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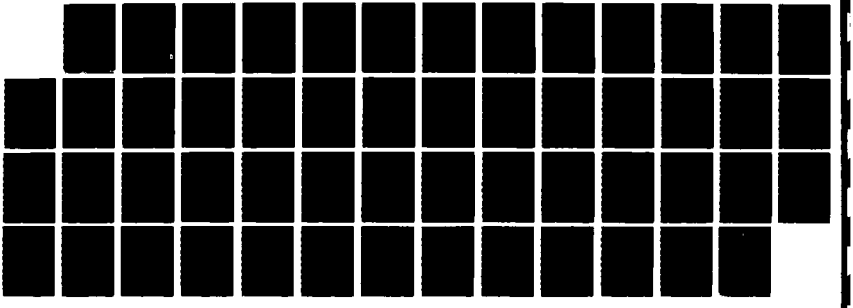
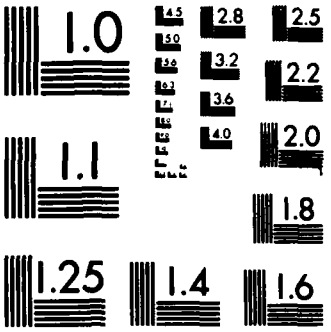
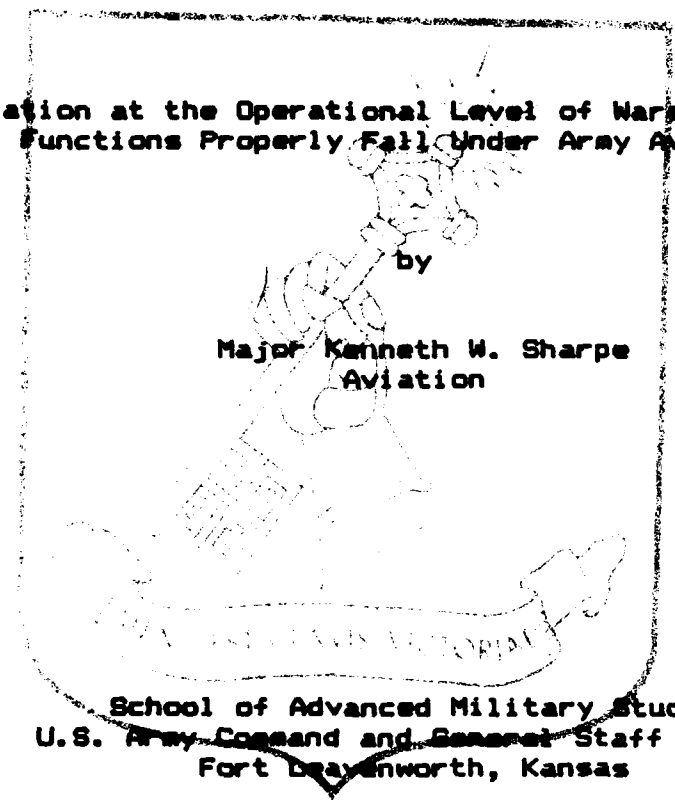




Aviation at the Operational Level of War: What Air Force Functions Properly Fall Under Army Aviation?

by

Major Kenneth W. Sharpe
Aviation



School of Advanced Military Studies
U.S. Army Command and General Staff College
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Results of the evaluation are that most roles and missions fall under the proper service. The main exception is close air support which, though still vital as a mission, should be placed under the responsibility of the Army.

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Name of Student: Major Kenneth W. Sharpe
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Approved by:

_____, Monograph Director
Lieutenant Colonel Gary Stewart, M.S.

_____, Director, School of
COL Richard Hart Sinnreich, M.A. Advanced Military Studies

_____, Director, Graduate Degree
Philip J. Brookes, Ph.D. Programs

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ABSTRACT

Aviation at the Operational Level of War: What Air Force Functions Properly Fall Under Army Aviation?

This monograph evaluates the operational level employment of airpower. The operational roles and missions identified were evaluated to determine whether each should be an Air Force or Army responsibility. The primary determining factor employed in making the decision was the degree to which the responsibility enhanced combat power.

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I. INTRODUCTION

Operational art and the operational level of war have returned to the vocabulary of the professional soldier. As the intermediate level of conflict, operational art provides the linkage between what nations desire as strategic goals and how forces are tactically employed on a battlefield to achieve those goals. Throughout the history of conflict, the methods and means of war have become increasingly more complicated and lethal. The integrated battlefield of the mid-twentieth century is vastly different in size and complexity from that of Napoleon's age.

One of the technological advances that have changed the face of modern conflict is air power. Some military theorists think of air power as little more than a rapid means of applying firepower throughout the depth of the battlefield, while others look at it as a critical, integral component of a force's combat capability.

In the words of one theorist:

> "As Napoleon invented strategy, Grant "invented" operational art as it is currently understood. ...the establishment of the army group by the Russian Army prior to World War I brought operational art to its present form in broad outline only. The development of tactical air forces in support of multiple ground operations established operational art in its most mature form evident in today's AirLand Battle doctrine." (1)

In this age of highly sophisticated weaponry and huge armies, the edge of victory might well rest upon which force is best organized to employ its combat power. The victory may well go to the side with the better employment doctrine.

A crucial determination for military theorists is the best method of synchronizing air power and ground forces.

A number of assumptions and limitations are required to bound the scope of this paper. The first deals with the desirability of recognizing a degree of independence between the air and ground activities within a theater of operations. Is there both an air and a land campaign or are they two facets of the single campaign plan of the theater commander? One point of view, generally held by United States Air Force officers, is that an air campaign should be orchestrated to support the ground campaign, or vice versa. A different view, generally held by United States Army officers, is that there is but a single campaign, including both air and ground actions, under the command of one unified commander-in-chief (CINC). This paper will assume the latter view: that only one campaign should exist for a given theater of operations.

