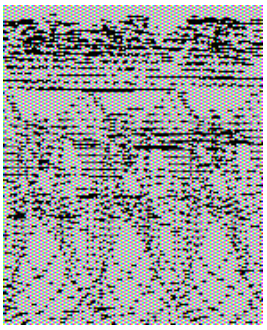

Ground Maneuver and Air Interdiction

A Matter Of Mutual Support at the Operational Level of War

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Abstract

Warfare is an ever evolving mixture of combinations: attack and defense, symmetry and asymmetry, maneuver and firepower, mass and economy of force, etc. True operational art manifests itself when the right balance of these combinations is applied to war fighting. This paper analyzes one such combination; ground maneuver and air interdiction. Indeed, this is a treatise on the synchronization of land power and air power, and how these two vital elements can better contribute to a successful operational campaign. The fundamental thesis is that the Joint Force Commander (JFC) must do more than merely balance this combination as separate entities, he must employ them as coequals in mutually complementary operations.

The synergistic relationship between ground maneuver and air interdiction is explored and supporting historical precedents discussed. Next, Army, Air Force and joint doctrine is analyzed to determine the prevailing views on the subject. Finally, the author makes recommendations which enhance the orchestration of ground maneuver and air interdiction in achieving the JFC's objectives.

Acknowledgments

Many thanks to two individuals whose influence and guidance were of particular help during the writing of this thesis: Lt Col Price T. Bingham, USAF, Retired, and Lt Col Pat ("Doc") Pentland. Colonel Bingham's writings on this subject motivated me to explore this concept on my own. As my thesis advisor, Doc Pentland gave me "just enough rope" to hang myself, but thankfully, steered me clear of the gallows.

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Chapter 1

Joint Warfare Is Team Warfare

Military victories are not gained by a single arm, though the failure of any arm or Service might well be disastrous, but are achieved through the efforts of all arms and Services welded into a team.

—General George C. Marshall
Joint Warfare of the US Armed Forces

Teamwork is endemic to the American way of life. From wagon trains to the space shutle, our pioneer heritage centered on a consolidated team approach to task accomplishment. Undoubtedly, our past success as a nation depended on working together unselfishly and not caring who received the credit. Similarly, to ensure tomorrow's success, this same spirit of cooperation must transcend our organizational rivalries and take firm root in all endeavors to achieve our national objectives. Nowhere will this be more important than in the joint execution of warfare by our country's armed forces. Indeed, this is ratified by General Colin Powell's statement in Joint Pub 1 that modern warfare is synonymous with joint warfare and "joint warfare is team warfare."[1] Because the central thesis of this paper requires a joint perspective, let's take a moment to review this concept.

The joint war-fighting team is made up of the Joint Force Commander (JFC) and his Functional or Service components. The JFC is the team captain, the quarterback of joint operations. As such, it is his job to harmonize all subordinate operations to achieve assigned political and military objectives in his geographical area of responsibility. Specifically, the JFC employs the multidimensional forces of land, sea and air to "present the enemy with more ways to die than he can counter."[2] This is done by targeting not only the enemy's forces but also by following Sun Tzu's admonition to attack the enemy's strategy, morale and will. Joint Pub 1 refers to this multifaceted assault as "Full Dimensional Operations."[3] Indeed, its orchestration becomes an art form.

The JFC practices his operational art by synergistically melding his forces together in time, space, and purpose. To do so, he must effectively answer the following questions:[4]

1. What military condition(s) must be produced in the operational area to achieve the strategic goal?
2. What sequence of actions is most likely to produce that condition?

3. How should the resources of the joint force be applied to accomplish that sequence of actions?

4. How and when should the transitions between sequences be made?

The resolutions to these and other questions are then integrated into the JFC's campaign plan. The DOD dictionary defines a campaign plan as "a series of related military operations aimed to accomplish a common objective."[5] In building this plan,

> it is difficult to view the contributions of air, land, sea, space, and special operations forces in isolation. Each is critical to the success of the joint force, and each has certain unique capabilities that cannot be duplicated by other types of forces. Given the appropriate circumstances, any dimension of combat power can be dominant and even decisive in certain aspects of an operation or phase of a campaign, and each force can support or be supported by other forces.[6]

This graphically illustrates the interdependence of the joint team in fulfilling the campaign objectives. Obviously, a main point to this discussion is that interservice rivalry denigrates other members of the team and detracts from their mutual cooperation. General Powell emphasized this point by stating: "Functional and Service components of the joint force conduct subordinate or supporting operations, not independent campaigns."[7] In other words, there is only one campaign, the JFC's theater campaign. It is in this spirit of "jointness" that we now address the principal focus of this paper.

Warfare is an ever evolving mixture of combinations: attack and defense, symmetry and asymmetry, maneuver and firepower, mass and economy of force, etc. True operational art manifests itself when the right balance of these combinations is applied to war fighting. This paper analyzes one such combination; ground maneuver and air interdiction. Indeed, this is a treatise on the synchronization of land power and air power, and how these two vital elements can contribute to a successful operational campaign. My fundamental thesis is that the JFC must do more than merely balance this combination as separate entities, he must employ them as coequals in mutually complementary operations.

In addressing this topic I will devote a separate chapter to four unique areas. Chapter 2 explores the definitions of ground maneuver and air interdiction, and thoroughly examines their symbiotic relationship. Chapter 3 focuses on the historical precedents to this relationship. Specifically, what evidence does history reveal to support our overall thesis? The fourth chapter lays out current Service and joint doctrine on the subject. Here, I rely heavily on Service doctrinal manuals as well as recent guidance issued by the chairman of the Joint Chiefs of Staff. And finally, in chapter 5, the author makes recommendations toward enhancing the harmonization of ground maneuver and air interdiction in realizing the JFC's objectives. Let's begin by "unpacking" the conceptual relationship between ground maneuver and air interdiction.

Notes

1. Gen Colin L. Powell, CJCS, "Message from the Chairman," quoted in Joint Pub 1, *Joint Warfare of the US Armed Forces*, 11 November 1991.

2. Memorandum No. 391–92, Lt Col Tim Muchmore, Headquarters Department of the Army, to Director, Operational Plans and Interoperability (J-7), subject: Concepts for Full Dimensional Operations, 18 June 1992, 1.

3. Ibid.

4. Memorandum No. Cm-1502-92, Gen Colin L. Powell, to US Service and Unified Commanders, subject: A Doctrinal Statement of Selected Joint Operational Concepts, 23 November 1992, 3. (Subsequently referred to as SJOC.)

5. Joint Pub 1-02, *The Department of Defense Dictionary of Military and Associated Terms.*

6. SJOC, 1.

7. SJOC, 2. Unfortunately, this statement comes as a direct result of interservice friction concerning the perceived "overselling" of the "Air Campaign" in Desert Storm.

Chapter 2

Maneuver and Interdiction
The Relationship

> *In modern warfare, any single system is easy to overcome; combinations of systems, with each protecting weak points in others and exposing enemy weak points to be exploited by other systems, make for an effective fighting force.*
>
> —Vice Adm Stanley R. Arthur and Marvin Pokrant
> "The Storm at Sea," US Naval Institute *Proceedings*

Executing a Joint Force Commander's campaign requires the synchronized melding of all systems and environmental dimensions of war fighting. Consequently, a solid understanding of war-fighting dynamics is critical to the conduct of successful operations. This chapter focuses on the relationship between two of these factors—specifically, ground maneuver and air interdiction. I will investigate how these elements of operational art unite to create a synergistic coupling. To do so, I will first define and discuss each element separately. Then, with that foundation, I'll bring them together and discuss their conceptual relationship.

Ground Maneuver

The US Army's Field Manual (FM) 100-5, *Operations*, describes maneuver as the movement of

> potent combat forces in relation to the enemy to secure or retain positional advantage. It is the means of concentrating forces at decisive points to achieve surprise, psychological shock, physicamentum, and moral dominance . . . to set up conditions for victory.[1]

Essentially, maneuver denotes the freedom of mobility to place one's forces at a chosen point of strategic, operational, or tactical importance. In simpler terms, maneuver is what allows Marshal Dillon to circle around and sneak in the back door while Festus covers the front entrance of the Long Branch Saloon.

Not surprisingly, history portrays maneuver as an essential requisite for successful ground warfare. Napoléon recognized this when he said; "Victory is to the armies which maneuver."[2] The rapid relative movement of Napoléon's forces enabled them to circumvent and/or envelope his enemies

so as to cut off their lines of communication and supply. Many natural and technological methods have been used to enhance the maneuver potential of an army. For example, the horse, elephant, railroad, truck, and tank are all tools of mobility.[3] With mobility, an army can reposition quickly, providing the combat coverage of a much larger force. Unfortunately, these efforts can be minimized because the advantages of maneuver are available to both belligerents in a conflict. Indeed, each commander can counter the maneuvers of his enemy by quickly repositioning his own forces. In fact, it was this phenomenon that led to the sequential move-countermove scenario which resulted in the rush to the North Sea and the long stagnant trenches of World War I. There is more involved in maneuverability, however, than just movement for its own sake.

Joint Publication 1-02, *Department of Defense Dictionary of Military and Associated Terms*, adds a twist by defining maneuver as the "employment of forces on the battlefield through movement in combination with *fire*, or *fire potential*, to achieve a position of advantage in respect to the enemy in order to accomplish the mission."[4] In other words, forces move to a position of advantage so as to kill the enemy with firepower. Conversely, they employ firepower to shield their maneuver to the desired location. Maneuver warfare, while an important component of tactical operations, will not succeed without firepower. "We maneuver to bring fires on the enemy. We bring fires on the enemy in order to maneuver."[5] They are inseparable and complementary components of combat. In short, maneuver is not an end in itself; neither is firepower. However, the trick is to employ precision fires in promoting one's own maneuverability while denying the same freedom of movement and offensive punch to the enemy.

Traditionally, the maneuver/fires combination is applied within the context of the tactical level of war. However, this paper suggests that we expand our horizons toward exploiting the mutual effects of maneuver and fires at the operational level of war. Indeed, we must consider ground maneuver at the campaign level and its accompanying theater-wide fires. Coincidentally, air power brings to the table an operational dimension of both maneuver and direct fires; air interdiction.

