responded rapidly with the activation of a new type of squadron. This squadron, and those that followed, provided training to USAF crews in suitable COIN aircraft and prepared to train indigenous forces to use them. The eventual goal was to hand the aircraft over to the SVN government to fight their own war. Although the USAF was the first service to respond to Kennedy's request, it did not include any doctrinal or major force structure changes. The move was primarily a self-serving act designed to prevent the Army from infringing on the AF's fixed-wing force.³

The USAF's concerns about fixed-wing army aviation began in the early 1960s when the Army began to look into the O/AV-1 Mohawk for surveillance and close support.⁴ As the

Vietnam War progressed, so did the Army's thirst for direct support fixed wing aircraft, much to the chagrin of AF leadership. The Army tested aircraft such as the T-28, T-37, and A-4 to support those roles. The Marine Corps, also in need of a similar aircraft, entered an association with the Army to develop a surveillance aircraft. The Marine Corps insisted the aircraft be lightly armed with machine guns and weapons hard points. When the Marine Corps left the program due to funding battles with the Navy, the Army dropped the O/AV-1's armament capability but it was left with an aircraft that could be easily armed to provide CAS. AF leadership felt great animosity toward this program.⁵

General Curtis LeMay, Chief of Staff of the AF in 1961, issued the order to establish a special command designed to aid in the training of indigenous forces. LeMay's intention is certainly debatable and some say he regarded the mission as merely a passing fad.⁶ It is the opinion of many airpower historians that LeMay was most concerned with the Army's development of light aircraft because he felt the AF should be the only airpower branch of the services.⁷ In the early parts of the Vietnam War, the Army had 199 aircraft in service while the AF had only 61. Additionally, the AF only assigned three generals to Vietnam compared to eight in the Army.⁸ General LeMay was very concerned with the AF's position in relation to the Army and set up a new squadron to level the balance of power. The unit tasked with establishing initial cadre was the 4400th Combat Crew Training Squadron based at Eglin Air Force Base, Florida. With very little guidance, the unit received an array of World War II aircraft including the T-28 Trojan.⁹ Although the aircraft's ability to operate low and slow turned out to be an advantage, the USAF used them because they were inexpensive aircraft that they had on hand. Although, on the surface, the 4400th Combat

Crew Training Squadron's mission was to train VNAF pilots, in actuality the American pilots would have the direct combat role as the war progressed.

When the 4400th arrived in Bien Hoa in November 1961, they began operating under the classified designation of Farm Gate.¹⁰ From the start, the command relationship proved very difficult. The commander of Farm Gate received orders directly from Curtis LeMay himself but a variety of other chains of command and government agencies also provided information and direction.¹¹ The 4400th did not receive actual orders until December of 1961. When finally received, they were as follows:

1. Deny Viet Cong supply routes and concentrations in South Vietnam.
2. Establish armed air patrols of SVN borders and shorelines, to include river, highways, rail, and trail traffic suppression, day and night.
3. Seek out and destroy/disrupt Viet Cong Command/Control organization.
4. Seek out and destroy communist airlift effort into SVN.
5. Develop and implement an aggressive program of offensive air operations, to complement and to set the pattern for VNAF operations, to neutralize all manifestations of communist actions and strengths in SVN.¹²

By looking at the objectives in the above order, there is very little to no "advising" in the mission statement. From the beginning, this mission was subordinate in both the eyes of the pilots and the unit's leadership.¹³

By the end of 1961 Farm Gate's list of aircraft grew to include the A-1H (AD-6), bringing the total number of fixed wing aircraft to about 100.¹⁴ Because the pilots did not speak the native Vietnamese language, the training and advisory role lagged. However, the American pilots' involvement in CAS for the Vietnamese Army as well as interdiction on the

Ho Chi Minh Trail grew significantly. By using a C-47 as a flare ship, the American pilots were able to effectively attack Viet Cong supply lines at night and stop the movement of enemy under the cover of darkness. In order to maintain the cover of training and advising for Farm Gate, VNAF observers were required to be in the cockpits of the two seat T-28s. By 1963, the Farm Gate unit was no longer a group of specially trained pilots executing special tactics. The Farm Gate LAAR aircraft were conducting conventional missions with USAF crews. The unit repainted aircraft with American markings and the “Americanization” of the air effort in Vietnam was complete.¹⁵

Two additional developments during 1963 also changed the picture of LAAR aircraft’s role in US operations in Vietnam. First, the antiaircraft capability of the Viet Cong increased immensely. On 24 November 1963, 24 American and SVN aircraft were damaged and five destroyed by the Viet Cong, the largest number in the war to that point.¹⁶ In the last three months of 1963, antiaircraft fire hit 124 aircraft and the caliber of antiaircraft artillery continued to increase up to .50 caliber weapons. Viet Cong carried .50 caliber weapons mounted on rubber wheels and as two man teams. The teams set up at large defensive positions or along borders where they could easily be moved to safety if attacked.¹⁷ Most of the hits occurred while aircraft operated below 1000 feet.¹⁸ Given the increased threat, the USAF gave the remaining T-28s to the South Vietnamese AF and the A-1 took over as the primary LAAR aircraft in theater. The second development was the deterioration of the old LAAR aircraft. Since they were World War II vintage aircraft with thousands of hours on them, the T-28 and B-26 (later designated A-26) wings began to fall off in flight.¹⁹ This left the A-1 and later refurbished A-26s as the remaining USAF LAAR aircraft in theater. Since the guise of VNAF advising and training had been abandoned, modern jet-powered aircraft

were brought into theater at a rapid pace in 1964. However, the role of the LAAR aircraft continued in the secret war.