The effort of this paper is directed toward a theoretical evaluation of operational employment roles for air power. Therefore, discussion of specific weapon systems will be limited to points of clarity and explanation. There will be no effort to fit roles to existing hardware.

Specifically, this paper will explore which roles should fall to the Army and which to the Air Force. The role of maritime air power will receive only peripheral attention, being addressed only as it relates to joint operations.

Some definitions are necessary before an analysis can begin. First, what is included in the "set" called air power? Certainly the traditional users of airspace such as transport, bomber, reconnaissance, and fighter-attack aircraft are included. Also included must be the rotary wing aircraft which have begun to play an increasing role in the ability of a nation to project combat power. Less traditional but absolutely integral to any discussion of a nation's air power are the air defense and remotely piloted vehicles it might employ.

This paper will explore the relationship between air power and the operational level of war. The methodology employed to examine air power at the operational level includes first gathering empirical evidence gained from the employment of air power in North Africa and Europe in World War II and the Middle East from 1967 to 1982, and then examining it against the current United States doctrinal model of how to organize air and ground forces for combat. Historical examples have been selected, as much as possible, to provide views of air power employment in differing levels of conflict intensity and within a combined, joint, and uni-service framework.

Prior to reviewing historical examples of the operational employment of air power, a brief review of the three levels of war is appropriate.

II. LEVELS OF WAR

Current United States Army doctrine recognizes three levels of war: strategy, operations, and tactics. "Military strategy is the art and science of employing the armed forces of a nation or alliance to secure policy objectives by the application or threat of force. Military strategy sets the fundamental conditions of operations in war or to deter war." (2) Tactics "... is the art by which corps and smaller unit commanders translate potential combat power into victorious battles and engagements." (3)

Operational art is less familiar to many military professionals than the other two levels of war. The 1982 edition of FM 100-5, OPERATIONS, reintroduced the term to the United States Army, and the 1986 version has clarified its definition.

> "Operational art is the employment of military forces to attain strategic goals in a theater of war or theater of operations through the design, organization, and conduct of campaigns and major operations. ...[it] thus involves fundamental decisions about when and where to fight and whether to accept or decline battle." (4)

At the operational level of war, what aspects of air power should be the responsibility of the commander fighting the land portion of the campaign? What aspects should belong to the commander fighting the air portion? Is there, or should there be, a distinction between the two? What are the tasks to be accomplished and mission capabilities expected from aviation at the operational level of war? Which of those functions should be accomplished by Army aviation

rather than another branch of the Army or a different service?

A clear understanding of the differences between the three levels of war is required to evaluate the roles of air power at the operational level.

Strategic level employment of air power includes roles aimed directly at the political will or economic center of the opposing nation. Little employment integration exists between it and the other components of a nation's war fighting capability. Examples include the World War II bombing campaign conducted by the Allies against the petroleum-producing capability of the Axis powers and the bombing of Libya by a joint group of U.S. Air Force and Navy aircraft.

Tactical level employment of air power focuses upon the roles and employment techniques of individual weapon systems and orients on the close-in battle. An example of tactical employment of air power is an air tactical operations center in NATO putting together a "mission package" of attack and electronic countermeasure type aircraft to destroy a key road bridge on the main enemy avenue of approach into a friendly defensive position. Another example is a flight of fighter aircraft used for protection of a friendly airfield against hostile aircraft.

Operational level employment of air power deals with those roles and missions required to link the strategic aim

of a theater of war with the tactical employment of combat elements around a battlefield. It concerns the development of a clear understanding of the desired end-state: what conditions should exist in order to achieve victory.

Another characteristic of operational level employment is the planning in time and space to move forces into the proper locations to conduct battle. This means ensuring that the proper assets are at the proper locations at the proper times. Closely related to proper planning is proper deployment for combat.

Lastly, operational employment deals with the retention and employment of reserves. Included within all of the aforementioned factors is the element of sustainment; the where, when, and how to allocate supplies, maintenance, and transportation assets.

The main point contained in this discussion of the levels of war is that the operational level of war, which links the tactical battle with the strategic plan, is a relatively new construct in U.S. military doctrine. The following section provides historical examples of the different operational roles of air power.

III. HISTORICAL EMPLOYMENT OF AIR POWER

This section relates historical examples of World War II air power in two different theaters of the war. It concludes with a more recent example from the 1973 Yom Kippur War. Scope and length constraints of this paper limit the focus of the historical examples to air employment. Discussion of ground action is restricted to that level necessary for clarity of the air action.

Few examples exist of American forces fighting without mastery of the air. Therefore, little attention has been paid by United States military professionals to the horrific effects of fighting under total enemy domination of the air. The experiences of the French in 1940 or the Egyptians in 1967 seem almost to be examined by members of the United States military from an intellectual curiosity perspective rather than from a realization of our potential vulnerability.

In past conflicts, the United States has been successful in achieving the proper balance between centralized control and decentralized execution of air assets and has succeeded in achieving the optimum projection of air power. We have also been fortunate in that we have enjoyed significant superiority over our opponents in technology, training, and size of force. This might not be the case in the event of a future conflict.

A general overview of Allied air power employment

doctrine is appropriate to set the background for the two World War II historical examples.