Air Interdiction

Joint Pub 1-02 defines interdiction as: "An action to divert, disrupt, delay or destroy the enemy's surface military potential before it can be used effectively against friendly forces."[6] Simply put, air interdiction is the application of air power to attack enemy personnel and resources before they engage in surface combat. In some circles, interdiction is identified almost exclusively as support to friendly ground forces by merely reducing the flow of men and materials to the enemy front lines. However, interdiction goes far beyond this limited scope—it directly strikes enemy land forces as well as their lines of

communication. In 1974, Maj Gen Leslie W. Bray referred to this aspect of interdiction as "counterforce."[7] He felt that improved technology gave air power the potential to "emerge as a significant and perhaps decisive factor for countering enemy land forces in the future."[8] Additionally, air interdiction exploits the "third dimension" of maneuver and combines it with its own direct firepower to conduct a literal vertical envelopment of the enemy. Indeed, this envelopment of the enemy is "as sure and decisive as if an army had been introduced behind him."[9]

Obviously, the intent is to hit the enemy as far away from friendly ground forces as practical. Consequently, in descending priority, interdiction's primary objectives are to

1. destroy enemy forces and their support before they can ever be used offensively against friendly forces.[10]
2. limit the military potential of engaged enemy forces to a level that is manageable by friendly forces.
3. Control the time of engagement to that most advantageous to friendly forces.[11]

The DOD definition of interdiction embodies three key aspects. The first describes the effect. One seeks to deny the use of military potential to the enemy. Interdiction can be an effective means for destroying the enemy's surface forces.[12] It is not necessary to totally destroy his forces to accomplish this mission. Often, it will suffice to merely delay the enemy in order to buy sufficient time for friendly forces to regroup or maneuver.

The second facet deals with the target set. Military potential includes troops, supplies, lines of communication, and command and control networks. Ideally, one prefers interdiction to completely prevent enemy forces from engaging friendly surface forces at all. However, failing that, enemy forces can be subsequently "rendered impotent by severing their lines of communication, isolating them from their command and control architecture, and denying them resupply."[13] Ground engagements, under some conditions, require considerable logistic support. Therefore, interdiction of those supplies severely impacts the combat capability of an enemy force.

Lastly, interdiction is associated with both time and location. Cutting off the enemy "before" he can effectively employ is the primary goal. Interdiction covers locations at all levels of war and therefore, its effects touch the entire theater of operations. By turning off the "tap" at its source or en route to the theater or battle front, the enemy becomes a strategic, operational, and/or tactical target. However, it is important to recognize that the farther back we interdict the enemy, the longer it will take for him to feel the consequences. On the other hand, the farther back we interdict, the more concentrated the enemy may be, thus providing more lucrative targets.

The attributes of air interdiction provide many advantages. Theoretically, effective interdiction denies the enemy the fundamental tenets of army operations; initiative, agility, depth, synchronization, and versatility,[14] while pre-

serving the same capability for friendly ground forces. Further, interdiction denies sanctuary to the enemy while diverting his resources and offensive potential to defensive reactions. As a result, the problems of defense are exacerbated because the enemy must disperse his antiaircraft defenses throughout his entire force. To provide defensive coverage for the full length of his communications, he is prevented from concentrating potential defensive firepower. Undoubtedly, air interdiction disrupts the enemy commander's concept of operations and control of forces. Nevertheless, there are also limitations to air interdiction.

The execution of effective interdiction is very scenario dependent. Indeed, there are conditions that determine the success or failure of interdiction operations. The joint publication on interdiction (3-03) describes one of these as follows:

> Results against an enemy with minimal logistic requirements, a simple force structure, and primitive logistic systems will differ from interdiction conducted against a highly mechanized, modern force possessing intensive logistic requirements. Interdiction is most appropriate when the enemy must move major forces and equipment rapidly. Interdiction conducted against enemy forces and logistics without regard to the operational situation may be largely ineffective.[15]

In short, this means that one's interdiction strategy must be tailored to the enemy's specific conditions. Further, the Office of Air Force History adds several more constraints.[16]

1. Intelligence: One needs adequate information on the enemy's disposition to select viable interdiction targets. Additionally, intelligence determines the feasibility of interdiction as it relates to the Joint Pub 3-03 scenario limitation described above.

2. Air Superiority: Interdiction requires sufficient access to enemy airspace to allow air attack of interdiction targets and to prevent enemy interdiction efforts.

3. Identifiability and Precision: To interdict, one must be able to detect, identify, and then hit the selected targets.

4. Concentration and Channelization: The more limited the enemy's transportation system, the more it is subject to interdiction. Channeling the enemy into chokepoints enhances interdiction by forcing concentration.

5. Steady Demand and Strained Capacity: Demand generated by the support of a large force engaged in surface warfare incurs a strain on the capacity of the enemy's lines of communication. Interdiction of these lines compounds the strain and restricts the capacity. However, unless the enemy has a continuous demand for resupply, interdiction is not likely to have the desired impact. Usually this demand stems from increased pressure on the enemy by friendly ground forces.

All of these factors play an active, dynamic role in determining the potential for decisive air interdiction. Nevertheless, which of them are required conditions for interdiction and which are solely contributory in nature? They break out as follows:

Required Conditions	*Contributing Conditions*
1. Intelligence	1. Concentration
2. Air Superiority	2. Channelization
3. Identifiability	3. Steady Demand
4. Precision	4. Strained Capacity

As we will see in the next chapter, without the required conditions, effective interdiction is not possible. It will become apparent that at least one or more of the contributing factors are also necessary for successful air interdiction operations. From the preceding descriptions of ground maneuver and air interdiction, one begins to visualize the inherent relationship between the two.

The Relationship

The true relationship between ground maneuver and air interdiction finds its roots in the writings of Sun Tzu. This ancient Chinese general planned and executed his campaigns using two distinct forces; the *cheng* (supported) force and the *ch'i* (supporting) force.[17] Interestingly, they were reciprocal, their effects being mutually interchangeable. Sun Tzu defined one as the fixing/distracting element and the other as the flanking/decision element. Their actions were fully synchronized and "interlocked as two rings" such that no one could "determine where one ends and other begins."[18] Their variations of employment were considered infinite as the supported element was often redirected into a supporting role and vice versa, depending upon combat conditions. Thus, Sun Tzu created a dilemma for his enemy by posing a double threat.

Similarly, the decisive mobility and firepower of land forces and air forces are mutually supporting and interchangeable. Just as maneuver and fires are fundamental principles of tactical warfare, ground maneuver and air interdiction can and should be synchronized so that each complements and reinforces the other at the operational level of war. It is this relationship in the context of a theater campaign that we focus our attention.

Synchronization of land and air forces is vital because, as with Sun Tzu's forces, it creates an unsolvable dilemma for the enemy. Basically, the dilemma is this:

> If the enemy attempts to counter surface maneuver (actual or potential) by massing or moving rapidly, he exposes himself to losses from air interdiction; if the enemy employs measures that reduce the losses caused by air interdiction, he will lose or reduce his ability to maneuver fast enough to counter the maneuver of friendly surface forces. Thus, regardless of the offensive or defensive action the enemy chooses to take, he faces defeat.[19]

By operating together, ground and air forces pose the double threat of a mutually supporting, deadly team. Air interdiction's ability to delay or stop the movement of enemy military forces enhances one's own ground mobility in seeking positional advantage. Additionally, interdicting the enemy supply

line limits his offensive and defensive fighting capability when and if he encounters friendly ground forces. Conversely, friendly ground maneuver forces the enemy to attempt a countermove, thus exposing him to air interdiction.

This cooperative relationship is not new to military thinking. In 1917 Winston Churchill wrote, "for our ground-air offensive to attain its full effect it is necessary that our ground offensive should be of a character to throw the greatest possible strain upon the enemy's communications."[20] In 1936 J. C. Slessor described the joint use of armored forces and aircraft to cut the enemy's lines of supply. He argued that the threat of an armored thrust into an enemy's rear would cause him to consolidate his supply depots and reserves so as to better protect them from ground assault. However, to protect his facilities and forces from air strikes, he would have to disperse them. Therefore, the moral

> is that these opposing tendencies should be deliberately exploited and the two arms, the air striking force and the armored force on the ground, should be used to play into each other's hands—the tanks by raiding the enemy's back areas must compel him to concentrate his maintenance and supply installations, and thus create excellent and vulnerable targets for the air force, and vice versa.[21]

There are additional dynamics which influence the relationship of ground maneuver and air interdiction. Ground and air forces both use mobility and firepower in defeating the enemy. Therefore, they are constrained by some of the same types of limitations in their employment; namely, terrain and the weather. These constraints affect the ability to move and identify possible targets. Ground maneuver can be severely inhibited by the natural contours of the terrain. Whether it be a mountainous, jungle, or desert environment, terrain has great impact on where and how fast a ground unit can maneuver. Moreover, it also determines the makeup of that force, as heavy mechanized forces are ill-suited for operations in jungle or mountainous regions. Weather further complicates the agenda of a ground fighting force by restricting visibility and imposing hostile climatic conditions. These environmental features "combine to restrict movement, observation, fields of fire, signal systems, battlefield surveillance, and target acquisition."[22] Air interdiction has historically been constrained by these same factors.[23]

As you recall from our preceding discussion on interdiction, we listed target identifiability, concentration, and channelization as some limiting conditions for interdiction. Ironically, since interdiction's targets are earth bound, the same constraints that affect them introduce added complexity when conducting interdiction. For example, ground movement in the jungle is hampered, but on the other hand the potential to be seen from the air decreases as well. Also, the terrain/weather can act as a conduit to concentrate and channelize a targeted enemy force, such as in a mountain pass. Therefore, finding, identifying, and hitting enemy ground targets is influenced by the very terrain and weather features which affect ground maneuver. So, the more the enemy maneuvers, the more exposed he becomes to air interdiction. To deny interdiction, he is forced to pass through complex terrain or use "concealment, camou-

flage, deception, and dispersal to make the (air)search more difficult."[24] Either way, ground maneuver is minimized.