Secretary of Defense Robert McNamara, with influence from Ambassador William Sullivan, saw the need for a new strategy for combating North Vietnamese truck traffic along the Ho Chi Minh Trail as it traversed through Laos. Coupled with a secret electronic barrier, LAAR aircraft based in Thailand began to interdict the trail both at night and during the day. This barrier, similar to the Morice Line in Algeria did not have the rapid reaction ground force to follow aircraft attacks and was therefore less successful. The aircraft used were the left over propeller-driven A-1 and A-26s originally designated for Farm Gate operations. The US had no intention of invading Laos, since expanding the war would be political suicide for President Johnson but a secret war ensued with the LAAR aircraft as the primary means under the leadership of AF Colonel Heinie Aderholt.²⁰

Prior to 1967, jet aircraft would check in with Forward Air Controllers operating in Laos following missions into North Vietnam. If the aircraft had ordnance remaining, they would release it on the trail but only during daylight hours. The advent of the 56th Commando Wing in Thailand allowed for dedicated attacks on the Ho Chi Minh Trail night and day. The LAAR aircraft could loiter over the target area for twice the amount of time the jet fighters could and were capable of operating at night due to their flare capability. By the spring of 1967, the LAAR had “erased any doubt about their effectiveness in interdicting the truck traffic at night.”²¹ The A-26s alone had interdicted over twelve hundred truck parks with the loss of only three aircraft. The effort in Laos was unable to stop North Vietnamese build up for the Tet Offensive in 1968, but the problem was not with the aircraft. Instead, the

resources and command relationships of the secret part of the war did not support success.²² These command and control problems will be addressed in the next section.

Aircraft Types

The US began its use of LAAR aircraft in order to train indigenous air forces, but found them effective also when used by US pilots.

Just like the French, the types of LAAR aircraft used by the US progressed for various reasons. Although the newer aircraft did not fly at faster speeds, the munitions carrying capability increased. The A-1 can carry almost ten times the weight of a T-28. The US also gained an increase in ordnance carrying capability with the introduction of A-26s²³. When the secret war in Laos escalated, the US saw a need for more firepower and answered with newer, although still old, aircraft with greater capability. But, the US did not upgrade to strictly jet powered aircraft due to fuel consumption rates in jet aircraft reducing loiter time. With the move up from T-28s to A-1s and A-26s, ordnance capability was increased but so was loiter time. An aircraft that the US had available with plenty of loiter time and incredible ordnance capability would have been the B-52, but the B-52 would not have been able to operate low enough to find targets. The US found the right balance in the A-1 and A-26 combination. Just as important to the success or lack of success of the LAAR aircraft, was the confusing organization of the command and control structure.

See Appendix A for specific data on the types of aircraft.

Command and Control

From the beginning, the control of LAAR aircraft in Vietnam by the US was quite difficult. When Farm Gate aircraft first deployed to Bien Hoa Air Base in November 1961,

the command relationship proved to be complex at best and dysfunctional at worst. The commander of Farm Gate received orders directly from Chief of Staff of the Air Force General Curtis LeMay. However, orders and information came from a variety of organizations including the Pacific Air Forces, 13th AF, 7th AF, the Military Assistance Command Vietnam, and finally the Central Intelligence Agency.²⁴ Through the confusion of command, Farm Gate personnel were able to tailor the missions and sorties to what they saw as most important, supporting and advising the military of South Vietnam. The commander of the unit, General Heinie Aderholt stated, "It was a lean, mean, hard working outfit- very successful, high morale, high spirited."²⁵ The Farm Gate unit was able to operate with minimum overhead and was able to fly the large number of sorties. In mid-1963, this all changed with the assimilation of Farm Gate into the 2nd Air Division and the AF doctrine of centralized control that the division brought with it. The 2nd Air Division reduced sorties and increased personnel until the unit eventually out grew its facilities.²⁶

The command relationships became even further clouded as LAAR aircraft operations in Laos involved units based in Thailand. US combat aircraft employed within Laos were under the command of 7th AF but numerous other agencies were involved. The Commander of Chief of the Pacific was responsible for all air operations outside of South Vietnam through 7th AF. The targets chosen were, however, subject to the approval of the US embassy. Additionally, after December of 1965, the Commander of US Military Assistance Command, Vietnam took over operational control of targeting along the Ho Chi Minh Trail because it directly influenced the battle in South Vietnam. With so many competing demands, a centralized control model was essential. With airpower in such scarce

quantity, a geographic parceling of airpower would have prevented it from being used where it was needed most on a priority basis.²⁷