WORLD WAR II AIR POWER

The Allies had formulated a good operational employment doctrine for combining air and ground operations by the beginning of the Normandy Campaign in 1944. It had been developed through a refinement process that started with the debacle of air employment in North Africa in 1942 and continued through the relatively successful use of air in Sicily. United States tactical air employment doctrine was governed by Field Manual 100-20, Command and Employment of Air Power. This manual divided the mission into three separate but interrelated phases. By priority, these phases were:

> "Priority 1: to gain and maintain air superiority; Priority 2: to disrupt hostile lines of communications; Priority 3: to destroy enemy troops and materiel on the fighting front in cooperation with forward ground forces." (5)

These three phases equate to the current United States Air Force AFM 1-1's broad missions of counter air, air interdiction, and close air support which will be discussed later in Section IV of this paper.

General Quesada, who later commanded the IX Tactical Air Command in France, listed three important lessons which were learned by air commanders during this formative stage in air employment doctrine. First, the theater commander must synchronize his air commander's offensive counter air

operations with the land commander's plan in order to achieve an acceptable level of air superiority prior to the commencement of the land operation, so that tactical air units are available for close support when the land forces need it. *Second, the air commander* cannot fight Field Manual 100-20's three phases of tactical air operations consecutively. Once an acceptable degree of air superiority is achieved and land forces are committed to combat, the theater commander has to make an apportionment decision that directs all three phases to continue consecutively. Third, the theater commander must insure "combined staff planning and close coordination and cooperation between the *air and surface commanders* in the execution of their respective missions." (6)

World War II provides the best example of air power employment in a total war that history provides. An examination of the war in France in 1944 provides clear examples of both good and poor operational employment of air power.

AIR POWER IN WESTERN EUROPE, 1944

Allied tactical air forces for the Normandy operation were consolidated under the command of Air Marshal Leigh-Mallory's Allied Expeditionary Air Force. Thus, with the exception of the strategic bombers, allied air was centralized and coequal with the ground and naval forces within the theater of operation.

Later, the organization was changed and Leigh-Mallory's headquarters was removed from the command structure. This modification, however, did not violate the principle of coequal command. The British 2d Tactical Air Force, under Air Marshal Coningham, worked directly with General Montgomery's 21st Army Group; and the American 9th Tactical Air Force, under Major General Vandenberg, worked with Lieutenant General Bradley's 12th Army Group.

Subordinate to the 9th Air Force were several Tactical Air Command (TAC) headquarters. These TACs accomplished two primary missions: they controlled assigned reconnaissance and fighter-bomber groups, and each established a close working relationship with the field army with which it was associated.

"Although the TACs were granted unusual latitude in control of their tactical units, air force control was never allowed to become superficial....with intimate association from the highest to the lowest levels of army and air force command, 12th Army Group and Ninth Air Force worked out a most sensitive and effective air-ground team." (7)

Ninth Air Force also commanded the medium and light bombers. These aircraft were the most suited for the interdiction mission and were most efficiently controlled at the air force level by the 9th Bombardment Division. The interdiction effort was best directed after a thorough analysis of the ground tactical situation across the entire army group front. (8)

The IX Air Defense Command was responsible for counter-air operations for the 9th Air Force. It developed the

solution for integration of ground based anti-aircraft artillery and air force counter air assets. "...Ground force AA protected ground force elements in the forward battle area while air force AA protected all else." (9)

Also organic to the 9th Air Force were two other commands, IX Engineer Command and IX Troop Carrier Command. The engineers were responsible for either constructing or renovating tactical airfields as close to the front lines as possible. Ninth Air Force recognized the degree to which ground mobility of tactical air forces enhanced the degree of support which could be provided to the ground forces. The aggressiveness with which they accomplished their mission is demonstrated by their construction of an emergency landing strip on Utah Beach by 2115 hours on D-day. (10)

The troop carrier command was responsible for airborne insertions, resupply, and aerial medical evacuation. It planned and conducted the airborne insertion of troops into the Cherbourg Peninsula in support of OPERATION NEPTUNE.

Army and Air Force cooperation continued to grow as experience in combat led to innovative coordination methods. On 5 August, the 9th Air Force's advanced headquarters, which was physically colocated with 12th Army Group, assumed control of all U.S. tactical air activities. Subordinate army and air force headquarters established physical colocation with their intelligence and operations staffs. This cooperation worked so well that the IX TAC was tasked by

Patton's Third Army simultaneously to assist in the reduction of the fortifications at Brest, provide armored column cover for the spearheads approaching Paris, and provide security for the Army's exposed right flank. (11)

Operational level decisions were facilitated by the centralization of command of air force assets within the 9th Air Force. In October 1944, two squadrons of P-61 were switched from the IX Air Defense Command to IX and XIX TAC. These night fighters were then reroled into night ground-attack aircraft. If these forces had belonged to different commands it might have been more difficult for the role shift to have occurred.

A similar operational level shifting of air assets during the Battle of the Ardennes (16 December 1944, to 28 January 1945) demonstrated the efficiency of centralized command. The IX and XXIX TACs were temporarily transferred from the 9th Air Force to the British 2nd Tactical Air Force, less three fighter-bomber groups which were left with the XIX TAC. Eighth Air Force provided two additional fighter squadrons to the IX Air Defense Command to free additional fighters for the ground support role. And finally, the entire 2d Division of the Eighth Air Force was placed under the operational control of the Ninth Air Force. An efficient command and control structure enabled air power to be moved to the locations necessary in the time required to engage the enemy.

"Air power was to smother completely Germany's greatest tactical air effort of the war in western Europe in 2 days, with fearful losses to the enemy." (12)

The next example of World War II operational employment of air power took place in the Far East. The adversaries were different: primarily the British against the Japanese. The terrain was significantly different: hot jungles and difficult mountains. But many of the operational employment lessons are the same.