Unfortunately, there has been a tendency to regard air interdiction merely as support for army ground maneuver.[25] Indeed, depending on the situation, that concept can be true. However, it is only half true. Such a perception adversely affects the orchestration and employment of a conceivably potent team. It prevents military planners from visualizing the possibilities of a truly joint air and ground strategy.[26] Undoubtedly, a theater campaign plan must be geared toward the capabilities of both the ground and air forces to achieve their synergistic effects. In fact, when we understand the coequal relationship between the two, there should be no stigma attached to the idea that a ground force strategy "may be designed to exploit the effects of air strategy. If the objectives and situation are such that, in order to be successful, air power must be exploited to the fullest, then the ground forces must support the air forces."[27]

Here, we must take time to reiterate the importance of air superiority. Remember, this relationship cuts both ways across adversarial boundaries. Therefore, it is essential that friendly air forces prevent the employment of similar enemy interdiction operations. Hence, the traditional priority of air forces is to seek superiority over the enemy as its first concern.

Now that we better comprehend the key relationship between ground maneuver and air interdiction, let's turn our attention to some supporting historical evidence.

Notes

1. Field Manual (FM) 100-5, "Operations," preliminary draft, Headquarters, Department of the Army, 21 August 1992, 2–12.

2. Le Comte de Dervieu, *The Transformations of War*, cited in J. F. C. Fuller, *The Conduct of War, 1789–1961* (New York: Minerva Press, 1968), 50.

3. Notice all these examples are surface-bound conveyances. The airplane later becomes the consummate mobility tool, but we'll address this in the discussion on air interdiction.

4. Joint Publication 1-02, *Department of Defense Dictionary of Military and Assosciated Terms*, Washington, D.C., 1 December 1989, 218.

5. Col James R. McDonough, "Building the New FM 100-5: Process and Product," *Military Review*, October 1991, 10.

6. Joint Pub 1-02, 187.

7. Robert Frank Futrell, *Ideas, Concepts, Doctrine Basic Thinking in the United States Air Force 1961–1984* (Air University Press, Maxwell AFB, Ala., December 1989), 546–48. Price Bingham refers to the same concept as "counter army" in his article, "Air Interdiction and the Need for Doctrinal Change," *Strategic Review* 20, Fall 1992, 31.

8. Futrell, 546–58.

9. Otto P. Weyland, "The Air Campaign in Korea," *Air University Quarterly Review* 6, no. 3 (Fall 1953).

10. Traditionally, "friendly forces" are considered to be friendly "ground" forces. However, interdicton provides significant benefits to other friendly forces as well. For example, interdicton to prevent the enemy from estblishing air and naval bases used in gaining air/sea superiority. Ultimately, air interdiction serves the JFC objectives. Doing so may or may not involve friendly ground forces.

11. Lt Col Terry New, AF/XOXWD, Interdiction Staff Study, June 1992.

12. Air Force Manual (AFM) 1-1, *Basic Aerospace Doctrine of the United States Air Force*, vol. 2, Washington, D.C., March 1992.

13. Ibid., Annex A, 4.

14. FM 100-5, 2-7.

15. Joint Pub 3-03, *Doctrine for Joint Interdiction Operations*, Washington, D.C., 11 December 1990, II-1.

16. Eduard Mark, "Case Studies in Air Interdiction," draft, Office of Air Force History.

17. Samuel B. Griffith, Sun Tzu, *The Art of War* (Oxford University Press), 1963.

18. Ibid., 92.

19. Price T. Bingham, "Ground Maneuver and Air Interdiction in the Operational Art" (Maxwell AFB, Ala., Air University Press, September 1989). AFM 1-1, 164.

20. Quoted in J. C. Slessor, *Air Power and Armies* (London: Oxford University Press, 1936), 212. This entire book is excellent reading on the mutual use of air and ground forces in a campaign. Both Slessor and Churchill were indeed visionaries!

21. Ibid., 209.

22. FM 100-5, 4-5. Discussion on the physical dimensions of land combat.

23. Modern technology overcomes many of these limitations for air attack. Radar, night vision, and smart weapon technologies combined to minimize constraints, especially due to weather.

24. Bingham, 3.

25. FM 100-5,5 May 1986, 25. The August 1991 preliminary draft of FM 100-5 is somewhat more open minded.

26. Weyland.

27. Ibid., 17–18.

Chapter 3

Historical Precedents

We should carefully study the lessons which were learned in past wars at the cost of blood and which have been bequeathed to us. . . . We must put conclusions thus reached to the test of our own experiences and absorb what is useful, eject what is useless and add what is specifically our own.

—Mao Tse-tung
On the Protracted War

By using history as a tutor we gain incredible insight into the feasibility of melding ground maneuver and air interdiction. Indeed, excellent examples emerge from all the major conflicts which involved air power; from World War I to Operation Desert Storm. I shall illustrate noteworthy examples from each of these wars and attempt to tie them to the conditions for effective interdiction mentioned in chapter 1. Interestingly, we shall see that successes as well as failures are directly attributable to the fulfillment, or lack thereof, of those conditions.

World War I

Perhaps one of the earliest examples available on the integration of effective air interdiction and ground maneuver comes from the British experience in Palestine during WWI. In September 1918, Gen E. H. H. Allenby orchestrated the virtual annihilation of the German air force and the Turkish Seventh and Eighth Armies by using a combination of air and ground operations. After a hard fought battle for air control, the Royal Air Force (RAF) won a commanding victory over German air units supporting the Turkish armies. Subsequently, under the protective umbrella of air supremacy and supporting air interdiction, Allenby secretly maneuvered his ground forces to an attack position totally undetected by the Turkish army.

> The preparations for the attack included the most elaborate measures to deceive the enemy: empty camps, rows of dummy horse-lines and artificially raised clouds of dust at the Jordan valley end distracted the Turks' attention from the stealthy concentration of the British and Australian mounted and dismounted divisions at the Mediterranean end of the line.[1]

After their deceptive lateral shift, General Allenby's forces staged an offensive breakthrough of the Turkish lines that was to end the campaign in the

Middle East. Incidentally, it was the only significant frontal penetration accomplished by the British in the entire war.[2] Not only did air power permit the strategic surprise of the ground offensive, but in turn, the ground attack enhanced subsequent air interdiction. In the ensuing Turkish retreat, British ground forces enabled the "air striking force to make perhaps the most decisive contribution it has ever made to the issue of a battle by direct action against an enemy army."[3] T. E. Lawrence's personal description of the results is worthy of quotation:

> But the climax of air attack, and the holocaust of the miserable Turks, fell in the valley by which Esdraelon drained to the Jordan by Beisan. The modern motor road, the only way of escape for the Turkish divisions, was scalloped between cliff and precipice in a murderous defile. For four hours our aeroplanes replaced one another in series above the doomed columns: nine tons of small bombs or grenades and fifty thousand rounds . . . rained upon them. When the smoke had cleared it was seen that the organization of the enemy had melted away. They were a dispersed horde of trembling individuals, hiding for their lives in every fold of the vast hills. Nor did their commanders ever rally them again. When our cavalry entered the silent valley the next day they could count ninety guns, fifty lorries, and nearly a thousand carts abandoned with all their belongings. The R.A.F. lost four killed. The Turks lost a corps.[4]

This is indeed a remarkable example of synchronized surface maneuver and air operations. The mutual support shared between both mediums provided the recipe for victory. With air power offering protective cover and a means of enemy attrition, friendly ground forces exploited their opportunity for maneuver and attained a position of offensive advantage. In attempting to maneuver away from the British attack, the Turks were introduced to the full force of the maneuver/interdiction dilemma. If they failed to retreat they would be enveloped by ground forces. By choosing to move, they were exposed to the vertical envelopment and firepower of air forces. Therefore, the outcome was predictable as all the prerequisite and contributory conditions for successful interdiction were present.[5] Of special note, is the concentration and channelization of the Turkish army along a single route of retreat.

World War II

The campaign in Italy during the spring of 1944 offers an insightful contrast between what is achieved by air interdiction alone as opposed to a combined air and ground effort.

A stalemate had set in along the fortified German Gustav Line in south-central Italy. Both sides were exhausted after six months of failed Allied ground assaults so the Allied ground forces chose to "stand down for rest and regrouping."[6] However, in the interim, Allied airmen proposed Operation Strangle, a unilateral air interdiction operation. Its "purpose was to interdict the flow of supplies to the German armies in Italy through the systematic destruction of the enemy's rail and road network."[7] The results were reveal-

ing. The Allies "cut every railroad in at least two places"[8] causing massive reductions in German supplies. Nevertheless, in the absence of an Allied ground attack, the Germans were not consuming vast quantities of supplies. Exercising initiative and using the night, the Germans managed to transport sufficient supplies via truck on the strained road system to maintain a static status quo. Thus, the Germans did not withdraw. Failing with air power alone, the Allies turned to a better advised combined air and ground offensive code named Operation Diadem.[9] Thereafter, the dual effects of ground and air attack complicated the German position considerably.

> Attacks on vital communication links . . . severely curtailed the tactical mobility of the German armies, imposed costly delays on the movement of troops and supplies, played havoc with the enemy's plans and timetables, forced the diversion of scarce military personnel to a vast repair effort, and created . . . disorganization in the combat area.[10]

The problem facing the German commanders was essentially this: How do we rapidly shift our ground forces laterally along the front to counter Allied ground attacks while facing the brunt of Allied air superiority and interdiction? The answer? We can't. The Allied interdiction attacks were so effective that it was often necessary for units to move on foot, with their equipment carried in horse-drawn carts. "Constant air attack made daytime movement so costly that, except in cases of emergency, traffic was confined to the hours of darkness."[11]

The Germans found themselves in a drastic situation. A few excerpts from the War Diary of the German Tenth Army tell the story.

