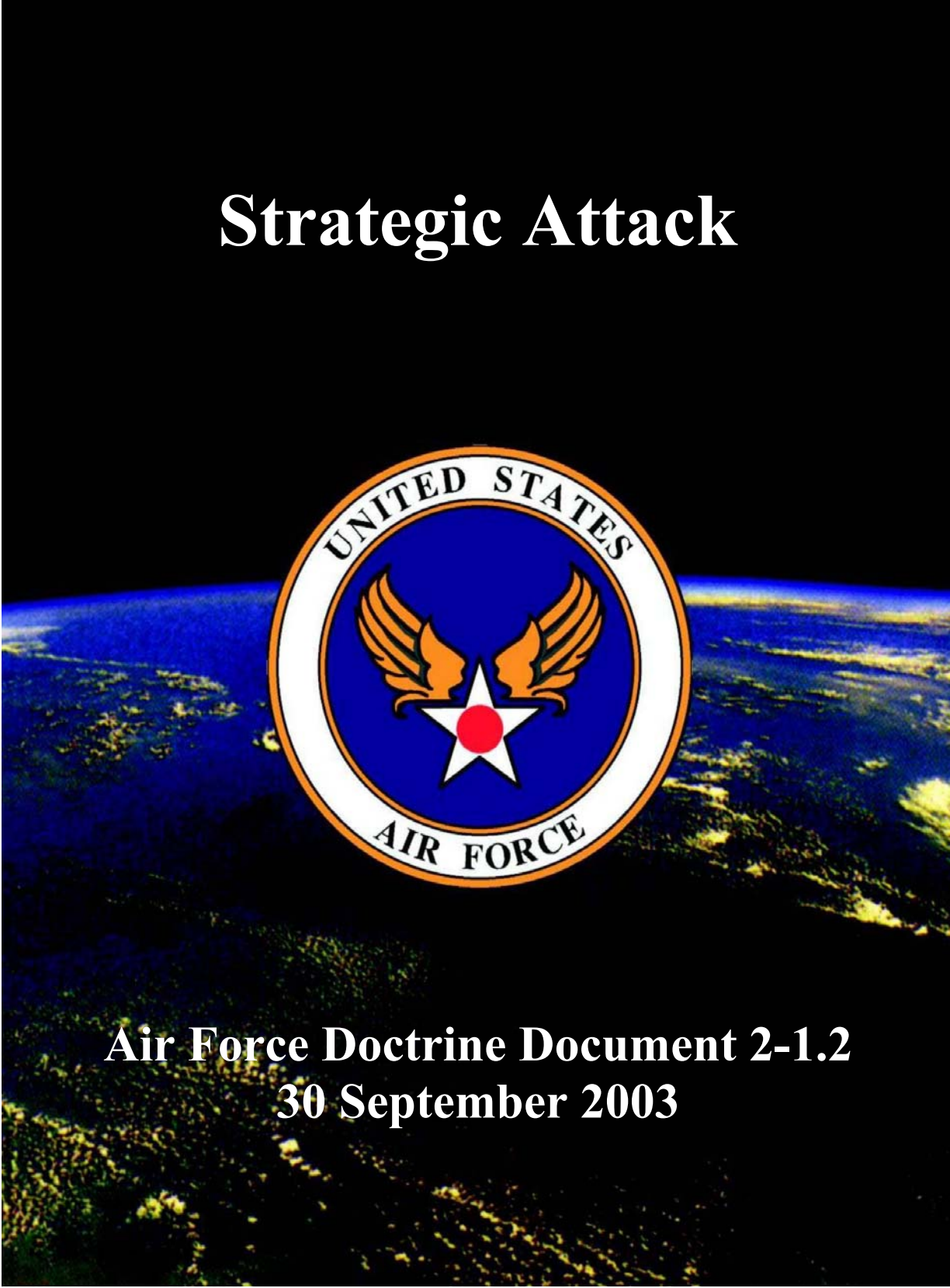
Strategic Attack



Air Force Doctrine Document 2-1.2
30 September 2003

BY ORDER OF THE SECRETARY OF THE AIR FORCE

AIR FORCE DOCTRINE DOCUMENT 2-1.2
30 SEPTEMBER 2003

SUMMARY OF REVISIONS

This document is substantially revised and must be completely reviewed. It updates the meaning of the term strategic attack with the definition decided upon at the 2002 Hap Arnold Doctrine Symposium (page 1) and contains an expanded discussion of that definition (page 2). It delineates the key features of strategic attack, explaining what strategic attack is and is not (page 3-7). It describes how strategic attack contributes to a number of potentially war-winning strategies (page 7). It explains why strategic attack is fundamentally effects-based and where it fits within the overall construct of effects-based operations (pages 8-12). It explains the unique role air and space power has in conducting strategic attack (page 12). It revises guidance on command and control (C2) of strategic attack operations (pages 13-16). It explains how strategic attack fits into planning at the joint force commander (JFC) level and gives considerations for planning it within the new six-stage joint air estimate planning process (pages 18-24). It also explains the importance of operational and campaign assessment to strategic attack operations (pages 25-27). It incorporates revised employment considerations, including an expanded discussion of the practice of coercion with air and space power (pages 29-35). It explores some of the pitfalls of conducting strategic attack based on the historical record (pages 36-40). Finally, the revised publication contains lessons learned for strategic attack operations from recent conflicts like Operations ALLIED FORCE (OAF), ENDURING FREEDOM (OEF), and IRAQI FREEDOM (OIF) throughout the document.