BATTLE OF IMPHAL/KOHIMA

General Sir William Slim, commander of the British Fourteenth Army, considered the Battle of Imphal/Kohima as the turning point of the war in Burma. (13) He considered the battle which followed Imphal and Kohima, the battle for the Irrawaddy River, to be decisive. Not only is this campaign an example of good operational planning by a talented operational level commander but it demonstrates excellent operational employment of air power.

Initially, the British suffered a series of defeats in the Burma Theater. But by early March 1944, they were ready to commence offensive actions to force the Japanese from the continental land mass. Slim's problem was how to defeat Japanese Lieutenant General Renya Mutaguchi's Fifteenth Army. The British campaign plan called for initially ceding the initiative to the Japanese, allowing them to attack well-prepared British defenses. The Japanese were also forced to operate on the end of a very long and tenuous supply line.

"...And it was a decisive success I wanted. ...I was tired of fighting the Japanese when they had a good line of communication behind them and I had an excrable one." (14)

The intent of the British campaign plan was to bleed the enemy on prepared defenses. The next phase was then to destroy the Fifteenth Army before it could fall back on its supply lines and take advantage of better defensive positions behind the Irrawaddy River. After the Japanese played into his plan and attacked his strong defensive positions surrounding Kohima and Imphal, Slim intended to destroy them through the application of a combined arms "...mobile striking force, strong in artillery, armour, and aircraft." (15)

Throughout the battle, Slim viewed superior operational mobility and resupply as the edge required for victory. He depended, in large measure, upon his Troop Carrier Command of the Royal Air Force to provide the superiority.

Slim's plan was put at risk when the Japanese were able to attack Kohima with a full division. The British expectation was that the Japanese would be unable to attack with more than a reinforced regiment. Upon recognition of the problem, the Fourteenth Army planned and conducted the largest airlift in the history of the Far Eastern Theater. In support of this operational redeployment of forces, from 17 to 30 March, British and American C-47s flew the 5th Indian Division 300 miles from Arakan to Imphal.

Flexibility of air transportation was demonstrated by

Slim's ability to divert the 161 Brigade of the 5th Indian Division to the defense of Kohima. Air transports shifted into the resupply role were able to keep the surrounded British force in ammunition. Simultaneously, Hurricane fighters converted to light bombers provided close air support for the beleaguered defenders. Thus, operational use of air power helped thwart the Japanese effort to cut the British supply routes. This significantly contributed to the success of the battles. The success of Slim's plan to destroy the Fifteenth Army can be measured by the 53,000 Japanese casualties from the combined Imphal and Kohima battles.

The next phase of the campaign was the British pursuit which produced the decisive victory at the Irrawaddy River. Again operational employment of air power provided the necessary degree of flexibility and maneuver required to retain the initiative.

Royal Air Force aircraft maintained a counter-reconnaissance security screen above the Fourteenth Army. A major element of Slim's plan for crossing the Irrawaddy River was the rapid, clandestine movement of troops to a location south of where the Japanese expected them to cross.

"...The coming battle depended upon the secrecy of 4 Corps' move. A single Japanese reconnaissance plane, investigating too closely a cloud of dust, might sight a line of tanks moving slowly towards Pakokku, and realize what that meant." (16)

Another vital role of air power was the protection of

friendly river crossings after they occurred.

"Allied air forces ranged all over Burma as far south as Rangoon... Enemy fighter squadrons were driven farther and farther back, ... our bridgeheads as we clung to them screened by fire from the air. Never, I believe, was air cooperation closer, quicker or more effective..." (17)

Daily photographic air reconnaissance along the Irrawaddy provided the British with detailed intelligence for planning, while air interdiction against Japanese command and control facilities reduced their ability to sequence their forces.

In his book Defeat into Victory, Slim listed what he thought were the main contributions of air power to the Burma campaign. He recognized that the entire campaign was woven from the close relationship between air and ground forces. He thought air was flexible as long as its support facilities were able to maintain sufficient ground mobility to stay within reasonable support distance of the front lines. Close air support provided by fighters and fighter-bombers was invaluable as a supplement to the meager artillery support available in the hilly region of the theater.

Slim rated the use of air transport as the most distinctive aspect of the Burma war. (18) His innovative use of infantry brigades which were locally modified to become air transportable played a significant part in the rapid defeat of the defending enemy. He maneuvered these air transportable brigades to complement the combat power of his ground mechanized maneuver forces.

Air superiority, according to Slim, was the element which provided the freedom of maneuver and flexibility of employment of air power. This is what let the other air roles succeed. Another factor which he highlighted was the absolute necessity for the air and ground commanders to work closely together.

"The land and air commanders responsible at each level must not only be in close touch, they should live together as we did. Ours was a joint land and air war; its result, as much a victory for the air forces as the army." (19)

The third example of operational employment of air power occurred in the Middle East. The conflict was between a combined force of Arab nations and Israel, and it was different from the previous two examples in duration, number of combatants, and geographic scope. Operational level decisions concerning the employment of air power were fewer in number but critical in nature. Where best to use the Israeli Air Force on the 7th of October is an example. Lessons to be drawn from this war focus more on the interaction between weapon systems and their suitability for future roles on the AirLand Battlefield.

AIR POWER IN THE YOM KIPPUR WAR

The Yom Kippur War of 1973 may be the last example of full scale combat between nations using the full range of conventional high technology weapon systems. Dr. Robert M. Epstein, in his analysis of the Yom Kippur War, calls this conflict the first example of ground-based weapon systems determining the control of the air over a battlefield. (20)

The conduct and outcome of this conflict is generally regarded as limited by superpower restraints. However, the level of intensity and interaction of weapon systems is the closest example of what might be expected on an AirLand battlefield in central Europe.