> 17 May: Our side is handicapped because [we are] unable to counter local break-ins or breakthroughs with reserves or troop redeployment; enemy air dominates the battlefield and attacks every movement, day and night.
>
> 18 May: Constant, unremitting Allied fighter-bomber activity makes movement or troop deployment almost impossible, while enemy can move his reserves freely.
>
> 24 May: Holding a line had become impossible. The withdrawal has begun.[12]

The combination of Allied ground attack and air interdiction very quickly changed a withdrawal into a rout.[13] Indeed, the unsolvable dilemma had resurfaced. After the war, Gen Frido von Senger, the XIV Panzer Corps commander summed it up this way:

> The enemy's mastery of the air space immediately behind the front under attack was a major source of worry to the defender, for it prevented all daylight movements, especially the bringing up of reserves. We were accustomed to making all necessary movements by night, but in the event of a real breakthrough this was not good enough. That was what actually occurred in the May breakthrough. In a battle of movement a commander who can only make the tactically essential move by night resembles a chess player who for three of his opponent's moves has the right to only one.[14]

Similar examples of complementary air and ground action abound in the history of World War II.[15] However, even then, airmen ended the war with a misunderstanding about the combined relationship between the two forces. Unfortunately, they failed to see the need for simultaneous ground maneuver/attack, advocating instead the solo use of air power.[16] Similarly, army leaders cited air interdiction as just another support for the ground war. Unfortunately, Operation Strangle did not adequately teach the desired lessons. Consequently, history repeated itself in Korea with yet another Operation Strangle.

Korean War

In May 1951, the United Nations air forces began the Korean version of Operation Strangle. Bearing the same name as its Italian predecessor, its intent was to interdict communist highway and rail communications leading to the front lines. Initially, while combined with the Eighth Army's offensive, interdiction was successful. However, as the army slackened its attack northward, Operation Strangle also lost momentum.[17]

The ground war settled into a conflict of very little movement. Nevertheless, air interdiction efforts were continued in hopes of bringing the enemy to the negotiating table. Almost immediately, Gen Matthew B. Ridgway noted that interdiction did not prevent the enemy from moving his forces or resupplying their needs. Although the supply system was considerably strained, there remained sufficient means for the maintenance of a static defensive front. The enemy made good use of darkness, poor weather, concealment, and dispersal to shield their movements from air attack. Indeed, a lack of ground pressure gave the enemy the luxury of time to slowly reinforce his troops. Therefore, even after ten months of continual rail interdiction the communists were still not compelled to accept armistice terms.[18] Back in Washington D.C., Gen Lemuel C. Shepherd, the commandant of the Marine Corps, recognized this reality and publicly stated that "Operation Strangle. . . was a fizzle."[19] The conditions of effective air interdiction had not been met. However, previously in the war they had been.

The Korean experience also provided opportunities to see the validation of the maneuver/interdiction relationship. In each case the conditions for success were fully evident. For example, the North Korean invasion, the subsequent Pusan breakout, and the Chinese offensive and initial retreat were all characterized by rapidly moving ground action. Protected by UN air superiority, friendly ground maneuver remained unrestricted. On the other hand, communist ground maneuver attracted devastation from air attack as interdiction flourished.[20]

The North Korean offensive of June 1950 began as an overwhelming success. United Nations' forces began a frantic retreat that was only exceeded in speed during the subsequent Chinese invasion in November. Communist

forces rapidly poured southward exposing themselves to severe air attack. As protection, the Communists reduced their losses by slowing their rate of advance, choosing instead to travel at night, dispersing and concealing themselves during daylight hours. This delay gave UN ground forces time to reinforce along the Pusan perimeter. Furthermore, the North Korean forces stretched themselves to an offensive culminating point. "It became readily apparent that the air force had done its job well. The North Koreans around the Pusan perimeter were nothing more than a skeleton . . . depleted by direct destruction and starved by the interdiction program."[21] For this reason, the UN counterattacks in the south and at Inchon met with little organized resistance. Again, the enemy retreat resulted in a rout.

> The North Koreans had to move quickly to avoid envelopment and destruction by the pursuing Eighth Army; however, speed required daylight movement, making it easier for aircrews performing air interdiction to find and attack North Korean units. Forced to choose between destruction by air or by ground forces, many North Korean units broke up or surrendered, allowing United Nations ground forces to advance deep into North Korea.[22]

As UN forces approached the Yalu River, a tragic surprise awaited. The Chinese invaded and the entire yo-yo process started all over again. Fortunately, the ground/air dilemma eventually took effect on the advancing Chinese and the tides were turned to favor the UN forces. Interestingly, it was only when the UN forces throttled back their pursuit of the retiring Chinese that both sides settled into the positional stalemate which spawned Operation Strangle. Perhaps we failed to learn the proper lessons from history. Vietnam would provide yet another lesson that we had previously failed to learn.

Vietnam War

If you recall, the first requirement for effective air interdiction is accurate intelligence about the enemy. We determined in chapter 1 that an enemy with minimal logistic needs and a primitive force structure would be less susceptible to air interdiction than a highly mechanized one.[23] That difficult lesson came slowly; a direct result of our experience in Vietnam. However, it was not until years later that we realized the truth of that lesson. A close analysis of two interdiction efforts, Rolling Thunder/Commando Hunt and Linebacker I, brought it to light. The first was considered a failure, while the second a success. [24]

In his book, *The Limits of Air Power*, Mark Clodfelter makes a strong case that the reason for the failure of Rolling Thunder/Commando Hunt was its mismatch to the communist strategy. Specifically, it was an aggressive interdiction operation directed against the North's support for a guerrilla war in the South. Although a great deal of damage was inflicted on northern lines of supply, it had no appreciable effect on the nearly self-sustaining southern war. Indeed, the needs of a stagnant unconventional conflict were minimal at

best. As a result, Rolling Thunder/Commando Hunt failed to coerce a change in enemy behavior. However, as the North Vietnamese raised the ante toward a fast moving full scale conventional assault on the South during the "Easter Offensive," Linebacker I achieved decisive results. The North Vietnamese were forced to slow their advance due to air interdiction and thereby gave South Vietnamese forces a chance to consolidate an effective defense. The opposing strategies became more evenly matched as the increased conventional intensity enhanced the exposure of the enemy's military forces. It was not until 1975, after US withdrawal from Vietnam, that the North successfully invaded the South. This time US air power was not there to hinder it.[25]

Desert Storm

Desert Storm offers us two significant examples illustrating the combined integration of ground maneuver and air interdiction; the Battle of Al-Khafji and the "left hook" Coalition ground invasion. I will cover the first here, but hold the second for discussion in chapter 5.

During the night of 29–30 January 1991, several battalion-sized Iraqi units attacked Coalition forces in and around the border town of Al-Khafji. Catching Coalition forces by surprise, the Iraqis occupied the town. However, the Coalition ground forces quickly counterattacked, and with the aide of Coalition close air support (CAS), regained possession of Khafji two days later.[26] But, this is only part of the story. The night before the recapture of Khafji, farther to the north, Saddam amassed over two divisions of armor and mechanized infantry to join the fight. Fortunately, because of technological advancements, the night no longer provided its historical sanctuary. Within minutes, the Joint Surveillance and Target Attack Radar System (JSTARS) discovered the Iraqi force and began targeting Coalition air power against it. The conditions were ripe for effective air interdiction. Using precision guided weapons, airstrikes attacked throughout the night and decimated the two divisions. They never reached their desired ground battle. By morning, they were retreating in total disarray.

> The Battle of Al-Khafji was important for the Coalition. . . . The Pan-Arab forces had defeated the Iraqis in a pitched battle, launching a difficult night counterattack against enemy armor. The destruction inflicted on two Iraqi divisions by Coalition aircraft seemed to presage what awaited any Iraqi force that left dug-in defenses to conduct a mobile operation. The strategic significance: Any Iraqi unit that moved probably would be struck from the air. Any unit that remained in place eventually would be struck either from the air, or by the impending ground assault.[27]

Khafji was the only significant Iraqi offensive action of the war. The objective for it is not exactly known. The accepted theory however, is that Saddam Hussein sought to probe the Coalition forces and provoke a massive ground battle. By doing so, he hoped to inflict severe casualties upon Coalition forces; precisely what the US "body-bag phobyists" feared most. As it turned out, he

did manage to provoke ground action. Nevertheless, in the end, the massive casualties were his. For, when he tried to gear up for the "Mother of all Battles," he met the " Mother of all Dilemmas."

Summary

Mao counsels us to carefully study the lessons of past wars and absorb what is useful. When we do, these lessons become as new arrows placed in our quiver for future wars. The preceding historical examples of the synergistic relationship between ground maneuver and air interdiction should provide golden lessons to embellish our war-fighting doctrine. Unfortunately, in the past these lessons were not fully comprehended. It appears as though the appropriate application of the air/ground relationship materialized more by chance than by design. Let's now direct our attention to our current military doctrine and see if we've matured enough to heed Mao's advice.

Notes

1. J. C. Slessor, *Air Power and Armies* (London: Oxford University Press, 1936, 12. See also Col A. P. Wavell, *The Palestine Campaigns* (London: Constable, 1928).
2. Ibid.
3. Ibid.
4. T. E. Lawrence, *Revolt in the Desert* (New York: George H. Doran Co., 1927), 392. There is a striking resemblance here to the deceptive end run of US ground forces in Desert Storm and the annihilation of the Iraqi army in Kuwait by air power.
5. Ibid., chap. 1, 6.
6. F. M. Sallagar, "Operation 'Strangle' (Italy, Spring 1944): A Case Study of Tactical Air Interdiction" (Santa Monica, Calif: Rand Corp., February 1972), 15.
7. Ibid.
8. *USAF Tactical Operations: World War II and Korean War* (Washington, D.C.: USAF Historical Division, Liaison Office, 1962), 30.
9. Eduard Mark, "Case Studies in Air Interdiction," draft, Office of Air Force History.
10. Sallagar, 60.
11. Ibid., 65.
12. Quoted in Sallagar, 68. "War Diary of the Tenth Army," daily diary kept by the Operations Branch, Headquarters Tenth Army, 1 April–31 May 1944. US National Archives, microfilm no. T-312, Roll 91.
13. G. A. Shepperd, *The Italian Campaign 1943–45* (New York: Praeger, 11968, 263–84.
14. Frido von Senger und Etterlin, *Neither Fear Nor Hope* (New York: E. P. Dutton, 1964), 224. Cited by Sallagar, 66.
15. See Price T. Bingham's, "Ground Maneuver and Air Interdiction in the Operaional Art" (Maxwell AFB, Ala.: Air University Press, September 1989).
16. Ibid.
17. Robert Frank Futrell, *The United States Air Foce in Korea 1950–1953*, Office of Air Force History (Washington, D.C., 1983), 433–74.
18. Ibid.
19. Cited in Futrell. *U.S. News & World Report*, 12 December 1952, 25.
20. See Bingham. See also Otto P. Weyland, "The Air Campaign in Korea, *Air University Quarterly Review* 6, no. 3 (Fall 1953).