Supersedes: AFDD 2-1.2, 20 May 1998
OPR: HQ AFDC/DR (Lt Col J.P. Hunerwadel, USAF)
Certified by: HQ AFDC/DR (Col Gary C. Cox, USAF)
Pages: 61
Distribution: F
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FOREWORD

Since the inception of aviation, airmen have imagined an entirely new dimension to warfare that allows us to literally go to the heart of an enemy, either defeating them outright or shaping the conflict in ways favorable to us. Modern air and space power has come a long way toward realizing this vision, giving commanders the capability to directly affect an adversary's strategic centers of gravity (COGs); influence, coerce, and attack the adversary's leadership and strategy; and to deny them their war resources and sustainment. Strategic attack embodies this approach to warfare.

Although the term "strategic" has long been associated with our nuclear deterrent forces, it has evolved far beyond the cold war's fleets of bombers and ballistic missiles. In modern warfare, strategic attack is offensive action aimed at generating effects that most directly achieve our national security objectives. Twenty-first century capabilities in the realms of precision, information technology, space, intelligence, and command/control make strategic attack a vastly more flexible and capable option than in the past. This provides the President, Secretary of Defense (SecDef), and combatant/JFCs an effective capability that may drive an early end or achieve objectives more directly or efficiently than do other applications of military power in some conflicts, or may help make other applications of military power (such as land maneuver warfare) more effective. The effects of strategic attack clearly distinguish it from other air and space power functions.

Strategic attack, because of its potential to directly affect the enemy's COGs, should always be considered as a warfighting option. Air and space power has inherent, unique advantages in conducting strategic attack, but commanders should recognize that it will be more effective used in conjunction with other forms of military action and other instruments of national power. Strategic attack will usually complement other air and space power functions, such as counterland and counterair, but its distinct aim is to produce effects well beyond the immediate tactical and operational effort expended and to directly contribute to achieving strategic—and indeed often war-winning—effects and objectives.

AFDD 2-1.2, *Strategic Attack*, is doctrine for understanding, planning, and executing this crucial air and space power function across the full spectrum of military operations. Air Force personnel need to be able to articulate the rationale for strategic attack as a valuable warfighting option for the combatant commander. More importantly, Air Force personnel must understand how strategic attack can help fulfill or enhance our national security and military strategies as a tool for defeating our nation's adversaries.

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TABLE OF CONTENTS

INTRODUCTION

PURPOSE

This Air Force Doctrine Document (AFDD) establishes doctrine for the United States Air Force on strategic attack. It articulates fundamental Air Force principles for the application of combat force and provides commanders operational guidance on the employment and integration of Air Force resources to achieve desired objectives.

APPLICATION

This AFDD applies to all active duty, Air Force Reserve, Air National Guard, and civilian Air Force personnel involved in planning or conducting strategic attack operations. The doctrine in this document is authoritative but not directive. Therefore, commanders need to consider not only the contents of this AFDD, but also the various issues relating to the particular situation in which they find themselves—national security objectives, forces available, enemy capabilities, rules of engagement—when accomplishing their assigned missions.

SCOPE

This doctrine provides guidance for planning and conducting strategic attack in support of our national security and combatant/JFC objectives.

FOUNDATIONAL DOCTRINE STATEMENTS

Foundational doctrine statements are the basic principles and beliefs upon which AFDDs are built. Other information in the AFDDs expands on or supports these statements.

- Strategic attack is offensive action conducted by command authorities aimed at generating effects that most directly achieve our national security objectives by affecting an adversary's leadership, conflict-sustaining resources, and/or strategy.
- Strategic attack generates effects at the strategic level that attain or directly support attainment of strategic-level objectives.
- Strategic attack can act directly upon strategic COGs.
- Strategic attack most often yields effects disproportionate to the effort expended.
- Strategic attack can offer unique alternatives as a deliberate tool of foreign policy. It may offer commanders many options for winning conflicts outright and/or for shaping them in decisive ways.
- Strategic attack is not tied to specific weapon systems or delivery platforms.
- Strategic attack is both an approach to war and a specific type of operation.
- Strategic attack is not synonymous with either "nuclear attack" or "strategic operations." Strategic attack is a subset of the latter, the other components being strategic defense (e.g., cold war nuclear deterrence) and "other strategic operations" (e.g., the Berlin Airlift).
- Effective C2 is crucial to the success of strategic attack.
- When air operations constitute the bulk of the capability needed to directly attack strategic COGs, the JFC will normally task the joint force air and space component commander (JFACC), as a supported commander, to conduct strategic attack operations.
- Effective use of strategic attack requires clear, attainable, relevant, and decisive objectives. It also requires clear definition of the commander's criteria for the operation's overall success—a logical and achievable end state.
- Strategic attack contributes to and benefits from the synergistic effects of other operations. It may have immediate effects that enhance other operations, and complementary operations can enhance the effects of strategic attack.
- Strategic attack seizes upon the unique capability of air and space power to achieve objectives by striking at the heart of the enemy, disrupting critical leadership functions, war-sustaining resources, and strategy, while avoiding a sequential fight through layers of forces.