> "At H-Hour on 6 October, 240 Egyptian aircraft crossed the Canal. Their mission was to strike three airfields in the Sinai, to hit the Israeli Hawk surface-to-air missile batteries, to bomb three Israeli command posts, plus radar stations, (and) medium artillery positions...10,500 shells fell on Israeli positions at the rate of 175 shells per second. A brigade of FROG surface-to-surface missiles launched its weapons...over 3,000 tons of concentrated destruction...turned the Suez Canal into an inferno for 53 minutes." (21)

The combined Egyptian and Syrian attack on Israel in October of 1973 was designed to catch the Israeli Defense Force by surprise. It was also conducted on a broad front to dilute the effectiveness of the Israeli Air Force. The attack succeeded on both counts. Egypt, fully aware of the high state of training of the Israeli Air Force pilots, realized that direct confrontation between aircraft would result in the destruction of the Egyptian Air Force. Therefore, a different solution was sought.

The solution chosen was to cover the Egyptian ground objectives under the umbrella of a highly sophisticated surface-to-air missile belt. These ground objectives were limited in nature, so coverage was not difficult to accomplish. The Egyptian intent was to present an enticing ground target for the Israeli Air Force and then destroy the aircraft as they flew within range of the missiles. The

Israeli Air Force "...lost five airplanes over the canal before dark and 30 in the first 24 hours of the war." (22)

The day following the Egyptian attack, Sunday, 7 October, the Israeli Air Force planned to attack the Egyptian SAM threat along the Suez. However, Syrian success to the north changed the plan. Moshe Dayan, in an operational level decision, directed the commander of the air force to mass his efforts against the Golan Heights. The Syrians had made significant progress and were poised only three miles from a breakthrough of the Jordan River. Again, losses to Israeli aircraft were severe. The majority of the losses were from SAM-6 and SAM-7 missiles against aircraft conducting close air support.

Israeli air power was unable to produce the dominating impact it had achieved in the 1967 War until the Egyptian armor moved from under the protection of the surface-to-air missile belt. Syrian reverses in the Golan had resulted in diplomatic pressure on the Egyptians to deviate from the intended campaign plan and to press their attack northward, the Syrians hoping the Egyptians would siphon Israeli combat power away from Damascus. The resulting Egyptian thrust was a debacle.

"The concentrated Egyptian armor...by now out of the range of the anti-aircraft, surface-to-air protective missiles, came under attack by the Israeli Air Force. Within two hours some 60 Egyptian tanks and a large quantity of armored personnel carriers and artillery were in flames as a result." (23)

There were other examples of air power in this conflict. The Israelis used fighter-bombers to bomb Damascus, and the Syrians employed surface-to-surface FROG missiles against civilian targets. But the predominant use was close air support.

The Arabs and Israelis were not the only powers to employ air assets in the conflict. The Soviets used the MiG-25 Foxbat and the United States used the SR-71 for intelligence gathering, and both powers used their airlift capability to transport supplies to the combat zone.

The Soviets peaked their support at approximately "...100 sorties a day, with smaller An-12s going into Syria and Iraq and large AN-22s carrying weapons to Egypt." (24) The United States commenced an airlift on the 13th of October using C-5 and C-141 aircraft. Metz, in his analysis of air power in third world conflicts, credits the USSR with flying 16,000 tons in 935 sorties over a round trip distance of 1,400 miles. The United States effort, exclusive of the 5,500 tons flown by El Al, was 22,400 tons, in 564 sorties, over a round trip distance of 14,000 miles. The degree to which operational and strategic air transport capability had improved over the transport available to Slim in Burma is evident when it is realized that neither side's effort approached its maximum lift available.

Having examined three examples of air power in war, it is now possible to evaluate how air power is organized within

the United States military structure and to arrive at some conclusions about the adequacy of the current organization.

IV. OPERATIONAL EMPLOYMENT OF AIR POWER

Field Manual 100-5 states that an operational commander can generate combat power through four elements: maneuver, firepower, protection, and leadership. (25) This section divides air power roles and missions among the four elements of combat power. Following the division, an analysis is performed to determine which service, Army or Air Force, is best suited to conduct the role or mission.

Air Force doctrine has not yet incorporated the concept of the operational level of war; however, the new doctrine, when it is published, will. Colonel Thomas A. Cardwell III, in his book Air-Land Combat: an Organization for Joint Warfare, lists the Air Force contribution to the operational air-land campaign as the mission areas of counter air, close air support, reconnaissance, and interdiction. (26) This author would add inter-theater airlift.

Current Air Force doctrine as contained in Air Force Manual 1-1, Basic Aerospace Doctrine of the United States Air Force, recognizes nine broad missions: strategic aerospace offense, strategic aerospace defense, counter air, air interdiction, close air support, special operations, airlift, aerospace surveillance and reconnaissance, and aerospace maritime operations. (27) With the exception of the first two, these missions are considered by the Air Force as either tactical or both tactical and strategic.

In addition to the Air Force, a second user of airspace

over the AirLand Battlefield is Army aviation. Operational employment of Army aviation might take the form of either a counterstroke or interdiction. (28) Recent force design changes in the structure of the United States Army have produced aviation organizations intentionally developed for operational level employment. A Corps Combat Aviation Brigade (CAB) is well suited for operational maneuver. (29) It is capable of either increasing operational tempo or striking deep into enemy territory.

The next section of this paper examines the operational roles and missions of air power from the structure of a unified theater campaign. Figure 1 shows how roles and missions of air power as listed by Air Force Manual 1-1 align with the four elements of operational combat power listed in Field Manual 100-5. Figure 2 contains the factors used to evaluate which arm of the service should retain responsiblity for the particular mission or role. Discussion in this section will examine the missions or roles for each combat power element shown in Figure 1.