21. Weyland, 7.
22. Bingham, 9.
23. Refer to chap. 1's discussion of Joint Pub 3-03.
24. Mark Clodfelter, *The Limits of Air Power* (New York: Free Press, 1989).
25. Bingham, 10.
26. Department of Defense, *Conduct of the Persian Gulf War: Final Report to Congress*, April 1992, 130–33, 510–12.
27. Ibid., 133.

Chapter 4

Current Military Doctrine

I am tempted indeed to declare dogmatically that whatever doctrine the Armed Forces are working on now, they have it wrong. I am also tempted to declare that it does not matter that they have got it wrong. What does matter is their capacity to get it right quickly when the moment arrives.

—Michael Howard
Journal of the Royal United Services for Defense Studies

Military doctrine articulates the embodiment of accepted theory on how to best employ military force. It serves as a "guide for the exercise of professional judgment," not as a "set of rules to be followed blindly."[1] To remain valid, doctrine must be ever evolving, adapting to the changes of technology, threat, and experience. Unfortunately, the historical examples of the last chapter indicate that military doctrine is rather slow to change; especially in adopting the lessons of past experience. To prevent crystallization through dogma, we must expedite this evolutionary pace.

This chapter illustrates that we have made some doctrinal progress concerning the synchronization of air interdiction and ground maneuver. Nevertheless, there is still much room for improvement. First, let's take a brief look at US Army and Air Force doctrine on the subject. Then, we'll dissect the most current applicable joint doctrine.[2]

Army Doctrine

In chapter 1 we alluded to a shift in Army doctrine concerning the joint use of ground maneuver and air interdiction. In the 1986 (pre–Desert Storm) version of FM 100-5, air interdiction was referred to simply as support for ground maneuver.[3] In fact, other than airbase defense, there was little guidance on the use of ground operations which might enhance air interdiction. Categorized as a deep operation, interdiction was relegated to the supportive role of shaping the future battlefield where "decisive" close ground operations would take place. Army doctrine stated: "Close operations bear the ultimate burden of victory or defeat. The measure of success of deep and rear operations is their eventual impact on close operations."[4] This doctrine stemmed from the belief that air operations could not decisively "destroy enemy forces in depth," only delay or disrupt their maneuver potential and arrival at the front.[5]

However, in August 1992 (post–Desert Storm) the Army published the preliminary draft of a new FM 100-5. Fortunately, this new document contains doctrinal changes with respect to air power and its combined use with ground forces. To begin, it makes a strong statement that the Army does "not conduct independent operations but executes (its) missions within an integrated relationship with other services."[6] Next, it states that without air superiority, the tactical flexibility of ground forces is not possible. Finally, it addresses the attack role of air power by saying: "air forces are better used to attack in depth those targets whose destruction, disruption, or delay will deny the enemy the time and space to employ forces effectively."[7]

At first glance this appears very similar to previous views about air interdiction. However, new doctrine also adds that deep operations are no longer conducted as an "activity to shape or effect the close battle but one that simultaneously attacks and destroys the enemy throughout the battlefield."[8] The Army recognizes that the precision and firepower of air attack can devastate enemy forces at great depth and with more consistency than ever before. Thus, the lethality of air interdiction is credited with the potential to directly impact the theater campaign through enemy force destruction. To continue, FM 100-5 states: "the effect of these (air) attacks is greatest when the enemy is engaged in a highly mobile, maneuver scheme of operation dependent on urgent resupply of combat reserves and consumables."[9] Therefore, both air and ground fire and maneuver must be combined to defeat the enemy.[10]

Of special note to airmen, the new manual also makes the statement that a commander may use close operations to set the terms for decisive deep operations.[11] Could that possibly mean using land maneuver to enhance air interdiction?

USAF Doctrine

Air Force doctrine leaves no doubt as to the mutually supportive relationship between ground maneuver and air interdiction. The foundation of this relationship and the resultant "dilemma" inflicted on the enemy is taken directly out of official USAF doctrine. As we pointed out in chapter 2:

> Actual or threatened surface maneuver can force an enemy to respond by attempting rapid movements or resupply. These responses can provide excellent and vulnerable targets for interdiction efforts, creating an agonizing dilemma for the enemy. If the enemy attempts to counter the surface maneuver, his forces will be exposed to unacceptable losses from interdiction; if the enemy employs measures to reduce such losses, his forces will not be able to counter the surface maneuver. Gaining maximum advantage from the enemy's dilemma depends on the ability of friendly surface forces to exploit the enemy's delay and disruption.[12]

Although Army and Air Force doctrines seem to agree on this concept, at least officially, there is still considerable conflict over "who" should control deep battle synchronization. In short, the Army wants to direct interdiction efforts within their battle space (Area of Responsibility/AOR), while USAF

doctrine demands centralized control over all interdiction operations. In the end, the services compromise as joint doctrine plays referee.

Joint Doctrine

On 23 November 1992, Gen Colin Powell, chairman of the Joint Chiefs of Staff, issued a document entitled, "A Doctrinal Statement of Selected Joint Operational Concepts."[13] Its purpose is to provide guidance concerning joint war fighting to supplement Joint Pub 1, *Joint Warfare of the US Armed Forces*, and act as an authoritative baseline for developing or revising all other joint publications.[14] (Especially the rewrite of Joint Pub 3-0, *Doctrine for Unified and Joint Operations*.) Among its topics is a discussion on synchronizing maneuver and interdiction. Additionally, it gives guidance on the command and control of contributing forces. Specifically, it lays out the appropriate supported/supporting relationships between ground and air forces under the operational direction of a Joint Force Commander (JFC). This direction attempts to answer the individual services' question over "who" controls the synchronization of the deep battle.

The remainder of this chapter will concentrate on the salient points of the chairman's guidance. First, we'll look at the document's references to the synergistic combination of land and air forces. Then, we'll review the designated command relationships between the two forces.

Maneuver and Interdiction

The chairman's guidance is explicit about the synchronized use of interdiction and maneuver by referring to it as "one of the most dynamic concepts available to the joint forces . . . in optimizing leverage at the operational level" of war.[15] Further, specific reference is given to the agonizing dilemma incurred by the enemy as he attempts to counter the double threat of interdiction and ground maneuver. However, if interdiction and maneuver are to be considered as dual operations, how does one determine the appropriate mix when fighting an enemy? The answer:

> Joint Force Commanders vary the emphasis upon interdiction operations and surface maneuvers depending on the strategic and operational situation confronting them.[16] JFCs may choose to employ interdiction as a principal means to achieve the intended objective (with other components supporting the component leading the interdiction efforts). Where maneuver is part of the JFC's concept, the JFC may synchronize that maneuver and interdiction. Indeed, JFCs may employ a scheme of maneuver that enhances interdiction operations or vice versa. Moreover, all commanders should consider how their capabilities and operations can complement interdiction in achieving campaign objectives. These operations may include actions such as deception operations, withdrawals, lateral repositioning, and flanking movements that are likely to cause the enemy to maneuver large surface forces in such a manner as to make them better targets for interdiction. Likewise, interdiction operations must be planned to conform to the JFC's scheme of maneuver during the campaign. The JFC must properly integrate maneuver and interdiction operations to place the enemy in the opera-

> tional dilemma of either defending from disadvantageous positions or exposing forces of interdiction strikes during attempted repositioning.[17]

The concept of air/ground synchronization is very well articulated in the above quotation. As stated, the responsibility for its synergistic application falls squarely on the shoulders of the JFC. In the process, the JFC must carefully balance the specific service doctrinal issues that may come into contention. Namely, the desires of ground forces to dictate the conditions of their maneuver, and the air commander's stated undesirability of fragmenting theater air assets.

Previous to this document, the components of the Joint Force relied on mutual cooperation and coordination, either directly or through the JFC, to work out conflicts of interest. This doctrinal guidance seeks to overcome that problem by adopting the use of complementary supported and supporting relationships among the component commanders.

Command Relationships

Joint Force Commanders build subordinate "command relationships to facilitate the conduct of missions consistent with their . . . campaign."[18] In organizing a joint force, the JFC chooses between a Service component or Functional component command structure. However, usually when two or more Services within a joint force operate in the same dimension or medium, the JFC organizes his command structure via functional components. The two component commanders which carry out the JFC's orchestration of ground maneuver and air interdiction are the Joint Forces Land Component Commander (JFLCC) and the Joint Forces Air Component Commander (JFACC). The authority, responsibility, and mission of both of these commanders is situationally defined by the JFC.

The JFLCC plans and executes land operations as directed by the JFC. He is usually the Service commander with the preponderance of ground forces in theater possessing an adequate means to exercise command and control of all ground forces.[19] Likewise, the JFACC is the Service commander with the preponderance of air assets in-theater with adequate control means to direct air operations. The JFACC normally has responsibility to execute the entire theater air interdiction effort, although he has other missions as well.[20]

In executing their responsibilities, it is doctrinally important to remember that component commanders permit the Service forces under their direction to function primarily as they were designed.[21] The intent here is to preserve the tactical and operational integrity of the Service organizations, while meeting the needs of the JFC.[22]

Once the JFC establishes his command structure, he dictates the conditions upon which to form the component supported and supporting relationships. By establishing flexible relationships between components, the JFC better adapts the organization of his forces to situational requirements. Moreover, he can appropriately integrate component operations in time, space, and purpose so as to impose the air/ground dilemma upon the enemy.

The extent of the supported commander's authority, and the supporting commander's responsibility is explained in Joint Pub 0-2.