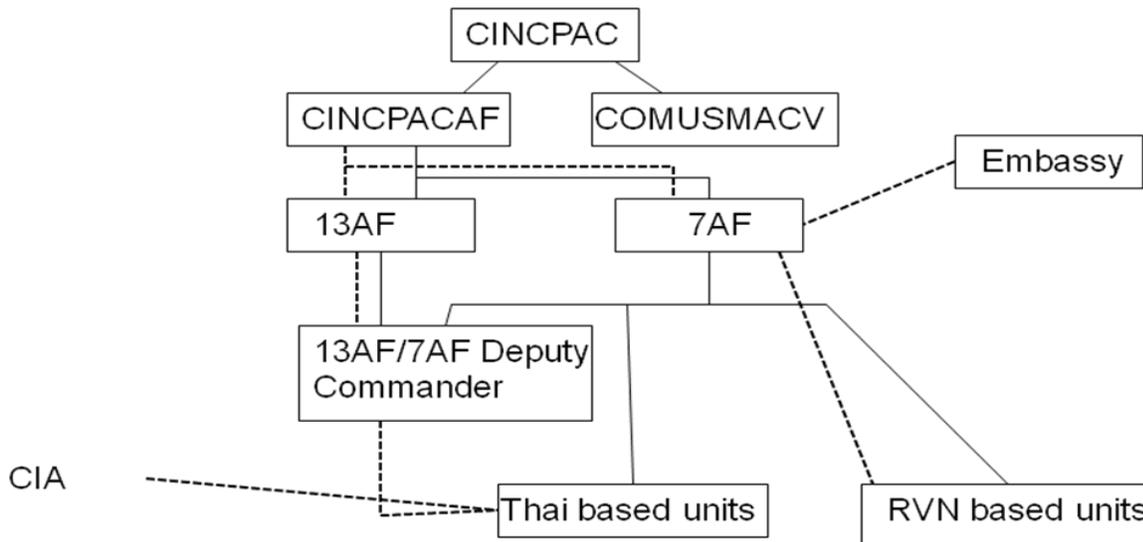
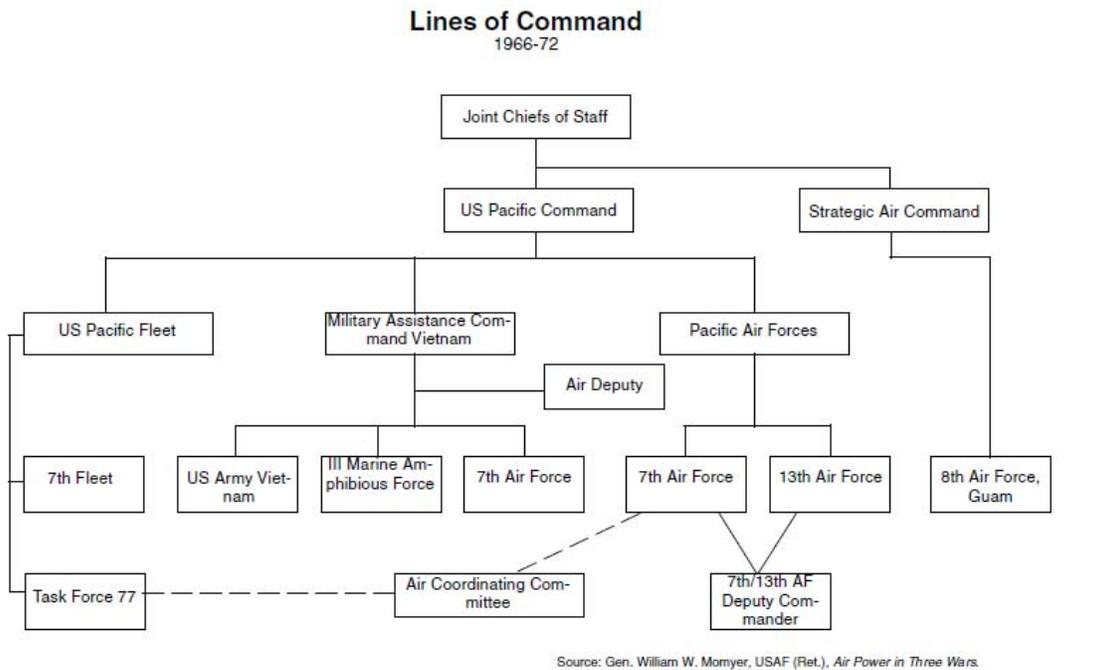


Figure 1. Lines of Command

Source: Created by author, adapted from John J. Lane, *Command and Control and Communications Structures in Southeast Asia* (Maxwell Air Force Base, AL: Air University Press, 1981), 61.

The AF doctrine of centralized control stems from operations in North Africa during World War II. Since its inception in 1947, the AF has opposed ground forces having air support organic to the unit. AF leaders see this as highly inefficient due to the duplication of effort from various ground commanders. Therefore, once Farm Gate was under the control of the conventional 2nd Air Division, they were no longer able to operate as a self contained force with roles and responsibilities different from the conventional AF units. To quote the Tactical Air Command commander General Walter C. Sweeney Jr. "I want to tell you one thing. You people are no different from anybody else in the Air Force, with that silly hat and all."²⁸ Along with the change in uniform and mission sovereignty, funding became an issue. Since Farm Gate was now under a Tactical Air Command division, they saw a reduction in funding due to the domination of Strategic Air Command in AF circles. Tactical Air Command simply did not have the budget to field new COIN aircraft as the mission increased. Instead, air commando forces were stuck with modifying existing aircraft as the need arose.²⁹

USAF doctrine was and remains adamant that air assets must be centrally controlled and not subordinate to a ground commander. This led to success in one mission, specifically the LAAR aircraft interdiction of the Ho Chi Minh Trail in Laos. This mission would not have been under the area of responsibility of a ground commander's sector in Vietnam. Since US political leadership was unwilling to commit ground forces into Laos, this was an AF only mission. But, the dysfunctional command and control system degraded mission effectiveness as a whole due to changes within the structure and the disesteem of the mission within USAF leadership. If an enemy is willing to accept losses, as the North Vietnamese were, airpower alone has great difficulty cutting off lines of communication. In order to stop

the Tet Offensive, the US needed clear centralized command and control as well as integration with other military means.

Effectiveness and Efficiency

Just like the French in Algeria, the US was unsuccessful in its efforts to stop insurgent activities. Political pressure led the US to pull out of the Vietnam War causing South Vietnam to eventually fall into communist hands. In this section, effectiveness and efficiency are defined as they were in chapter 3. The data can be difficult to compare.

The US' experience in the Vietnam War offers plenty of data and an excellent comparison between the use of LAAR and jet-powered aircraft. The data provided for the comparison also speaks to the importance that the AF placed on interdiction instead of pure CAS. Instead of convoys protected, the data looks at North Vietnamese Army transports (trucks) destroyed along the Ho Chi Minh Trail. According to an Office of the Secretary of Defense report, from January to August of 1967 LAAR aircraft destroyed 12.8 transports along the trail for every 100 missions flown. In contrast to the jet powered aircraft, which destroyed 1.5 transports for every 100 missions flown.³⁰ The use of LAAR aircraft is more efficient based on this data. When taking the cost of sorties into account, the LAAR aircraft cost \$55,000 per vehicle hit while jet aircraft cost \$700,000 per transport. Looking at A-26 data alone, cost is \$5,900 per transport hit.³¹ If one were to take this data as the entire picture, there would be no question as to the efficiency of LAAR versus jet aircraft. However, the Secretary of Defense report finally states that antiaircraft fire was four times more likely to shoot down LAAR aircraft than fast moving jets.³² Issues not taken into account include the cost of replacing pilots or the cost of combat search and rescue efforts in the event of a shoot

down. Fratricide, collateral damage, and psychological effectiveness are even more difficult to assess objectively.