CHAPTER ONE

FUNDAMENTALS OF STRATEGIC ATTACK

DEFINING ROLE FOR AIR AND SPACE POWER

In the years following World War II, the overwhelming power of nuclear weapons dominated Air Force thinking, to the extent that the term "strategic" became synonymous with "nuclear" and, by association, with the platforms designed to carry nuclear weapons. Despite this, airpower was employed in several attempts at strategic attack using conventional weaponry in Korea and Vietnam, with only modest success. It took a synthesis of advances in information technology, precision weaponry, tactics, and warfighting doctrine to restore strategic attack to the forefront of military operations, giving airpower the potential to directly achieve war-winning effects, sometimes without the need to first engage enemy fielded forces and without resort to nuclear weapons. Operation DESERT STORM proved the efficacy of strategic attack and Operations DELIBERATE FORCE, OAF, OEF, and OIF further refined it. In these operations, air and space assets conducting strategic attack proved able to deny enemy access to critical resources, defeat enemy strategies, and decisively influence enemy decisions to end hostilities on terms favorable to US interests. Today's Air Force possesses an independent war-winning potential distinct from and complementary to its ability to decisively shape surface warfare.

DEFINITION

Strategic attack is offensive action conducted by command authorities aimed at generating effects that most directly achieve our national security objectives by affecting an adversary's leadership, conflict-sustaining resources, and/or strategy. [1]

Strategic attack is offensive action. It is proactive and aggressive, taking the fight to the heart of the enemy to generate effects that achieve strategic objectives. Victory normally requires offensive action. Defensive operations, by themselves, may enhance deterrence when it is in the national interest to avoid conflict, but once committed to military conflict, defensive operations result at best in preserving the status quo or achieving stalemate. Because of its inherently offense-based character, air and space power is increasingly the military instrument of choice to expand the options available to the President and SecDef in our era of rapidly unfolding, multiple, and often simultaneous crises. Air and space power offers the quickest and most direct means to apply military power against an enemy and wrest the initiative while shaping the battlespace for other actions. Strategic attack will often be the means by which command authorities do so.

Strategic attack is **conducted by command authorities.** This emphasizes that strategic attack is the strategic offensive aspect of the nation's overall military effort and should achieve or support the nation's political and economic objectives. Strategic attack is conducted in order

[1] Definition approved at 2002 Hap Arnold Doctrine Symposium

to most directly achieve the objectives specified by these command authorities and is usually most effective when employed in conjunction with other elements of national power.

Strategic attack is **aimed at generating effects.** Generating effects at the strategic level means more than simply destroying infrastructure or military targets as military forces have traditionally done. Strategic attack must be effects-based if it is to defeat or coerce our adversaries. Effects-based means that actions taken against enemy systems must be designed to achieve specific desired effects that contribute directly to desired military and political objectives.

Strategic attack **most directly achieves our national security objectives.** Desired effects must be clearly and logically linked to attaining the command authorities' conflict objectives. While other uses of military power ultimately seek to attain national objectives, they do so through the accumulation of tactical and/or operational-level effects against enemy military forces. Strategic attack, in contrast, seeks to achieve conflict objectives without focusing on attrition of or direct engagement with enemy military forces. Strategic objectives are thus achieved "most directly"—without the traditional necessity of defeating the enemy in force-on-force conflict.

Strategic attack **affects an adversary's leadership.** Every adversary has some sort of directing function—a leader or leaders. To force capitulation or other favorable changes in adversary behavior, we must affect that leadership—either by attacking them directly or by affecting their will to fight, often through effects upon the psychology of the state, group, or system it controls.

Strategic attack **affects conflict-sustaining resources.** While it may often be difficult to directly target an adversary's will, we can often target the means the adversary employs to conduct or continue the conflict. Modern high-technology warfare is resource intensive; the support necessary to sustain it provides many lucrative targets, which, when attacked, speeds enemy collapse and removes options.

Strategic attack **affects the enemy's strategy.** Sun Tzu said that the best policy in war is to defeat the enemy's strategy; this requires we hold at risk what the enemy seeks to obtain or deny them the ability to obtain it. While other forms of military or national power can also deny the enemy strategic choices, strategic attack can often do so most effectively.