> Unless limited by the establishing directive (from the JFC), the commander of the supported force will have the authority to exercise general direction of the supporting effort. General direction includes the designation of targets or objectives, timing, and duration of the supporting action and other instructions necessary for coordination and efficiency. . . . Normally, the supporting commander will be permitted to prescribe the tactics, methods, communications, and procedures to be employed by elements of the supporting force. . . . The supporting commander has the responsibility to ascertain the needs of the supported force and take such action to fulfill them as is within existing capabilities, consistent with priorities and requirements of other assigned tasks.[23]

To facilitate these operations, the JFC may establish geographical boundaries to coordinate the various maneuver and fire support measures between supported and supporting forces. These boundaries are designed to maximize the deconfliction of operations and to designate primary areas of component responsibility. Within his boundaries, a component commander is the supported commander for all operations that take place there. Additionally, the supported commander has responsibility to "position and adjust those fire support coordination measures consistent with the operational situation and in consultation with superior, subordinate, and supporting . . . commanders."[24] For example, the JFLCC may designate a Fire Support Coordination Line (FSCL).

The FSCL is established to coordinate the fires that are not under the direct control of the land commander, but which impact in close proximity to friendly ground forces. Short of the FSCL, all fires are "controlled by the land force commander."[25] Obviously, this serves to protect friendly forces from potential fratricide. However, it also enables subordinate ground forces and other components to employ fires with minimal deconfliction in areas beyond the FSCL. Indeed, it is the control of this area outside the FSCL that comes into question with new joint doctrine. The solution lies with the JFC.

Based on his concept of operations, the JFC determines whether or not a ground maneuver scenario is appropriate. When ground maneuver is not foreseen, the supported/supporting relationship of the land and air components remains as in the nonboundary scenario depicted in Figure 1.[26] This scenario illustrates the traditional relationship between land and air commanders. Inside the FSCL, the land commander is the supported commander. The JFACC coordinates the application of air power, but within this area, the

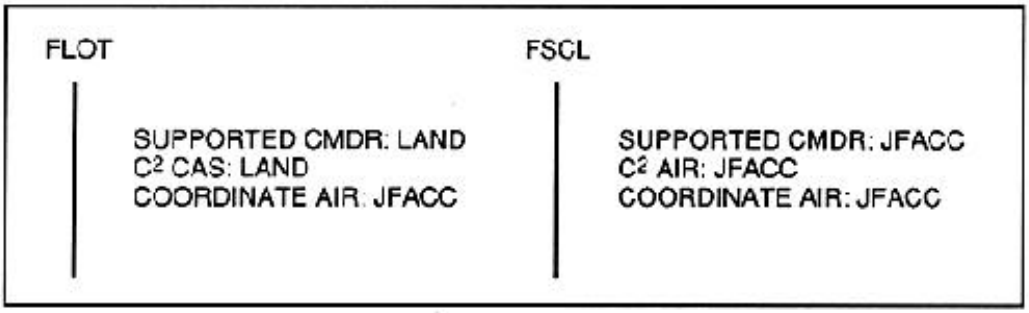

Figure 1. Nonboundary Scenario

direct command and control of CAS assets is directed by the land commander. Outside the FSCL the JFACC becomes the supported commander in directing theater air interdiction operations.

Conversely, when the JFC visualizes a ground maneuver scheme, he extends the supported boundaries of the JFLCC. The sizes, shapes, and positioning of these land boundaries are established based on the JFC's proposed campaign plan and the JFLCC's requirements "for depth to maneuver rapidly and to fight at extended ranges."[27] Here, the JFLCC is the supported commander, even beyond the FSCL. Figure 2 depicts the placement and relationship of component boundaries in a maneuver boundary scenario.[28]

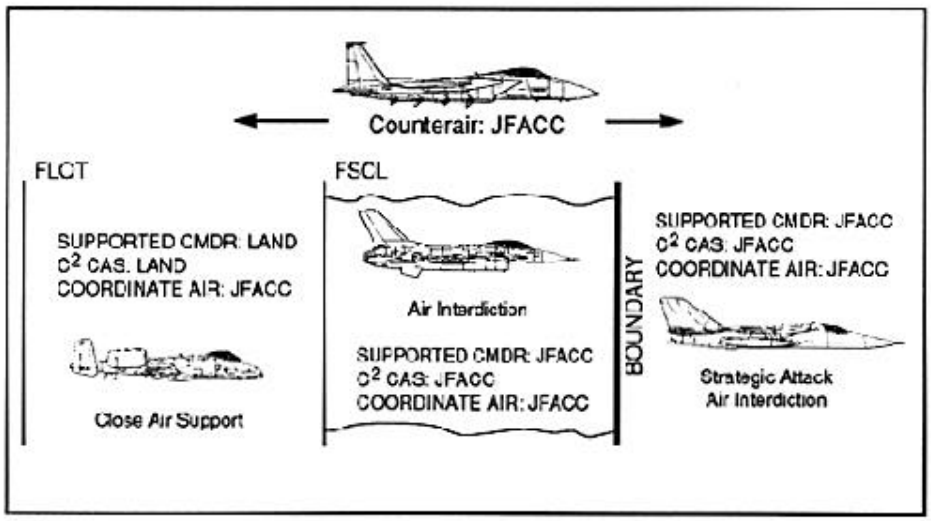

Figure 2. Boundary Scenario

Of note, the chairman's doctrinal statement does not provide guidance on how or when the components transfer the "supported baton" between a non-boundary and a boundary scenario and vice versa. These transition problems are left to the discretion of the JFC.

Figure 2 portrays the component relationships, but it is also important to understand how air interdiction is coordinated within the boundary scenarios. Both inside and out of the land boundaries, air interdiction is prioritized by the JFC and reflected in his air apportionment decision. As the supported commander for the theater-wide interdiction effort, the JFACC uses these priorities to plan and execute all air interdiction operations. However, as depicted above, the JFLCC is responsible for the synchronization of air interdiction and maneuver within his boundaries. The reason given is that interdiction with a near-term effect on ground maneuver should support the scheme of maneuver. Therefore, the JFLCC influences the supporting interdiction operations by directing target priority, effects, and timing of interdiction operations.[29] However, he does not control the supporting air assets

executing missions within his boundaries (see fig. 3).[30] The JFACC retains that responsibility.

Therefore, the JFLCC must work closely with the JFACC to orchestrate his desired objectives. Unfortunately, this is precisely where breakdowns in communication have occurred in the past between component commanders.[31]

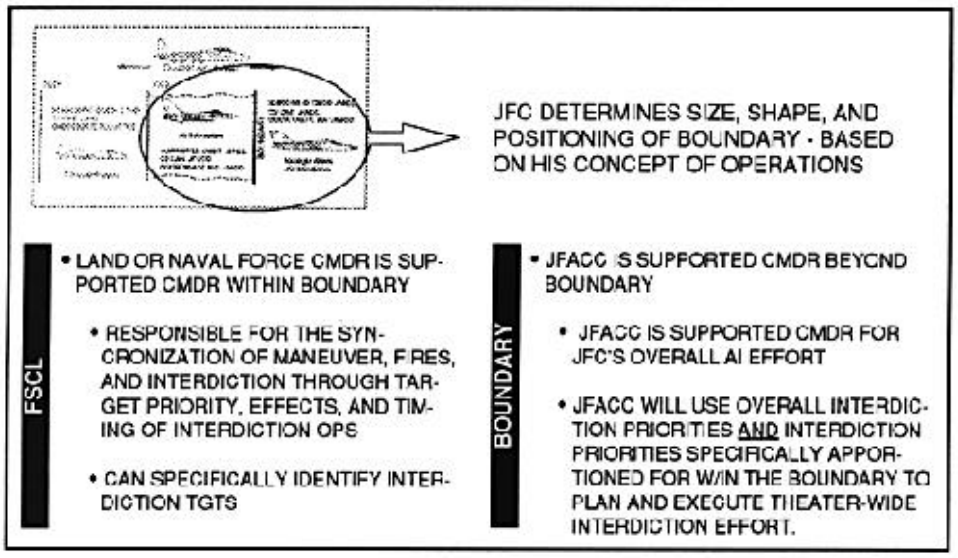

Figure 3. JFC Determines Size, Shape, and Positioning of Boundary

Specifically, the JFLCC identifies and relays proposed air interdiction targets within his boundaries, either individually or by category, that he feels may affect the planned scheme of maneuver. This includes key areas that he does *not* want targeted, such as enemy transportation nodes he wants preserved for future friendly use. Further, the JFLCC communicates how these selected targets fit into his maneuver plan both geographically and/or by their desired supportive effects. Clearly, he must state how interdiction will enable or enhance his ground maneuver and what he wants to accomplish with air interdiction. Only when the JFACC understands the land component's intent can he plan and execute air interdiction operations to support both the JFLCC mission and the JFC's overall campaign.

However, this only responds to one side of the synergistic air/ground relationship. There is no corresponding guidance given concerning the use of maneuver boundaries to promote air interdiction. Unfortunately, current joint doctrine breaks down on this issue.

Summary

Current Service and joint military doctrine describes the synergistic relationship between ground maneuver and air interdiction. Additionally, it seeks

to outline the command relationships between the contributing components. However, specific guidelines for the transition between supported roles remain rather nebulous and will require considerable compromise between component commanders if they are to function effectively.

When ground maneuver is deemed necessary, the JFC assigns maneuver boundaries to the JFLCC who serves as the orchestrating agent. However, the chairman's new doctrinal statement only covers half of the equation. While there is considerable attention paid to the use of interdiction as an enabler of ground maneuver, the opposite is not true. There is no corresponding guidance indicating who orchestrates ground maneuver in support of air interdiction. Common sense dictates it should be the JFACC, but doesn't this conflict with General Powell's guidance that the JFLCC be the supported commander within the maneuver boundaries? Current guidance does not clearly define this relationship. Therefore, the probing questions we must answer are: when should ground maneuver enable/enhance air interdiction and which component should control the effort? Maybe current joint doctrine hasn't fully addressed this topic after all. In chapter 5 we'll attempt to fill the gap.

Notes

1. Air Force Manual (AFM) 1-1, *Basic Aerospace Doctrine of the United States Air Force*, vol. 1, Washington, D.C., March 1992, vii.

2. This paper deals with Army, USAF, and Joint doctrinal inputs to the equation. No attempt has been made to include Navy/Marine doctrine. Due to the subject of ground maeuver and air interdiction, I chose to address the individual services with the preponderance of forces in these two categories. No offense intended!