The US was not concerned with collateral damage on the Ho Chi Minh Trail when LAAR aircraft were attacking it. They considered any vehicles on the trail to be supporting the enemy and destroyed them. Collateral damage did cause an international uproar in the early 1970s following B-52 attacks along the Ho Chi Minh Trail but LAAR aircraft did not have the devastating power to cause such a reaction. Additionally, no research points to an increased or decreased fratricide risk in the Vietnam War from LAAR aircraft. Research in air fratricide is primarily focused on jet powered aircraft and helicopters, with no data on the LAAR aircraft that bridge the gap between the two.³³

Accounts of LAAR aircraft providing support to ground troops when other aircraft were unable could offer insight into the psychological effectiveness for friendly troops. One such account comes from the story of Lima Site 36 in Northern Laos. On 28 April 1967, Lima Site 36 came under attack and was in danger of being overrun by the North Vietnamese regular army. Due to weather in the area, fast moving jet aircraft were unable to respond to friendly CAS requests. Two A-1s from the 602nd Fighter Squadron arrived to the site of the attack. The first A-1 was able to circle below the weather while leaving his wingman above the cloud deck. After the first A-1 used all his ordnance, the wingman descended below the weather and continued airstrikes. Cloud cover forced the two aircraft to execute strafe and bomb attacks at tree top level while they stayed on station for an hour and five minutes. This time made the difference between maintaining the friendly position and losing the camp to the enemy.³⁴ The low speed and long loiter time were

essential to the success of the mission. This account does not provide specific evidence of the confidence that LAAR aircraft could provide to ground troops, but it must have been present.

Brig Gen Douglas Kinnard gathered additional data in a post war survey regarding Army confidence in AF CAS.³⁵ The study asked Army Generals about their opinions regarding interservice cooperation with other branches. Kinnard found 60 percent of respondents felt cooperation with the AF was “outstanding” while only two percent thought it was “not satisfactory, big improvement needed.”³⁶ Interestingly, 64 percent of respondents thought the CAS was “about right quantitatively” but only 57 percent thought the Army’s own artillery was about right quantitatively.³⁷ Lastly, 15 percent of Army Generals thought that B-52 strikes were “not worth the effort.”³⁸ The LAAR aircraft were a far more surgical and sustained way to fight the COIN. The survey only polled US Army Generals, and no distinction between LAAR aircraft and jet powered aircraft was made, but it does give the reader information regarding the Army’s confidence in the AF support.

In summary, the US brought LAAR aircraft to the Vietnam War under the auspices of training indigenous forces, but the execution of that mission fell through. Instead, fearing competition from US Army fixed-wing aviation, the aircraft were used primarily for attacking the Ho Chi Min Trail and rarely for direct support of ground forces. The centralized command and control structure favored this mission as well. Unlike the French who used their LAAR aircraft as a fast and flexible reaction force, the US used them to conduct an independent interdiction mission in Laos with no ground troops present. The contrasting missions and command and control structures point to a significant difference in how the two countries saw the role of LAAR aircraft. This comparison is discussed in the final chapter.

¹For a comprehensive text on the Vietnam War see George Herring, *America's Longest War: The United States and Vietnam, 1950-1975*, 4th ed. (New York: McGraw Hill, 2001).

²Corum and Johnson, 158.

³*Ibid.*, 238.

⁴Ian Horwood, *Interservice Rivalry in Vietnam* (Fort Leavenworth, KS: Combat Studies Institute, 2006), 103.

⁵*Ibid.*, 106.

⁶Westermann, 127.

⁷Westermann finds Curtis LeMay to be most at fault, while Corum and Johnson blame the US Air Force as a whole.

⁸Donald J. Mrozek, *Airpower and the Ground War in Vietnam* (Maxwell Air Force Base, AL: Air University Press, 1988), 27.

⁹Westermann, 128.

¹⁰*Ibid.*, 130.

¹¹*Ibid.*

¹²*Ibid.*, 131.

¹³*Ibid.*

¹⁴*Ibid.*

¹⁵Corum and Johnson, 262.

¹⁶*Ibid.*, 263.

¹⁷Micheal Lee Lenning and Dan Cragg, *Inside the VC and the NVA* (College Station, TX: Texas A&M University Press, 1992), 107.

¹⁸Jacon Van Staaveren, "USAF Plans and Policies in South Vietnam 1961-1963" (Study, USAF Historical Division Liaison Office, June 1965 [Top Secret], declassified 11 July 1991), 38.

¹⁹Corum and Johnson, 266.

²⁰Warren A Trest, *Air Commando One* (Washington, DC: Smithsonian Institution Press, 2000), 188.

²¹*Ibid.*, 196.

²²*Ibid.*, 208.

²³The fact that T-28 wings were falling off also helped this decision.

²⁴Westermann, 128.

²⁵Trest, 127.

²⁶*Ibid.*

²⁷John J. Lane, *Command and Control and Communications Structures in Southeast Asia* (Maxwell Air Force Base, AL: Air University Press, 1981), 61.

²⁸Trest, 129. The reference to the hat is the Australian style bush hat worn by the Farm Gate Air Commandos when first organized by General LeMay. Also included in the Air Commando uniform were jump boots, bloused green fatigues, and blue scarf. The uniform had become a sore subject at TAC headquarters.

²⁹*Ibid.*, 130.

³⁰Abernathy, 28.

³¹*Ibid.*

³²*Ibid.*

³³Charles R Shrader, "Amicidel The Problem of Friendly Fire in Modern War" (CSI Research Survey, Fort Leavenworth, KS, 1982), 29.

³⁴Melvin F Porter, "Second Defense of Lima Site 36," (Project Contemporary Historical Evaluation of Combat Operations (CHECO) Report, 25 May 1966, Headquarters PACAF, Directorate, Tactical Evaluation, CHECO Division), 1-4.

³⁵Mrozek, 119.