BASIC CHARACTERISTICS

The strategic attack definition amply describes what it does, but does not explain all the characteristics that distinguish it from other applications of military power. Strategic attack is distinctive for the following reasons:

Strategic attack generates effects at the strategic level that attain or directly support attainment of strategic-level objectives. It is not focused upon defeat of enemy military forces. Other air and space power functions, like interdiction and close air support (CAS), achieve tactical- and operational-level effects that, cumulatively and over time, help achieve strategic

ends. Strategic attack, however, seeks to achieve those ends without the requirement for first defeating enemy fielded forces. Throughout 1943 Allied bomber formations acted with British and Norwegian commandos to damage heavy water production at a hydroelectric facility in Norway. These strategic attacks eventually destroyed the entire German heavy water supply, crippling Nazi Germany's effort to build an atomic bomb. The attacks themselves had no effect at all on the clash of armies and air forces then taking place in Russia and the Mediterranean, but nonetheless denied Hitler a weapon (and a strategy) that might have won the war for him.

Strategic attack can act directly upon strategic COGs. A key feature that distinguishes airpower from other forms of military power is its ability to bypass war on the surface and impose effects directly upon an enemy's sources of strength, freedom of action, or will to fight. Until the advent of airpower, strategic effects in wartime could only be achieved by battling through enemy forces to the COGs they protected, or by subduing the enemy through exhaustion or attrition. Strategic attack offers the option of bypassing this more traditional form of warfare and striking directly at the heart of the enemy in some conflicts and affords a vital complement to more traditional means in others.

During the combined bomber offensive (CBO) in Europe in World War II, Allied air attacks against the German rail and inland waterway systems fatally disrupted the German economy. Even though the productive capacity of individual factories increased through most of 1944, the disruption of transportation nearly immobilized the economy as a whole, almost stripped Germany of electrical power (due to disruption of coal shipments), and greatly hampered the movement of Germany's armies. These efforts might have ended the war in Europe by themselves had Germany's resistance in the field not been collapsing simultaneously.

"The attack on transportation was the decisive blow that completely disorganized the German economy. It reduced war production in all categories and made it difficult to move what was produced to the front. The attack also limited the tactical mobility of the German army."

— United States Strategic Bombing Survey Summary Report (European War)

Strategic attack most often yields effects disproportionate to the effort expended. It offers alternative strategies that should yield the highest "payoff" (in terms of objectives achieved) for the least "cost" (in terms of lives, effort, equipment, munitions, and time). The attempt to achieve effects disproportionate to effort expended is not unique to strategic attack, of course. All warfare, properly conducted, should seek to achieve its stated goals efficiently (most impact on the enemy for the least cost). Strategic attack differs in that it seeks to achieve its effects without having to first engage enemy forces. Thus a "knockout blow" that swiftly overwhelms enemy fielded forces is *not* strategic attack, but follow-on actions, aimed directly at enemy COGs unencumbered by the need to defeat enemy forces, may be. *Efficient* use of military power is not, by itself, strategic attack, although strategic attack should *be* efficient.

Since surface forces must fight their way through the enemy to achieve strategic objectives, their use inevitably "costs" more in these terms. The use of airpower in counterland or countersea

In April 1942, 16 US B-25 medium bombers, led by Lt Col James "Jimmy" Doolittle, raided the Japanese home islands. The raid caused negligible physical damage, but shocked Japanese political and military leadership and had an immense impact on the outcome of World War II in the Pacific. Japanese military leaders had promised their government the inviolability of the home islands; the "loss of face" the raid caused them led the Imperial Japanese Army (IJA) to divert large numbers of fighter aircraft and other resources from the war in China for the defense of Japan. The raid also moved the IJA and the Imperial General Headquarters staff to support the Imperial Japanese Navy's (IJN's) Midway campaign plan.

The risks taken by a small US naval strike force and the loss of 16 aircraft greatly contributed to the undermining of Japan's strategy and a quicker end to the war in the Pacific.

"One has the embarrassing feeling of having been caught napping just when one was feeling confident and in charge of things. Even though there wasn't much damage, it's a disgrace that the skies over the imperial capital should have been defiled without a single airplane being shot down."

— Admiral Isoroku Yamamoto
Commander, Combined Fleet, Imperial Japanese Navy

operations may also entail less relative risk of friendly loss, but may "cost" more (from a commander's perspective) in terms of level of effort, materiel, time, and opportunity. Strategic attack may offer the most efficient means of achieving objectives in a campaign or conflict.

Strategic attack can offer unique alternatives as a deliberate tool of foreign policy, either alone or, more often, in conjunction with other complementary instruments of national power. It can offer commanders clear alternatives to force-on-force warfare and may integrate better with other efforts, such as diplomatic initiatives or economic sanctions. This can be especially useful in conflicts requiring military restraint.

Strategic attack can most directly affect an adversary's will to fight. Although attacks against fielded forces can eventually break an enemy's will to fight, strategic attack offers the prospect of much more directly affecting the enemy's will by acting upon the psychology of the enemy leadership, by changing the political climate the leadership works within, or by denying the leadership strategic choices and options. North Atlantic Treaty Organization (NATO) strategic attack during OAF changed the political climate in Yugoslavia. The US atomic bombing of Japan in 1945 dramatically affected the psychology and war-perception of Japan's leaders (especially Emperor Hirohito) and limited their strategic options by making it clear that the Allies could destroy Japan without significant loss to themselves. This strengthened the hand

During OAF in 1999, NATO combined the bombing of Serbia with diplomatic efforts to coerce Slobodan Milosevic's Yugoslav government into ending its ethnic cleansing campaign and withdrawing its troops from Kosovo. This was accomplished in part through strategic attack after many weeks of counterland effort against Yugoslav forces in Kosovo had yielded negligible progress.