3. Field Manual (FM) 100-5, *Operations*, 5 May l986, 25.

4. Ibid., 19. Furthur, more radical elements of army thinking would seek to place air forces under the total control of ground commanders. Pre–1942 logic is still alive and well in some circles. On the other hand, since Desert Storm there are elements of the USAF community that would have us believe that "victory through air power" alone is not only desirable but feasible.

5. Ibid., 39, 48.

6. Memorandum, Gen Frederick M. Franks, commander, US Army Training and Doctrine Command, to Gen Gordon R. Sullilvan, chief of staff, US Army, subject: Preliminary Draft, FM 100-5, "Operations," 2l August l992, 1.

7. FM 100-5, "Operations," preiminary draft, Headquarters, Department of the Army, 21 August 1992, 2–21. This is a major change to previous advocacy for CAS.

8. Franks memo, 2. See also draft FM 100-5, 7–16. Note: If the truth be known, this shift to independent deep operations is probably due to their views on attack helicopter and ATACMS employment. Concern over who controls the deep battle is a major issue.

9. FM 100-5, preliminary draft, 2–21. Note: This statement hits most of the conditions contributing to successful interdiction.

10. Ibid., 2–13. Note: Nevertheless, Army doctrine still praises the ultimate decisiveness of close combat.

11. Ibid., 7–18.

12. AFM 1-1, vol. 1, 12, and vol. 2, 164.

13. Department of Defense, *A Doctrinal Statement of Selected Joint Operational Concepts*, Washington, D.C., 23 November 1992, hereafter cited as SJOC.

14. Memorandum no. CM-1502-92, Gen Colin L. Powell, to US Service and Unified Commanders, subject: SJOC, 23 November 1992.

15. SJOC, 15.

16. We will address possisble situations in chap. 5.

17. SJOC, 15–16.

18. Ibid., 2.

19. Joint Pub 3-56, "Command and Control Doctrine and Procedures for Joint Operations," initial draft, 17 July 1992. Unfortunately, there is an inconsistency with this concept when dealing with Army doctrine/organization. When the theater ground force includes more than one corps the army lacks the command structure to support campaign operations. Echelons above the corps level are predominantly organized for administrative and logistical pruposes. They are not war-fighting/opertional commands. Therefore, this issuse requires reevaluation before the JFLCC concept can truly be effective under army control.

20. SJOC, 17. The other missions which the JFC controls include counterair, strategic attack, airspace control, and theater air defense coordination.

21. Ibid., 9. This is to protect individual Service doctrine and employment, for example, to prevent the total split up of a Marine MAGTF.

22. Ibid.

23. Ibid., 8; Joint Pub 0-2, *Unified Action Armed Forces (UNAAF)*, Washington, D.C., 1 December 1986.

24. Ibid., 11.

25. Ibid., 17.

26. Headquarters ACC/XPJ briefing, subject: Joint Operational Concepts, 12 December 1992, slide no. 15.

27. Ibid., 16.

28. ACC/XPJ briefing, slide no. 16a.

29. SJOC, 17.

30. ACC/XPJ briefing, slide no. 16b.

31. In Desert Storm, corps commanders were convinced that they did not receive sufficient priority on their interdiction target lists from the JFACC. However, it was found that the problem initiated in the chain of command between corps, ARCENT, and the CINCCENTCOM. The CINC had directed the JFACC not to attack targets in units that had been attrited to less than 50 percent strength. Further, the CINC directed JFACC concentration on Iraqi Republican Guard units while the corps wanted more effort along their immediate fronts. As a result, the corps' target lists were modified; first at ARCENT and then again at the DCINC and CINC levels before the JFACC received them. Final lists were targeted by the JFACC. Interestingly, it was not until after the war that the corps commanders became aware of the CINC's guidance about not attacking Iraqi units below 50 percent strength. This whole issue begs the question as to whether the JFLCC can effectively target air interdiction while depending on corps' inputs. For more information refer to: Lt Col Richard B. H. Lewis, *Desert Storm—JFACC Problems Associated With Battlefield Preparation* (Carlisle Barricks, Pa.: US Army War College, 1993).

Chapter 5

Recommendations

Doctrine that spurns new information in order to preserve the old order for its own sake is not doctrine; it is dogma. It no longer allows honest questioning. Debate is stifled; heretics are excommunicated. In such ways, the seeds of disaster are sown.

—Col James R. McDonough
Building the New FM 100-5
Miliary Review

The Cable News Network has changed the way American citizens and decision makers look at war. "Real time" TV coverage of US casualties is now the fulcrum upon which policy decisions are balanced. Indeed, infectious "bodybag-itis" has reached epidemic proportions. Therefore, in designing military campaigns it is vital that our operations, when possible, minimize the primary cause of most casualties; the close ground battle. Quite often, air power offers a suitable alternative.

Under the right conditions, air power's lethality can obviate the need for expensive large scale close engagements by destroying the enemy at depth through interdiction. In chapter 3 we witnessed supporting historical precedents that testify to this fact. Although it is foolish to believe that air power is always the correct solution, there are situations in which a JFC's campaign plan should center on the decisive potential of air power. Obviously, the trick is to correctly identify the proper conditions. When appropriate conditions exist, ground forces should support the culminating maneuver and firepower of air interdiction. For example, as we mentioned in chapter 4, the JFLCC may maneuver his forces so as to entice the enemy to move into a position of vulnerability to air interdiction. Undoubtedly, this requires a close liaison between the JFLCC and the JFACC in planning and coordinating a scheme of maneuver that enhances interdiction potential.

The purpose of this chapter is twofold. First, I'll suggest a general framework of conditions for determining when ground maneuver should support air interdiction and vice versa. Second, I'll recommend which component commander should orchestrate it, and conceptually, how he should direct the supporting efforts.

Conditions

Essentially, ground maneuver should support air interdiction when the initial conditions are favorable for ground maneuver and potentially favorable for interdiction. To better understand the process, it helps to visualize a scale

upon which we weigh the individual contributors for each component of our air/ground team. When the prevailing conditions weigh in favor of either side, then that particular component should become the supported force. In a very general sense, figure 4 depicts this relationship.

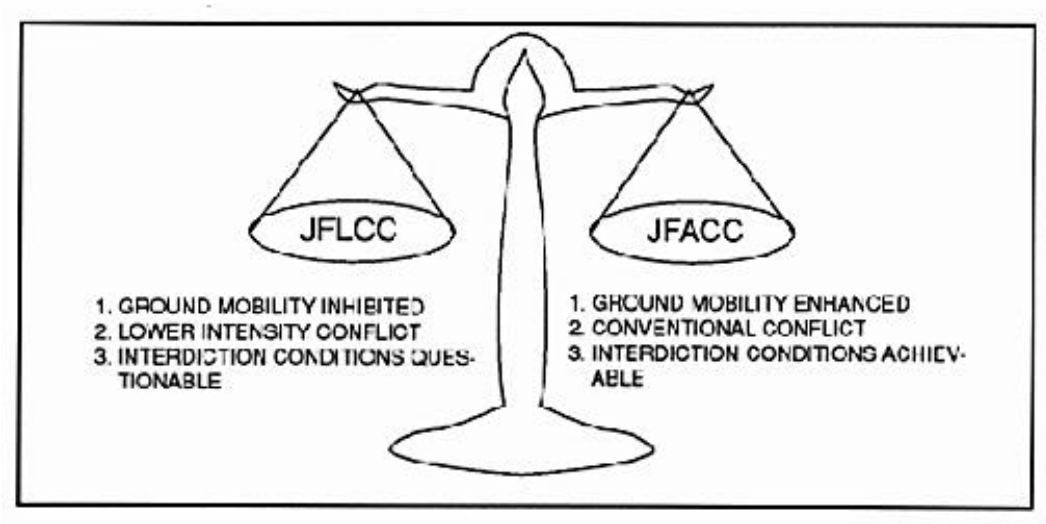

Figure 4. Supported/Supporting Scale

However, let's examine these conditions in more detail to explore this relationship. The scales tip in favor of the JFACC becoming the supported commander when the following conditions are met.

1. The conditions leading to enhanced ground mobility must be present. Friendly ground forces cannot support air interdiction if their mobility is restricted. The geography, foliage, and weather in a theater of operations directly influences ground mobility. Obviously, open flat terrain with minimal foliage in a temperate climate is much more conducive to mobility. As these factors become more complex, in mountainous or jungle environments, the potential for ground maneuver dramatically decreases.

Additionally, mobility can depend on the location of the two opposing forces. A nonlinear environment promotes mobility simply because there is more maneuver room available. When friendly forces are not constrained by the presence of opposing enemy lines, they are better able to maneuver unobstructed by the enemy. Furthermore, friendly maneuver endorses the necessity of air superiority. Indeed, to maneuver freely, ground forces must be protected from the onslaught of enemy air interdiction.

2. The intensity of the conflict should reach the level of conventional warfare. Air interdiction realizes its maximum potential when applied against a highly mechanized modern force that is dependent on rapid mobility and an intensive logistic system.

3. The required conditions for effective interdiction discussed in chapter 2 must be achievable. Let's briefly review them here. To begin, air superiority is mandatory for both successful air interdiction and ground maneuver. Next, adequate intelligence on the disposition of the enemy is necessary in order to select viable targets. Finally, air interdiction depends on the ability to detect, identify and precisely hit selected targets. Undoubtedly, that requires the targets to be sufficiently exposed to facilitate their identification and thus, their susceptibility to air interdiction. Enemy exposure is further multiplied when their movements are channelized and concentrated along limited lines of communication. Additionally, interdiction is optimized when the enemy's capacity for resupply is strained because of a continuous demand to replenish spent resources. This is precisely where friendly ground maneuver becomes so important. As the enemy maneuvers in response to friendly ground maneuver, he exposes himself to the impact of air interdiction. In short, ground maneuver enhances the conditions which lead to effective interdiction.