³⁶Douglas Kinnard, *The War Managers* (Lebanon, NH: University Press of New England, 1977), 63.

³⁷*Ibid.*, 47.

³⁸*Ibid.*, 48.

CHAPTER 5

CONCLUSION

This chapter will compare and contrast the use of LAAR aircraft in COIN operations in three areas. The first identifies the role of LAAR aircraft by the French in Algeria and the US in the Vietnam War, to include reasons for the initial deployment, upgrades made during the conflicts, and tactics used. The second addresses command and control organizational differences that show what France and the US saw as the most important role of airpower in general and LAAR aircraft specifically. The third area discusses the effectiveness and efficiency of LAAR aircraft in Algeria and the Vietnam War to include fratricide, psychological support, and collateral damage. Finally, the chapter provides a summary that addresses the relevance of LAAR aircraft in the contemporary operational environment. Each case was molded by unique geography and political contexts that make precise comparisons very difficult but some tentative comparisons can be made.

Role of LAAR Aircraft

Although in many cases France and the US were using the same aircraft, the role of the LAAR aircraft within the conflicts was quite different. The French deployed LAAR aircraft to Algeria for two reasons. First, they wanted aircraft in place that could maximize the presence and persistence of tactical aircraft. The French wanted to make sure they were “flying the flag” in a large and sparsely populated land in order to make their presence known, even if there were no French troops on the ground. In addition, they needed aircraft with long enough loiter time to patrol the over 700 mile long Morice Line as well as the vast interior. Second, as discussed in chapter 4, the French built austere airfields throughout

Algeria to maximize their presence in the country. They needed aircraft that could operate from those short runways and be easily maintained from these locations. As seen in this case study, the LAAR aircraft were the answer. They were effective in stopping incursions along the Morice Line, and finding insurgents in the interior.

The US brought LAAR aircraft to the Vietnam War under the auspices of training indigenous forces and then handing over the aircraft. Since this mission never materialized, they used the aircraft instead to attack the Ho Chi Minh Trail in a secret war. The LAAR aircraft given to the 4400th to start Farm Gate were inexpensive and simple aircraft. When the primary mission was to train the South Vietnamese AF, these aircraft were well suited because they were easy to maintain and easy to fly. Since the USAF already had the aircraft in the inventory, LeMay could show a commitment to the advisory role without expending money and assets. The LAAR aircraft were also convenient once the US abandoned the advisory role. Since they were inexpensive and had a low footprint, they were less likely to show an escalation as the war moved to Laos. Instead of purposefully using LAAR aircraft like the French in Algeria, the US accidentally found an effective platform for the secret war. Although the two countries in this case study brought LAAR aircraft to the conflicts for different reasons, they both upgraded the LAAR aircraft as the conflicts progressed.

The French only used the T-6, both the French and the US used the T-28. Both countries realized they needed to upgrade the LAAR aircraft to maintain effectiveness. The problems for the French began with the T-6 airframes and lack of spare parts. Although the T-6 was plentiful, by 1958 the French had worn out the airframes from extensive flying in the harsh Algerian desert. Spare part production had ceased for the World War II aircraft and acquisition of the T-28 was essential for continued LAAR aircraft operations in Algeria. At

the same time, the French needed a heavier piston engine aircraft to complement the T-28s. This led to the acquisition of retired US Navy A-1s. Similarly, in 1964, the US saw the deterioration of T-28s and A-26s; therefore, they acquired A-1s in order to replace the aging World War II fighters. In Vietnam, the threat of increased Viet Cong mobile anti-aircraft capability also made the A-1 more effective due to its increased armor plating. Both countries, when required, upgraded to larger, faster, and more capable aircraft.

Finally, the LAAR aircraft tactics used by the US and France differed. The French used light and well-equipped hunter companies of ground troops to find insurgents. Once they found insurgents, both air and additional ground forces responded to support. Aircraft located close by at austere airfields made the response rapid. The LAAR aircraft attacked insurgent positions until a larger force of ground troops could arrive. Similarly, if patrolling LAAR aircraft found a breach on the Morice Line, air attacks continued until ground troops arrived to kill or capture the remaining insurgents. The US LAAR aircraft operating in Laos did not have an analogous force of ground troops to respond to enemy convoys located along the Ho Chi Minh Trail. Political considerations did not allow a large ground force to be present in Laos and therefore the LAAR aircraft alone were responsible for stopping enemy activity along the trail. This difference in tactical execution is also evident in the command and control organizational differences.

Command and Control Organizational Differences

Centralized versus decentralized control is the primary difference between the French and US models of command and control of LAAR aircraft. From the previous discussion in chapter 3, it is apparent the French saw the importance of a decentralized model in order to maximize the support of ground troops. To use modern terminology, the French set up joint

task forces in each geographic section of Algeria. Each geographic area had its own air command post collocated with the French Army command post within the region. The French did this for two reasons. First, the previously discussed tactic of hunter companies finding insurgents and calling in LAAR aircraft necessitated a rapid reaction from LAAR aircraft that a centralized control model may not have been able to fulfill. Second, the Morice Line needed dedicated aircraft that worked closely with ground forces to stop incursions. Both of these reasons made a decentralized control model the best for French operations in Algeria. It is also interesting to note that French LAAR aircraft were, in fact, under a single air commander from 1958 to 1960. General Challe, Military Commander in Algeria, was a French AF General.