The first combat power element for examination is firepower, defined in Field Manual 100-5 as "...the destructive force essential to defeating the enemy's ability and will to fight." (30) The first mission listed is close air support.

CLOSE AIR SUPPORT

Historically, CAS has served the Army well. The

AIR MISSIONS GROUPED WITHIN COMBAT POWER ELEMENTS

COMBAT POWER ELEMENT	MISSION/ROLE	OPTIMUM SERVICE
I. FIREPOWER	Close Air Support Rotary Wing and Tilt Rotor	Army
	Fixed Wing (not a suitable mission)	
	Air Interdiction (note 1)	Air Force
	Battlefield Air Interdiction	Air Force (some Army within limits)
	Tactical Air (note 2) Reconnaissance	Air Force
II. MANEUVER	Allocation and apportionment of multi-role acft.	Air Force
	Of ground troops against a deep target.	
	Rotary Wing	Army
	Fixed Wing (para. drop etc.)	Air Force
	Inter-theater relocation	Air Force
III. PROTECTION	Counter-air	Air Force
	Offensive	
	Defensive	
	Fixed Wing	
	Air Defense	note 3
	Surface-to-air Missile	
	Anti-air gun	
IV. LEADERSHIP	Planning and execution of Interdiction Campaign	Theate[illegible]

Note 1. Surface-to-surface missiles are included in this mission when the target is beyond the FSCL. Shorter range missiles tend to be tactical in use.

Note 2. Remotely piloted vehicles (RPVs) when used in the close-in battle are tactical. If they are used for operational level intelligence gathering, then they should fall under the Air Force.

Note 3. Short range gun and missile systems which are used for tactical protection of ground forces should belong to the force being protected. Theater/area protection should belong to the Air Force for ease of integration into the defensive counter air effort.

FIGURE 1

FACTORS FOR MISSION ANALYSIS

1. To what degree must the air and ground elements be coordinated?

2. To what degree is timeliness involved in the coordination?

3. How critical is the availability of this air power mission to the reliable accomplishment of the ground tactical plan?

4. How much planning time is normally required for the mission?

5. To what degree does the mission require specialized equipment different from other service missions?

6. To what degree is ground mobility restricted by requirements for sophisticated maintenance facilities or runways?

7. How well does the mission fit service employment doctrine?

FIGURE 2

exploits of General Quesada's IXth Tactical Air Command in support of VII (US) Corps' Operation COBRA in 1944 are well documented. In January 1945, a key reason for the rapid disintegration of German forces following the Battle of the Bulge was the reintroduction of CAS into the battle.

Recently, questions have surfaced concerning the viability of CAS as a mission. After having dominated the skies in the 1967 War, the Israeli Air Force (IAF) was stymied in 1973 by the Egyptian anti-aircraft missile belt along the Suez Canal. The Israeli Air Force was unable to provide the planned close air support because it failed to counter the missile belt. Not until the Egyptians attacked, thus leaving their missile coverage, did the Israeli Air Force again become a factor.

Frequently close air support (CAS) is the only combat power the operational ground commander has available to shift rapidly from one portion of the battlefield to another. Because of this flexibility it has often been the element of combat power which has reversed the tide of battle. In NATO, CAS falls into the category of offensive air support (OAS), a category which also includes battlefield air interdiction and tactical air reconnaissance.

Close air support is a critical mission. Air Force Manual 1-1 defines the objective of close air support to be supporting surface operations by attacking hostile targets in close proximity to friendly forces. Close Air Support

requires close integration with the ground force in terms of detailed coordination with the ground maneuver plan and fire support plan. (31) These coordination requirements create the further problem of timely coordination.

Among all of the roles and missions of air power, it is with CAS that the Air Force and Army have the most potential divergence. Close air support is characterized by flight operations between the Forward Line of Own Troops (FLOT) and the Fire Support Coordination Line (FSCL). Operating within this area, which normally contains the most dense coverage of hostile air defense systems, significantly increases the vulnerability of the airframe and pilot.

> "Although close air support can provide the Army an important source of extra firepower, some analysts question its use on the modern Central European battlefield.... The primary disadvantage is the reliance on radio.... aircraft will fly low... shortening the effective range....combined with enemy use of jamming equipment." (32)

Commentaries by Air Force pilots attest to the difficulties of flying CAS missions in fast-moving, high performance aircraft. Air Force Lieutenant Colonel Price T. Bingham, after analyzing the potential mid-intensity battlefield, describes it as chaotic. His assessment is that the ground battle would be extremely fluid, communication disruptions would make coordination difficult, and timely information would be, "...the exception, rather than the rule." (33)

Additionally, ADA threats would necessitate low flight at high speeds. This is the worst flight profile for

autonomous acquisition of hostile targets. Also pilots will have to rely upon themselves to find the targets. Israeli pilots discovered that they spotted "dead" vehicles easier and killed them more than once. (34) "...it is extremely difficult for Air Force aircraft flying at low altitudes and high air speeds to acquire individual Soviet vehicles, let alone determine which are tanks." (35)

For a number of reasons, characteristics of aircraft purchased by the Air Force do not match what is optimal for close air support. One main reason for this mismatch is the Air Force doctrine governing the design of close air support aircraft. Air Force aircraft, for economic reasons, are rarely designed expressly for close-in-support. Most are multi-role. The problem with this type of design is a forced compromise between aircraft performance characteristics. Flight characteristics of an aircraft optimized for close support require stable handling at low air speeds and high mission endurance. Counter air and long range interdiction aircraft require a completely different set of performance characteristics. Many penalties are incurred by multi-role aircraft because airframes cannot be optimized for one role or the other. They range from costing too much at acquisition, through excessively high operating costs and insufficient station time, to less ordnance capacity.