The chosen ground scheme of maneuver must fit the enemy's mode of operations so as to entice him to further expose himself to the effects of interdiction. Lateral shifts/feints, advances, or retrograde operations should correspond to his defensive/offensive mindset. For example, one cannot expect to entice an enemy force to leave the protection of defensive fortifications by conducting a retrograde operation. Instead, one needs to maneuver so as to potentially threaten something he values. This is not to say that friendly ground forces should deliberately engage the enemy forces to "butt heads" at a disadvantage and absorb casualties. Remember the admonition about retaining the freedom for operational maneuver to either trade space for time or use maneuver to threaten enemy operational centers of gravity.

Conversely, air interdiction should initially support ground maneuver in the following situations. (Note: most of these are the inverse to the conditions listed earlier.)

1. When ground mobility is constrained by obstacles such as weather, terrain, or the linear nature of a static front, air power should give ground forces the time and protection they need to maneuver.

2. The lower the intensity of a conflict, the more the outcome depends on ground forces. Winning the "hearts and minds of the people" is best achieved face to face. Therefore, in counter insurgency/guerrilla wars or against an enemy who lacks a fully mechanized conventional force, air will normally support ground maneuver.

3. When the conditions for effective air interdiction are questionable, as in the situations just described, finding and hitting targets from the air can be difficult. Therefore, interdiction's effectiveness may be initially decreased, but by supporting friendly ground maneuver the future potential for interdiction increases due to subsequent enemy ground movement.

It is important to remember that this framework describes the initial conditions upon which to base the air/ground relationship. As the campaign un-

folds, conditions may vary causing an alternating exchange of component relationships. Further, these combinations of conditions may not appear as conveniently packaged as they are here. Indeed, reality will call for a "reading of the tea leaves" as individual conditions are carefully weighed. Undoubtedly, it's called operational art for a reason.

A prime example of balancing such conditions in selecting a supported/supporting relationship took place in Desert Storm. Before air operations began the opposing ground forces were aligned in near linear fashion which tends to constrain friendly ground maneuver. However, the terrain and weather provided a good environment for ground mobility. Furthermore, conditions for air interdiction were fairly positive as the dug-in mechanized Iraqi forces were often visible from the air. On the other hand, unless the Iraqis surfaced and tried to maneuver, it would be much more difficult to hit many of these targets and accurately assess battle damage. In this situation, Gen H. Norman Schwarzkopf could have gone either way in selecting the primary supported component. As it turned out, he chose the traditional approach of air in support of ground maneuver.

In a manner very similar to Allenby's campaign in Palestine in WWI, air power protected a massive lateral shift of Coalition ground forces. Air power set the stage for the surprise "Hail Mary" left hook by blinding the enemy to friendly ground movements. In further support, air interdiction reduced the Iraqi front line forces facing ARCENT to 33 percent of their original strength before ground operations even began. Additionally, Iraqi Republican Guard units held as theater reserves were attrited to 66 percent by G day.[1] Fortunately, air power did its job well.

On 24 February 1991 the trap was sprung; the 100-hour ground offensive began. Consequently, the Iraqi forces received a full dose of the air/ground dilemma. When they moved, they became immediate victims to air power. By choosing to remain hunkered-down, they were quickly enveloped, destroyed, or forced to surrender. In all, 40 Iraqi divisions were rendered impotent. Moreover, friendly casualties were extremely light in the ensuing close engagements. In fact, not counting incidents of blue-on-blue fratricide, the actual count of ground personnel killed in close combat was approximately 50. Amazingly, the synergistic effects of air interdiction and ground maneuver dispatched one Iraqi division for every 2.5 hours of the ground campaign and at a cost of only 1.25 Coalition soldiers per Iraqi division.

Nevertheless, General Schwarzkopf could have chosen a different route. By telegraphing his lateral shift, instead of hiding it, the Iraqis may well have tried to bring the Republican Guard units forward in a counter move. Once exposed in this attempt, the resulting slaughter of mobile Iraqi forces would have been reminiscent of the devastation at Al-Khafji.[2] Instead of the previous 66 percent attrition, when fully exposed, these divisions might have been totally destroyed by air power alone. The potential of this scenario is that we could have completely avoided large scale close combat, thus further reducing Coalition casualties. However, even if the Iraqi forces had not taken

the bait and remained postured as before, the resultant campaign would have unfolded much as it did in reality.

The campaign that occurred and the potential one just described are indicative of a fully developed theater of operations. However, the determinant conditions of the supported/supporting relationships may change with each preceding phase of a campaign. For example, in a forced entry scenario, air power may first support land/airborne/amphibious forces in establishing a lodgement and force buildup. In turn, the land forces support air power by seizing or building airfields from which to operate. Thereafter, throughout the subsequent phases of sustained offensive/defensive operations, conflict termination, and redeployment, the component relationships remain dynamic and situationally dependent. Let's now focus attention on how I recommend these component relationships be orchestrated.

Orchestration

To achieve the flexibility inherent in the harmonization of ground maneuver and air interdiction requires a high degree of mutual trust between the JFC and the component commanders. Based on our examination of the air/ground relationship we determined that it is not simply a matter of supporting either one or the other individually, but exercising both simultaneously in achieving the JFC's objectives. This demands that the component commanders forfeit any organizational rivalries and doctrinal "sacred cows" that inhibit the decisive potential of this joint team.

Orchestrating these efforts requires the broad vision of the JFC. Together with his subordinate commanders, he carefully weighs the specific conditions discussed earlier in this chapter. Based on this analysis and the campaign objectives, he determines the initial supported/supporting relationships. The JFC then details the size, shape, and positioning of component boundaries based on his concept of operations. Here is where I split with the chairman's doctrinal initiatives addresses in chapter 4.

Although ground maneuver boundaries are established, the JFLCC should not always be the supported commander within those boundaries. If conditions dictate, ground maneuver serves a supporting role to interdiction. Therefore, in accordance with the JFC's guidance, the JFACC should take the lead within the maneuver boundaries in synchronizing ground maneuver to enhance air interdiction. Taking the lead, however, does not in any way infer taking control of ground forces. I am not so naive as to assume that a JFACC possesses the background or expertise for such action. Ideally, the JFACC supervises the orchestration of a jointly devised and agreed upon general scheme of maneuver aimed at promoting interdiction as the primary killing mechanism without subjecting the ground force to undo risk. As the supported commander, the JFACC issues mission type orders describing the timing and effects of the ground maneuver force. No attempt is made to

dictate specific "how to" orders—this is left to the discretion of the supporting component. Again, trust is the key issue. It is then incumbent upon the supporting commander to state whether or not he can fulfill his assignment and/or to petition to the JFC for the additional resources he requires to do so. With this general guidance, the detailed coordination between components is done through the linkage of liaison staffs. Undoubtedly, for such orchestration to be credible, the Battle Control Element (BCE) on the JFACC staff and the corresponding JFLCC air liaison office must contain a senior member of their respective components, preferably a general officer.

Conversely, the same principles apply when air is designated as the supporting element. Historically, ground commanders have imagined themselves possessing an inbred capacity for understanding the best use of air power. However, just as an air commander cannot technically control ground forces the reciprocal is also true. Therefore, as the JFLCC orchestrates air with ground maneuver he should issue mission oriented directives without attempting to micro-manage specific interdiction targeting. These directives should be integrated and deconflicted with the JFC's overall campaign priorities. It would be well to place the same confidence in air power that Gen George Patton had when he gave the air corps the mission of guarding his right flank along the Loire River during his drive toward Germany in WWII. That particular assignment was accomplished with such success that the German commander south of the Loire River asked, while negotiating for surrender, that "Brig. Gen. O. P. Weyland, commander of the XIX TAC (Tactical Air Command), be present at the capitulation of the German Commander's force of 20,000 troops."[3]

Summary

Simply put, initial support for either ground maneuver or air interdiction is determined by the JFC after assessing current theater conditions. The supported component commander then orchestrates air and ground forces to maximize their synergistic effects. Founded on mutual trust, his direction should come in the form of mission type orders outlining the timing and desired effects of supporting operations. In short, assignments are made, authority given, and accountability required.

Conclusion

It is no longer a matter of the soldier making his plan for battle on the ground and then turning to see how the air can help him. Land and air operations must be deliberately planned to get the best out of each other; and the plan of campaign on the ground, whether in attack or defense, may be profoundly influenced by the air factor(and vice versa).

—J.C. SLESSOR
Air Power and Armies

This thesis has attempted to address the melding of two extremely potent elements in a JFC's theater campaign: ground maneuver and air interdiction. The case was made that ground maneuver and air interdiction can and should be fully synchronized so as to mutually complement and support each other at the operational level of war. Indeed, it is through this reciprocal relationship that land and air power unite to impose an unsolvable dilemma upon the enemy. However, to realize this decisive potential the component forces must combine into a truly joint team. No longer should land or air forces be considered as separate entities, but as coequals in the fulfillment of our national objectives. This involves an evolving educational process and the building of mutual trust between the JFC and his component commanders. Undoubtedly, in such relationships personalities become just as important, if not more so, than organizational "wiring diagrams" and doctrinal statements.

The future of our armed forces is unclear. Nevertheless, we can be sure that the days of deploying overwhelming force are fading fast. Therefore, to maximize our combat leverage, it is imperative that we fully exercise the strengths of the joint air/ground team. Unfortunately, we may not enter the next war with precisely the correct war-fighting doctrine, but it is our charter to make it as correct as possible. This thesis is a small step along that road. To continue further, we must follow the admonition of Sen Sam Nunn to seek not what is best for our individual services, but to seek that which is best for America.[4]

Notes

1. Richard B. H. Lewis, *Desert Storm—JFACC Problems Associated with Battlefield Preparation*, US Army War College, Carlisle Barracks, 1993.

2. Just when you think you've had an original idea you discover that someone else has beat you to it. Check Col Dennis M. Drew, USAF, Retired, "Commentary—New Perspectives Can Broaden Air Power's Use," *Air Force Times*, 15 February 1993.

3. Cited by Carl R. Pivarsky, Jr., Maj, USAF, in his article "Dangerous Doctrine," published by the US Army Command and General Staff College, Fort Leavenworth, Kan., 1993. *Condensed Analysis of the Ninth Air Force in the European Theater of Operations*, USAF Warrior Studies, 1984, 29.

4. Sen Sam Nunn, "The Defense Department Must Thoroughly Overhaul the Services Roles and Missions," speech to the US Senate, Washington D.C., 2 July 1992.

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