"It was the cumulative effect of NATO air power that most influenced Milosevic's eventual decision to come to terms. Air power made three crucial contributions: (1) the bombing created the political climate within Serbia conducive to concessions, (2) the bombing, as it intensified, stimulated a growing interest on the part of Milosevic and his associates to end the conflict, and (3) the perception that any future bombing would be unconstrained made settlement seem imperative."

— Stephen T. Hosmer
The Conflict Over Kosovo: Why Milosevic Decided to Settle When He Did

of the peace-seeking faction among the Emperor's counselors and ultimately moved Hirohito to personally direct an end to the war.

Strategic attack is not tied to specific weapon systems or delivery platforms. The Air Force maintains the preponderance of strategic attack capability and certain weapon systems are better suited than others to conducting strategic attack. However, other components of the joint force and other instruments of national power can accomplish strategic attack given the right circumstances. A considerable amount of the strategic attack effort in Operation EL DORADO CANYON, Operation DESERT STORM, OAF, OEF, and OIF was conducted by US Navy and Marine Corps (as well as allied) aircraft or by cruise missiles launched from naval vessels. Special operations forces (SOF) can also figure prominently in strategic attack, as they did during the attacks on Nazi Germany's heavy water production facilities and in the recent campaigns against terrorists in OEF. Any asset can be used: the Allied submarine campaign against Japanese commercial shipping (which affected war-sustaining resources while specifically seeking to avoid contact with the IJN) was strategic attack, just as information attacks against an enemy's financial resources could be.

Strategic attack is both an approach to war and a specific type of operation. As an approach to war, strategic attack examines the full spectrum of potential military, political, and economic targets in the context of stated national objectives for the conflict and looks for the combination of effects that most effectively and efficiently achieves those objectives, starting first at the strategic level—literally, "thinking about defeating the enemy, not just defeating his forces." Strategic attack can also be a discrete set of military operations aimed at achieving those strategic objectives. These operations should be set apart and clearly identified due to their unique requirements and to the potential they may supply to resolution of the overall conflict.

Strategic attack is not synonymous with nuclear attack. The purpose of nuclear weapons is deterrence, although strategic attack can be conducted with them if the need arises. The idea that "strategic" equals "nuclear" is a legacy of outmoded cold war thinking. With precision, stealth, and focused intelligence, surveillance, and reconnaissance (ISR) for most of the spectrum of conflict, the overwhelming preponderance of strategic effects will be achieved through conventional (nonnuclear) means.

Strategic attack is not synonymous with "strategic operations." "Strategic operations" are those conducted to generate effects that achieve the national security objectives of the United States without focusing on defeat of enemy fielded military forces. Strategic attack encompasses all offensive *military* actions that fall within this definition. The other categories of strategic operations are strategic defense (encompassing homeland, space, and ballistic missile defense, as well as strategic nuclear deterrence) and "other strategic operations"—a broad rubric that encompasses actions intended to have strategic effects that achieve national security objectives, but which do not fit into the other two categories (i.e., are not "attack" or "defense") and do not encompass action to defeat enemy military forces. Examples of the latter include most "show of force" operations, influence operations, and operations like the Berlin Airlift and the naval quarantine of Cuba during the Cuban Missile Crisis. The relationship among these elements is illustrated in figure 1.1.

OEF offers a comprehensive illustration of strategic operations. Direct attacks against *al Qaeda* leaders, carried out by SOF, US aircraft, and other US government agencies were examples of strategic attack, as were the efforts of parts of the government to sequester funds used by *al Qaeda* and its supporters. Domestic efforts to tighten security at airports and critical facilities, as well as defensive counterair flown within the continental US (CONUS), were examples of strategic defense. Other strategic operations included the airdrop of food supplies to Afghanis as well as humanitarian assistance to sympathetic tribes. Of course, all these actions were complemented by a large force-on-force struggle for control of Afghanistan, one that did *not* comprise a strategic operation by definition, however efficient, unconventional, and asymmetric the means of conducting it may have been.

Figure 1.1. Strategic Operations

STRATEGIC ATTACK AND WARFIGHTING STRATEGY

All of the foregoing distinguishes strategic attack from other forms of military or national power. As OEF and OIF suggest, however, strategic attack will seldom be employed in a vacuum. It is most effectively used in a manner that complements and is complemented by other operations. For example, action against an enemy's forces may expose critical targets and increase their consumption of war-sustaining resources. Such operations may also be necessary to enable strategic attack, as the defeat of the *Luftwaffe* through offensive counterair operations did during World War II. Certain coercive applications of strategic attack simply may not work in the absence of complementary diplomatic, political, or economic actions.