Another major problem with multi-role design is the need for the aircraft to operate from a sophisticated airfield

with cleaned and maintained runways. The penalties derived from restricting close air support aircraft to sophisticated, prepared airfields rather than austere disposal fields include increased costs for construction and maintenance of airfields and presenting more lucrative targets for the enemy. Additionally, the lack of suitable airfields translates into a lack of ground mobility.

Both Quesada and Slim emphasized the need for ground mobility for close air support aircraft. Ground mobility is important for two main reasons. In the fluid AirLand battlefield, fixed facilities are subject to capture. If the close support aircraft are capable of moving rapidly to and operating from a less sophisticated base, then their survivability improves. The other main reason for ground mobility is quick response to the close-in battle. By basing closer to the front line at dispersal facilities, the supporting aircraft can join the fight faster and generate more sorties than would be possible if they were restricted to fixed bases.

Problems exist with weapon design and selection also. The proper weapon system required for fast moving aircraft to engage ground vehicles effectively is something different from the Maverick, something that can be delivered accurately and quickly, with relatively few losses. (36) An air force which is oriented primarily toward developing weapon systems for air superiority and air interdiction is less apt to

develop a weapon optimized for close air support than is the Army which is primarily concerned with ground targets.

BATTLEFIELD AIR INTERDICTION

Closely related to CAS is the mission of battlefield air interdiction. Proper operational employment of BAI enables the ground commander to separate the enemy formations into configurations which he is better able to defeat.

> "Air interdiction attacks against targets which are in a position to have a near term effect on friendly land forces are referred to as battlefield air interdiction (BAI). The primary difference between battlefield air interdiction and the remainder of the air interdiction effort is the level of interest and emphasis the land commander places on the process of identifying, selecting, and attacking certain targets. ...once planned, battlefield air interdiction is controlled and executed by the air commander as an integral part of a total air interdiction campaign." (37)

Battlefield air interdiction is one of the primary assets available to the corps commander to separate the enemy forces he is facing. Primarily the main distinctions between it and CAS are in the proximity to friendly troops and the degree to which it is coordinated with troops on the ground. Control of BAI differs from CAS in that CAS is distributed to the corps, while BAI is retained under theater control as tactical airforces.

NATO recognizes battlefield air interdiction as a separate category of offensive air support. The NATO definition describes the target area as being beyond the Fire Support Coordination Line but short of the Reconnaissance and Interdiction Planning Line.

Major Stephen T. Rippe analyzed the effectiveness of

current Army and Air Force procedures for integrating air and ground combat power. His recommendation was to group CAS and BAI into one mission and distribute the sorties to the corps commander for his use. (38) Rippe's recommendation dilutes the benefits derived from centralized air power. Further, his recommendation to remove CAS from the Air Force and give it to the Army was based upon the characteristics of the mission and dissimilarity of the appropriate aircraft. BAI meets none of those criteria. The description of the evolution of air employment doctrine found in Annex A, Air Force Manual 1-1, clearly describes the reasons for the importance placed upon the principles of centralized control and decentralized execution. (39)

Army aviation forces, especially attack helicopter battalions, have the capability to conduct what is essentially battlefield air interdiction. With the development and fielding of tilt-rotor aircraft, this capability will increase. However, high speed, long range aircraft and "force package" requirements necessary for aircraft survival in cross-FLOT operations combined with a limited variety of assets available to the ground commander make BAI missions the exception rather than the rule for Army aviation.

Consider next the combat power element of maneuver, "...the movement of forces in relation to the enemy to secure or retain positional advantage." (42)

ALLOTMENT AND APPORTIONMENT

The initial entry in Figure 1 under maneuver is allotment and apportionment, which is a function of operational distribution of forces rather than an actual air power mission or role. This function, though, may prove to be one of the most critical within the bounds of maneuver. This is an Air Force function, a function which central control certainly helps.

The decision to move air power from one part of the theater to another or to re-role a wing of multi-role aircraft from combat air patrol to air interdiction is certainly operational in nature. The decision to mass aircraft in the interdiction role for D-Day paralyzed Rommel's operational reserve and proved to be a significant factor in the success of the invasion.

MOVEMENT OF GROUND TROOPS

A traditional use of air power and maneuver is the air assault insertion of ground combat troops against an operational target. The insertion could be via either Army or Air Force aircraft and is, therefore, a role for both services. However, the Army should retain primary responsibility for doctrinal development.

INTER-THEATER RELOCATION

The final entry in the maneuver grouping of Figure 1 is inter-theater relocation. This is the kind of troop movement conducted by General Slim in Burma. The degree to which such

aircraft must move from one part of the theater to another and possibly from one theater to another makes this an inappropriate mission for the Army.

The next combat power element is protection: "...the conservation of the fighting potential of a force so that it can be applied at the decisive time and place." (43)

Several operational level air power missions fall into the protection group. Counter air and air defense are the two main ones.

COUNTER AIR

Counter air is what the Air Force is about: the ultimate objective is air supremacy. As a mission, it is made up of two main sub-elements: offensive counter air which seeks to neutralize the enemy at a place and time of our choosing, and defensive counter air which is the collection of tasks designed to prevent the enemy air from attacking friendly forces or penetrating friendly air space. (44)

Slim said it was the effective counter air campaign which made the rest of his operational air support possible. AFM 1-1 states that without effective control of the airspace over the battlefield, the ground campaign is doomed. The French in 1940 were routed in part because their air forces failed to counter the German Stuka dive bomber.

It is the Air Force's emphasis on the counter air mission, combined with fiscal constraints, which resulted in the recommendation that CAS revert to the Army. Lt. Col.