The US, on the other hand, centralized control of LAAR aircraft for a variety of reasons. First, USAF doctrine, since its inception, required that air assets be under centralized control of a single air commander. Interservice rivalry heated this debate and the USAF was unwilling to allow anything other than an air commander to control LAAR aircraft. Although this may seem to be a petty argument, the USAF was fighting the Vietnam War with limited aircraft in multiple countries and in many roles. Geographic decentralization of airpower could easily have wasted scarce air resources. Finally, LAAR aircraft operations along the Ho Chi Minh Trail in Laos were an almost entirely AF airpower operation, with few conventional units on the ground in Laos. These factors made a centralized control model the preferred method for US operations in the Vietnam War. However, it was centralized control in name only. A variety of aircraft attacked the Ho Chi Minh Trail under orders from both 7th AF as well as 13th AF. With the Central Intelligence Agency and the US Embassy approving targets, there was not one single source for control of airpower interdicting the Ho

Chi Minh Trail. The US needed centralized planning and synchronization for the air war but decentralized execution. The advent of the Joint Forces Air Component Commander after the Vietnam War helped solve many of these problems.¹

Effectiveness and Efficiency

Comparing the effectiveness and efficiency of LAAR aircraft in Algeria and the Vietnam War is difficult. As stated previously, this study finds insights into the best use of LAAR but the unique geography and political contexts molded each case and makes precise comparisons difficult. Nonetheless, some tentative comparisons can be made. First, both countries had success in missions that primarily used LAAR aircraft. The French Morice Line significantly cut off supplies to FLN forces within Algeria and LAAR aircraft were a major part of that success. LAAR aircraft attacks by the US on the Ho Chi Minh Trail were also very effective, but ultimately the US was unable to stop the build-up of forces for the Tet Offensive in 1968. In addition, the LAAR aircraft used on the Ho Chi Minh Trail were much more efficient in those attacks when compared to jet-powered aircraft, but this study found no data to support a difference in fratricide rates. The hunter companies employed by the French under the Challe Plan reduced insurgent numbers significantly, but the US did not conduct similar operations in large numbers. There is also anecdotal evidence of the psychological support that a slow and low flying aircraft can provide to ground forces, but a comparison is impossible and hard evidence is difficult to find. Additionally, the collateral damage concerns of modern warfare were not concerns for either country in this comparison. Especially in the French case, this could have made the difference between success and failure for the war as a whole.

Summary

The comparative case study of the use of LAAR aircraft by the French in Algeria and the US in the Vietnam War offers insight into the use of airpower in general and LAAR aircraft specifically while engaged in COIN operations. As an analyst cautiously makes recommendations for current conflicts based on history, highlighting the differences between past circumstances and the present environment is important. First, both conflicts in this study used LAAR aircraft operating in a permissive air environment. If the enemies in both cases had a significant air defense capability, the LAAR aircraft would not have been as effective and combat losses would have been significant. LAAR aircraft would have to be supplemented with considerable suppression of enemy air defenses planning, thereby increasing the cost. Although the US saw an increase in antiaircraft artillery capability along the Ho Chi Minh Trail, it did not see radar guided artillery or any surface to air missile capability from the enemy in that region. In addition, man-portable air-defense systems were a new technology and neither enemy possessed the capability. An enemy in possession of any of these systems would have been devastating to LAAR aircraft.

Additionally, current technology might render obsolete some of the capabilities that LAAR aircraft provided. The LAAR aircraft needed to fly low and slow in order to find incursions along the Morice Line and find convoys along the Ho Chi Minh Trail. With the advent of advanced targeting pods on jet-powered fighter aircraft and the 24-hour surveillance capability of remotely piloted aircraft, air forces acquire many of the capabilities that come from flying low and slow. Persistence was also important to both the French and USAF's, but the French did not have aerial refueling capability at the time. Additionally, the US did not use aerial refueling extensively in operations along the Ho Chi Minh Trail,

primarily for political considerations. Cost aside, a modern fourth generation fighter with an advanced targeting pod and aerial refueling support satisfies many of the strengths of the LAAR aircraft. In addition, remotely piloted vehicles have many of the same capabilities at a lower cost.

There are however, insights that the case study provides which are applicable to a modern COIN such as Afghanistan. First, much of the LAAR aircraft success by the French was due to the integration of air and ground forces in all operations. The French Army knew the strengths of the AF and the French AF's primary role was support of the Army. An excellent example of this is the fact that a French AF general officer was commander of all forces in Algeria. It would be unheard of for a USAF general officer to be commander of a COIN operation in the modern US Military. Although the decentralized organizational model facilitated the integration, it is not a requirement. With modern communications capability it is easier than ever before to insure integration down to the lowest level. A company commander in Afghanistan has the capability to speak directly to the air assets in support at any time but the bureaucracy gets in the way. As discussed previously, interservice rivalry was a detriment to operations in the Vietnam War and both services must overcome the friction to be successful.

It would be easy for one to attribute the success of French combined arms integration on the AF's decentralized system but that is not the entire picture. One reason the French may have had success is that they had been working on integration for a longer period. The French first gained a completely separate air force in 1922.² When first established, the French AF divided itself into two divisions. The First Air Division was a general reserve formation consisting of bomber and pursuit aircraft capable of acting instantly in case of

need. The Second Air Division, which was much larger, was dedicated solely to cooperation with the ground forces.³ The rapid ability to redistribute forces was an important part of the organization in order to allow the First Air Division increased material as the need arose. Much like every other country developing an air force at this time, ministers of war and of the navy saw aviation as a weapon at the service of other branches.⁴ During World War II, the Free French AF had great success, and the French saw that a unified air force had won the victory. However, they also saw the extraordinary potential of air action in support of ground troops. In the post World War II period, while the USAF was in its infancy, the French AF's role was solidified. In 1947, the French AF reorganized their forces in Indochina into geographic divisions, much as they would do in Algeria. Once again, with 24 hours notice, the command could concentrate all aviation to one or more of the geographic groupings.⁵ In both Indochina and Algeria, the French AF adapted to the Army's operational staff. The term "adapted" does not mean "subordination" but refers to direct contact between two staffs (air and ground) for effective integration.⁶

If modern operational leaders want to decentralize air assets to geographic regions, the French model shows a few conditions must be in place to insure success. First, ground and air commanders in the region must be equals. Ground commanders cannot see the adaptation of AF doctrine as subordination to the ground commander. The single joint task force commander must be truly joint, with an equal understanding of the capabilities of both ground and air forces. AF leaders must have equal opportunity for such command. Second, when the need arises, an air commander at a higher echelon than the geographic commanders must have the ability to redistribute air forces in order to use the airpower strengths of mass and flexibility. The geographic region's commander cannot own the air assets. Instead, the

commander integrates the forces in his region until a greater need arises. To summarize, a central air commander must have the ability to control assets in all geographic regions of a conflict. The planning and synchronization of airpower throughout the regions insures the limited air assets operate in the most efficient manner. However, the execution must be decentralized to insure all forces within the geographic region are able to bring a maximum effort on the enemy. This includes the use of ground forces working in conjunction with airpower. Both an air-only and ground-only option for the COIN interdiction mission has little support in both of these case studies.