Regardless of these considerations, the United States should pursue a comprehensive strategy designed to place maximum stress upon the enemy system. Such a strategy would entail operations against enemy military forces ("counterforce" operations), actions by nonmilitary instruments of power, and strategic attack. This has been the case in almost every major operation the US has conducted since World War II. Even operations with a heavy emphasis upon strategic attack, like OAF, involved vital political, economic, and counterforce elements. As such, one of the key concerns for planners and commanders is how to integrate strategic attack with these other warfighting measures. In most cases this will require coordination with other military components, combatant commands outside of the area of operations where the attacks are to take place, and government agencies outside of the Department of Defense (DOD). These attacks and their targets will also engender a higher level of interest from echelons of government above the JFC than will more "traditional" counterforce operations.

OBJECTIVES AND EFFECTS

Centuries of surface warfare have inclined many to agree with Carl von Clausewitz that "the destruction of the enemy's military force is the leading principle of war." This perspective is understandable: military forces exist to protect COGs, preserve freedom of action, or enable strategy. In many cases, it is necessary to first disable at least some portion of enemy fielded forces through tactical action before being able to directly pursue strategic objectives. However, warfighters must realize that this perspective may cause them to lose sight of the fact that the ultimate objective in war is defeat of an enemy's *will*—and armed forces are just an instrument of that will. Conflicts based on Clausewitz's dictum are focused upon engaging enemy forces. Defeat of these forces becomes an end unto itself, and the *ends* of the conflict may thus be lost in the effort to defeat the *means*. Strategic attack seeks more direct achievement of the ends—by defeat of the enemy's will through mechanisms other than engaging the enemy's fielded forces.

Strategic Objectives

Ends, not means, drive the strategic attack effort. Successful strategic attack requires clear and attainable strategic objectives. Objectives and desired end states should be clearly understood by planners and commanders orchestrating the strategic attack effort and should be tied to the strategic attacks themselves by a clear, logical mechanism of cause and effect. That is, strategic attack must be directed in ways intended to produce specific and predetermined military and political effects designed to achieve the objectives of the JFC and higher authorities. Strategic objectives, like those at all levels, must be measurable. Commanders and national leaders must know when the objectives are achieved.

Effects

"Effects" refers to the full range of outcomes, events, or consequences that result from a particular action or set of actions. Specific actions produce specific ("direct") effects, those effects may produce other ("indirect") effects, and this chain of cause and effect creates a mechanism through which objectives are achieved. An objective is an ultimate desired outcome of a set of effects. Objectives at one level may be seen as effects at another, higher level. Effects, however, comprise all of the results of a set of actions, whether desired or undesired, ultimate or intermediate, expected or unexpected.

Strategic Effects

Strategic attack aims at achieving strategic-level objectives as directly as possible. It does so by creating strategic-level effects. Direct (or "first-order") effects are the results of actions with no intervening mechanism between act and outcome. The immediate, physical results of weapons employment are direct effects. Indirect (or "second," "third," or "higher-order") effects are those created through intermediate effects or mechanisms. They are often delayed and are usually more difficult to predict, recognize, and control than direct effects. In the example of Doolittle's raid cited previously, the physical damage caused by the raid itself was the direct effect; the eventual changes in Japanese deployments and strategy were indirect effects.

Strategic attack usually achieves objectives through indirect effects. Its direct effects are almost always of lesser consequence. Even in the case of the atomic bombing of Japan, the direct effect (destruction of an entire city with one bomb) was overshadowed by the indirect effects (fundamental change in the war perception of Japanese leadership and, ultimately, the end of the war in the Pacific). The fact that strategic attack works through indirect effects does not imply that it works more slowly than other forms of military or national power. This will sometimes be the case (for example, coercion in a limited war generally requires a certain amount of time to have its effect), but strategic attack can also be used, under the right circumstances, to end conflicts faster than can other means. The atomic bombing of Japan again provides an example: Japanese surrender, although an indirect effect of the bombing, was brought about much faster through strategic attack than it would have been through surface invasion.

The fact that strategic attack's most important effects are "indirect" does not exclude its helping achieve objectives "most directly." The term "direct" carries different meanings in different contexts. In the narrower, more technical context of effects-based thinking and planning, strategic attack is said to achieve objectives through "indirect effects" because its most profound impact generally occurs through some mechanism other than the immediate physical consequences of individual strategic attack missions themselves. In the broader context of national strategy, however, carrying war to the heart of the enemy and attempting to achieve results primarily at the strategic level without focusing on defeat of enemy fielded forces is more "direct" than achieving those same objectives through the accumulation of tactical- and operational-level effects.

Effects may also be collateral ("unintended"), sequential, parallel, cumulative, or cascading. These relate to how the effects in question are imposed upon the enemy. *Collateral* effects are unintended outcomes, which may have a positive or negative impact on friendly operations. Counterforce operations impose effects *sequentially*—one after another in series—and *cumulatively*—through the aggregation of many smaller direct and indirect effects. Strategic attack can be used to help impose *parallel* effects—those planned to occur at or near the same time, to maximize systemic shock—and *cascading* effects—those that ripple through a system, degrading or affecting other systems related to them. Cumulative and sequential effects may achieve victory, but generally at a higher cost (in many senses) than parallel and cascading effects.