Bingham's article dealing with the need for a doctrinal change for air power and the close-in-battle presents an excellent synopsis of the inability of the Air Force to accomplish both missions. (45)

The third major mission listed under protection is air defense. This element is a dynamic "wild card" which is difficult to analyze. Following his analysis of the Yom Kippur War, Major James Henderson, an Air Force officer, concluded that counter air from manned aircraft might be obsolescent.

> "Current studies and the Israeli experience in the 1973 war show that the traditional roles of CAS and counter air do not fit the modern battlefield. The most dramatic development has been the proliferation of sophisticated and dense anti-aircraft defenses." (46)

Many authorities contend that force packaging and advances in technology have made the aircraft more survivable than those of the Israeli Air Force in 1973. However, improvements and growth in the air defense area cannot be ignored. The IXth Air Force in Western Europe during world War II developed the air defense command for control of theater air defense. The principles developed there remain sound. Tactical forces are responsible for their own local air defense, while the theater-wide defense is the responsibility of the Air Force. Even though this is the system which U.S. military forces currently employ, recent trends in the air defense community are moving toward increased roles for Army helicopters. Some doctrine writers

are advocating dedicated anti-air organizations within the Army structure.

LEADERSHIP

The final element of operational combat power is leadership. Field Manual 100-5 calls this the most essential element. Beyond the obvious need for quality leaders for both the air and land component commanders lies the requirement for one overall commander. Because it is the responsibility of the theater commander-in-chief, the CinC, to synchronize all elements of his combat power, this element is the responsibility of neither the Army nor the Air Force. It is, rather, the responsibility of the commander who develops the theater campaign plan.

V. CONCLUSION

This paper has examined the operational employment of air power. The operational roles and missions identified were evaluated to determine whether each should be an Air Force or Army responsibility. The primary determining factor employed in making the decision was the degree to which the responsibility enhanced the generation of combat power.

Information was gathered from past and current doctrinal manuals, books and articles, and examination of three historical examples of air power employment. Two examples were from World War II and the third from the Middle East.

Allied air power in Western Europe in 1944 provided clear examples of the advantages of centralized control of air power. Field Marshal Slim's experiences in Burma corroborated the European experiences. The Yom Kippur War provided insights as to effects of modern technology and tactics on employment.

The writings of Lieutenant Colonel Price T. Bingham and Major James B. Henderson, both United States Air Force officers, assessed both the utility and effectiveness of current doctrine and organizations in a potential future conflict on the AirLand battlefield of tomorrow.

Results of the evaluation are that most roles and missions fall under the responsibility of the proper service. The major exception to this statement is close air support.

As a mission, close air support is still vital. The ground commander must continue to receive reliable, responsive, and accurate air support. The question is: which service will perform the mission, and with what kind of aircraft?

There are several factors which indicate that the Army is the proper service to conduct CAS, and that the slower flying rotary wing aircraft is the proper vehicle. The Air Force tradition is in fast-moving, fixed wing aircraft. Air Force Manual 1-1 recognizes, rightly, that the first priority must be mastery of the air over the battlefield. It also recognizes that the high performance type aircraft suited for counter air or deep interdiction is not the type of aircraft suited for the close support mission.

Another factor which makes it difficult for the Air Force to procure the proper equipment for close air support is the limited budget available to buy aircraft. The Air Force attempts to overcome these problems by buying multi-role aircraft, but unfortunately this is not the best solution.

The natural outcome of these factors is a propensity on the part of the Air Force to buy sophisticated, high performance aircraft suitable for the Air Force's primary mission, rather than sophisticated, slower aircraft more suited to the close support mission. The recent decision to employ modified F-16s in the close support role is a good example.

The preceding discussion is not designed to say the Air Force could not develop the proper aircraft and weapon systems. But it seems more logical for the Army to do it. Circumstances now are different from those of World War II. Today's Army has an adequate aviation infrastructure to conduct the mission of close air support. Corps level combat aviation brigades are now in the force structure. These brigades have the proper communication network and working relationships with ground combat brigades to perform close air support more efficiently than the management by cooperation and coordination joint system which exists between the Army and the Air Force today.

From a logical perspective, given the critical nature of close air support to the close-in land battle, it makes sense for the commander who fights the close-in battle to own the assets. It makes sense for him to be able to design schemes of maneuver with confidence that he will get the close air support he needs rather than the amount allocated from above. With Army aircraft dedicated to support of the ground battle, the Air Force will no longer face the difficult decision between a multi-role aircraft flying a close air support mission or being reconfigured as an air defense weapon.

Figure 1 details the conclusions of this paper. With the exception of close air support which should move from the Air Force to the Army, current responsibilities for

operational employment of air power provide the best mix for realization of combat power.

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(7) Ninth Air Force, p. 9.

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(23) Herzog, p. 261.

(24) Metz, p. 105.

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(26) Thomas A. Cardwell III, Air-Land Combat: An Organization for Joint Warfare, Air University Press, Maxwell Air Force Base, Alabama, 1986, p. 139. (SAMS Course 5 course reading)

(27) AFM 1-1, p. 3-2.

(28) A complete disussion of Army aviation's employment in the counterattack or counterstroke role is beyond the scope of this paper. Readers who desire more information about this mission should see Webb; ....

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(30) FM 100-5, p. 12.

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(32) James B. Henderson, Jr., The "Air" in AirLand Battle, U.S. Command and General Staff College, Fort Leavenworth, Kansas, 4 June 1982, p. 44.

(33) Price T. Bingham, p. 23.

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(35) Bingham, p. 24

(36) Ibid.

(37) AFM 1-1, p. 3-4.

(38) Rippe, p. 56.

(39) AFM 1-1, ps. A1-A6.

(40) Ibid., p. 3-3.

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