The final insight involves the way the US and France continued to upgrade LAAR aircraft as the wars progressed. Both countries started with simple and obsolete training aircraft that were on hand at the time. Neither country developed a new LAAR aircraft with the sole mission of support to COIN. As the threats and requirements increased, so did the combat capabilities of the LAAR aircraft but they were still antiquated airframes that were easy to acquire. Once the US left the Vietnam War, the LAAR aircraft were retired or given to the South Vietnamese AF. The French, on the other hand, continued to use LAAR aircraft in Africa until the early 1980s. A Rand corporation study conducted by Mark Lorell makes an interesting observation regarding the lessons of further LAAR aircraft use.

The problem of inappropriate or overly complex equipment remains a difficult one for overseas deployment forces. Nonetheless, the French have found that simple, more easily supported Counter Insurgency (COIN) aircraft may no longer be appropriate for many peripheral conflict situations. Air forces must be prepared to deploy and support their most modern and capable aircraft and support assets to extremely austere locations, if effective air support is to be ensured in the increasingly high-threat environment now typical in many peripheral operations.⁷

As this study suggests, LAAR aircraft were very effective during the counterinsurgencies in Algeria and the Vietnam War, but one must not be too quick to take them as lessons learned for modern conflict.

As debate continues about the acquisition of a LAAR aircraft to meet the needs of the current COIN in Afghanistan, a look at the way LAAR aircraft were used in the past provides insight into their potential use in modern conflict. The inherent capabilities of airpower are critical in joint operations and the US Armed Forces must constantly adapt. In the cases studied in this thesis, neither country developed an LAAR aircraft specifically for COIN. If the US decides it needs LAAR aircraft in order to fulfill a capability gap that currently exists, it must also adjust the command and control model used to allocate those aircraft. As is the case most of the time, the thoughtware is just as important as the hardware in insuring success.

Recommendations

This thesis is limited in scope and areas for further study became apparent. The recommendations are in two areas; further historical case studies and further research into future LAAR aircraft use. First, for the Vietnam War, this study focused on Farm Gate LAAR aircraft used by the USAF. Other services used LAAR aircraft as well to include the US Marine Corps' OV-10 Bronco as a forward air controller. Additionally, The US AF used LAAR aircraft, primarily the A-1, for combat search and rescue operations while also executing the interdiction mission on the Ho Chi Minh Trail. Research into other missions that LAAR aircraft have executed in the past could provide further insight into LAAR aircraft use in the future. Next, information regarding French LAAR aircraft programmatic cost was difficult to find for the COIN in Algeria. Further research could include data

gathering of cost per mission and cost per target throughout the conflict. Finally, a historical study of the influence of the military industrial complex in stifling LAAR aircraft production and upgrades in favor of newer and more expensive aircraft would be of interest.

The remainder of the research recommendation is regarding future LAAR aircraft use. Remotely piloted vehicles could replace many of the capabilities of LAAR aircraft on the modern battlefield. Using the case studies from this thesis, a researcher could find capability gaps that a remotely piloted vehicle could or could not fulfill such as rapid reaction and ground force integration. Next, if the US has plans to use LAAR aircraft at austere airfields in Afghanistan, the logistics of support to those airfields will be difficult and the French operations in Algeria provide a model. Lastly, using the case studies in this thesis as a model, a proposal for a new command and control structure that maximizes centralized control with decentralized execution to allow the greatest integration with ground forces could improve joint functionality in Afghanistan. Further research into any of these areas would expand the understanding of LAAR aircraft use in the past and provide insight into the future.

¹Joint Chiefs of Staff, Joint Publication 3-0, *Joint Operations* (Washington, DC: Government Printing Office, 2006).

²Christienne and Lissarague, 219.

³Ibid.

⁴Ibid., 237.

⁵Ibid., 452.

⁶Ibid., 455.

⁷Mark A. Lorell, *Airpower in Peripheral Conflict: The French Experience in Africa* (Santa Monica, CA: RAND Corporation, January 1989), vi.

APPENDIX A

AIRCRAFT TYPES

North American T-6 Texan



Source: The National Museum of the Air Force, AF Museum Photo Archive, North American T-28 Nomad, [http://www.nationalmuseum.af.mil/photos/media_search.asp?q=North%20 American%20T-28%20Nomad&page=91](http://www.nationalmuseum.af.mil/photos/media_search.asp?q=North%20American%20T-28%20Nomad&page=91) (accessed 22 November 2010).

The North American produced the T-6 in 1939 as a basic combat trainer. The T-6 was a training aircraft for the majority of World War II pilots. The French AF bought surplus T-

6s from the Americans and British in large quantities. The French were the first to use the T-6 as attack aircraft.

General characteristics¹

Crew: two

Length: 29 ft

Wingspan: 42 ft

Height: 11 ft 8 in

Wing area: 253.7 ft²

Empty weight: 4,158 lb

Loaded weight: 5,617 lb

Powerplant: 1× Pratt & Whitney R-1340-AN-1 Wasp radial engine, 600 hp

Performance

Maximum speed: 208 mph at 5,000 ft

Cruise speed: 145 mph

Range: 730 miles

Service ceiling: 24,200 ft

The T-6 was originally built with only provisions for up to three 0.30 inch machine-guns. One of the machine guns mounted on a flexible mount in the rear cockpit.² The French did not use the third rear-mounted machine gun but fitted the aircraft with hard points to carry a very adaptable but moderate amount of ordnance. This included two 7.5mm machine guns, a 100-liter napalm tank, four 10 kg bombs, and six rockets.³ By 1958, the North American T-28 would replace the T-6 due to the lack of spare parts and worn out airframes.