Effects can be further categorized as physical, systemic ("functional"), or psychological. Direct effects are most often purely *physical*. *Systemic* effects describe how the behavior of a system is changed by action against it. *Psychological* effects influence the emotions, motivations, or reasoning of individuals, groups, or polities, and are usually conveyed by changes in behavior. Systemic and psychological effects are by nature almost always indirect, but some forms of strategic attack, like certain information operations (IO), may have systemic or even psychological effects directly.

Finally, **effects occur at all levels of war**. The relationship between the levels of war, strategic attack, and the "traditional" approach to warfare is illustrated in figure 1.2. There are

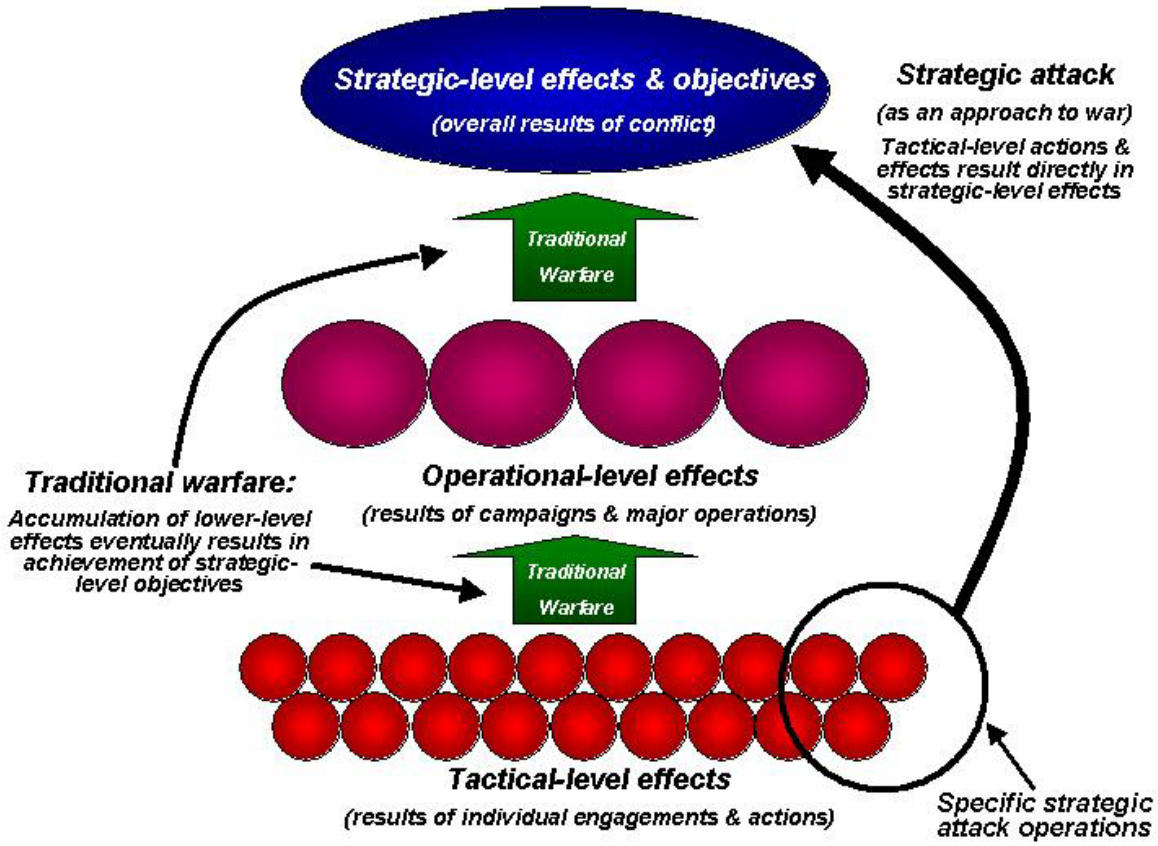


Figure 1.2. Strategic Attack and the Levels of War

usually tactical-level effects associated with the physical damage each strategic attack causes, but these are often negligible. Strategic attack seeks strategic-level effects in order to achieve strategic objectives as directly as possible. Other applications of military power aimed at enemy forces, such as aerial counterland operations, achieve strategic effects through the accumulation of tactical- and operational-level effects (that is, they achieve desired changes in enemy behavior only as a result of defeating the forces they target). The effects of strategic attack should be felt at the strategic level and cascade down to the operational and tactical levels. Effects upon fielded forces will generally be a byproduct of achieving broader strategic objectives. For example, the British retaliatory bombing of Berlin during the Battle of Britain shocked Nazi leadership, provoking a decisive change in campaign focus. German attacks that had been distributed across southern Britain (and were sorely taxing Royal Air Force (RAF) Fighter Command) now concentrated upon London, greatly facilitating defense efforts, relieving pressure upon the beleaguered RAF, and ultimately turning the tide of the campaign in Britain's favor. The significant effect of the Berlin raid, although "indirect" from an effects-based perspective, was achieved directly upon Hitler and Goering. Subsequent effects cascaded down to the German *Luftwaffe* and the RAF at the operational and tactical levels.