North American T-28 Nomad



Source: The National Museum of the Air Force, AF Museum Photo Archive, North American T-28 Nomad, http://www.nationalmuseum.af.mil/photos/media_search.asp?q=North%20American%20T-28%20Nomad&page=91 (accessed 22 November 2010).

The newly minted USAF had the T-28 built as a trainer. First flown in 1949, the T-28D was a modified version used as a LAAR aircraft. The French contracted with an American company to have the aircraft fitted with armor plating, reinforced wings for increased ordnance, and increased cockpit ventilation.⁴

General characteristics⁵

Crew: two
Length: 32 ft
Wingspan: 40 ft
Height: 12 ft 8 in
Wing area: 268 ft²
Empty weight: 5,617 lb
Loaded weight: 6,424 lb

Powerplant: 1× Wright R-1820-86 Cyclone radial engine, 1,425 hp

Performance

Maximum speed: 360 mph at 5,000 ft

Cruise speed: 250 mph

Range: 2,700 miles

Service ceiling: 39,000 ft

The T-28D was fitted with self-sealing fuel cells, additional hard points, armor plating, and additional communications equipment. The T-28 could be equipped with a variety of ordnance including CBU-14, napalm, .50 caliber machine guns, or 1800 pounds of rockets and bombs. The service ceiling stated above was certainly not achievable with any ordnance on the aircraft. For the most part, the T-28s used diving attacks that recovered them above 2000 feet above ground level due to the threat of light arms fire.⁶

Douglas A-1 Skyraider



Source: U.S. Navy, VFA-122, The Flying Eagles, “Squadron History 1950-1966,” <http://vfa-122.ahf.nmci.navy.mil/history.html> (accessed 22 November 2010).

The US Navy originally developed the “Spad” during World War II as a dive-bomber. It saw service in the Korean War as well as the Vietnam War with the Navy. The French AF bought the A-1 from the US Navy in 1954 and used it extensively in Algeria.

General characteristics⁷

Crew: one (two-place seating on A-1E)

Length: 38 ft

Wingspan: 50 ft

Height: 15 ft 8 in

Wing area: 400 ft²

Empty weight: 10,550 lb

Loaded weight: 25,000 lb

Powerplant: 1× Wright R-3350-26WA radial engine, 2,700 hp

Performance

Maximum speed: 332 mph at 18,000 ft

Cruise speed: 198 mph

Range: 3,000 miles (with external tanks)

Service ceiling: 28,500 ft

The A-1 carried four fixed forward firing 20mm cannons internally mounted in the wings. The aircraft often carried additional 7.62 mm gun pods. Common bomb loads included Mk-82 Snake eye and napalm canisters. The A-1 was capable of up to 8000 pounds of external ordnance. Most tactics included medium altitude diving attacks with recovery above 200 feet above ground level. The A-1 was capable of both night and daytime operations.⁸

Douglas A-26 Invader



Source: The National Museum of the Air Force, AF Museum Photo Archive, Douglas A-26 Invader, [http://www.nationalmuseum.af.mil/photos/media_search.asp?q= Douglas%20A-26%20Invader&page=52](http://www.nationalmuseum.af.mil/photos/media_search.asp?q=Douglas%20A-26%20Invader&page=52) (accessed 22 November 2010).

The A-26 is the largest and most complex of the aircraft studied here. The US Army Air Corps first used the A-26 in World War II and then re-designated it the B-26. When the USAF brought aircraft to Vietnam, they restored the designation of A-26 to prevent signs of escalation to the war by the US State Department.⁹ The French AF first used A-26s in Indochina but the aircraft were Central Intelligence Agency owned and did not initially follow the French to Algeria. In 1956 the French AF was sold A-26s under the Mutual Defense Aid Program.

General characteristics¹⁰

Crew: two

Length: 50 ft

Wingspan: 70 ft

Height: 18 ft 6 in

Wing area: 540 ft²

Empty weight: 22,850 lb

Loaded weight: 32,000 lb

Powerplant: 2× Pratt & Whitney R-2800-27 "Double Wasp" radials, 2,000 hp each

Performance

Maximum speed: 359 mph at 16,700 ft

Cruise speed: 266 mph

Range: 1,400 miles

Service ceiling: 28,500 ft

A-26s used by the French and USAF carried 18 .50 caliber machine guns. Six were in the nose and four were under each wing outboard of the propellers. The bomb bay could hold four 1000-pound bombs. If the internal bomb bay load was reduced to six 500-pound bombs, four 500-pound bombs could be carried on hard points under the wings.¹¹ In a strategic bombing role, the French used A-26s to attack villages thought to be FLN strongholds and defend the Morice Line.¹² If sensors or surveillance aircraft discovered an incursion of the Morice Line, A-26s would attack the intruders until a rapid reaction ground unit could be deployed.

¹Leonard Bridgeman, *Jane's Fighting Aircraft of World War II* (London: Studio, 1946), 251.

²Ibid.

³Corum and Johnson, 167.

⁴Robert Craig Johnson, "COIN: French Counter-Insurgency Aircraft, 1946-1965," <http://worldatwar.net/chandelle/v3/v3n1/frcoin.html> (accessed 24 November 2010).

⁵Bernard C. Nalty, *The Air War Over Vietnam* (Baltimore City, MD: Salamander Books, 1981), 132.

⁶Ibid.

⁷Ibid., 44.

⁸Ibid., 46.

⁹Ibid., 48. The reason for the name change is certainly debatable. The French Air Force used the A-26 as an attack and reconnaissance aircraft in Indochina prior to US involvement. The aircraft had been performing night interdiction and this was closer to attack aviation than bombardment, so A-26 would have been appropriate.

¹⁰Ibid., 44.

¹¹Ibid., 48.

¹²Corum and Johnson, 172.

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