Systemic Effects

Every party to a conflict, whether it is a modern nation-state or a small close-knit terrorist organization, is a complex, adaptive system. Each has a directive function (leadership or governing system), some adaptable plan for dealing with its environment and situation (a strategy), some form of instrumentality to carry out the strategy (such as armed forces or terrorist cadres), and key infrastructure supporting the system and allowing it to translate its strategy into action (including communications and warfighting resources). Strategic attack seeks to incapacitate one or more of these key functions, either by affecting them directly (attacks against leadership, for instance), or, often, by affecting the *linkages* between them (as in severing the leadership's means of communication with its control mechanisms). Since components of complex systems are interrelated, affecting the appropriate linkages, key nodes, decisive points, or critical vulnerabilities in one part of a system can cause cascading changes or failures throughout the system as a whole. Further, the disturbances that cause these changes can often be very small. Such efficiency is the soul of strategic attack: finding those key relationships within systems where small inputs will yield desirable system-wide changes.

It is not possible to predict exactly what level of stress will cause a system to fail or change its behavior; that level may vary from day to day, even moment to moment. However, systems stressed with sufficient intensity and rapidity can suffer effects much like shock in the human body—relative inaction coupled with very low system energy levels. Shock is achieved when stress is induced faster than a system is able to adapt to it. *Parallel attack* may be the best means of inducing such shock: striking multiple targets at all levels to induce system-wide stress while also striking critical nodes or vulnerabilities chosen to maximize dislocation effects within the system. This may hold the best prospect of causing cascading system-wide changes in behavior. Strategic attack is the critical method to create these effects and may be most "lucrative" when used in this way.

Decisive Effects

Strategic attack offers commanders many options for winning conflicts outright or for shaping them in decisive ways. It supports or underpins a variety of potential strategies:

Attacks on leadership, direct or indirect, can often provide significant strategic leverage or even accomplish strategic objectives by themselves. While the United States does not conduct political assassinations, it can capture enemy leaders or kill them if they are legitimate, legal military targets and the circumstances warrant. Leadership attacks are not new as an element of US strategy. The capture of Philippine rebel leader Emilio Aguinaldo by US troops in 1901 crippled the native rebellion in that country and ended effective resistance to US peacekeeping operations. More recently, direct attacks against Iraqi leader Saddam Hussein, his inner circle, and his key security infrastructure during OIF effectively decapitated the Iraqi military, opening the door for a swifter counterforce campaign against the Republican Guard. Recent attacks against *al Qaeda* terrorist leaders in Afghanistan and Yemen are further examples of the successful removal of enemy leadership.

Strategic attack can deny an enemy the means and/or resources it requires to carry on a conflict. This form of denial is comparable to counterland and countersea efforts, since they also seek to take away an enemy's ability to act, but the effects of strategic attack are felt directly at the strategic level. It also enables or facilitates other elements of strategy, like defeat of enemy forces in the field. Allied air attacks against the German transportation and oil industries eventually crippled German war production and significantly reduced Germany's intertheater mobility, which in turn significantly degraded the *Wehrmacht's* ability to maneuver and fight.

Strategic attack can deny an enemy strategic options or choices. One example is the elimination or disruption of enemy weapons of mass destruction (WMD) programs. The World War II Norway raids against Nazi heavy water production accomplished this very effectively. It was also an important element of US strategy during and after the first Gulf War. During Operation DESERT STORM, strategic attack worked synergistically with diplomacy, intelligence efforts, and United Nations (UN) weapons inspections after the war to deny Iraqi leader Saddam Hussein a WMD option for many years.

Strategic attack can also defeat an enemy strategy that is "in play." During Operation DESERT STORM, strategic attacks against Iraqi SCUD missiles (characterized at the time as "offensive counterair," but in retrospect better fitting the criteria for strategic attack) combined with strategic defensive measures and deft political initiatives to defeat Saddam Hussein's intended strategy of breaking the US-led coalition by dragging Israel into the war. SCUD suppression efforts served the politically vital purpose of dissuading Israeli retaliation and thus were critical to holding the coalition together, despite the fact that it was only partially successful and achieved no verified "hard kills."

Strategic attack can play an important part in a strategy designed to break apart an enemy warfighting coalition or use its system of alliances against it. It can also be used to help hold together a friendly coalition. In 1943, Allied air attacks against Rome played a crucial role both in driving Italian dictator Benito Mussolini from power and in coercing Mussolini's successor to surrender. Rome had been "off-limits" to Allied bombing until July 1943, when Allied leaders made a conscious decision to twice bomb a rail yard near the center of the city in

order to induce psychological shock that would help drive Italy from the war. The effort was successful and deprived the Axis one of its important component states. During OAF, NATO's deliberate increase in the intensity of strategic attacks against Serbia coupled with its diplomatic initiatives helped convince Russia of NATO's resolve. Russia then used its influence to pressure Yugoslav president Milosevic to accede to NATO's demands.

Strategic attack can play a crucial role coercing an enemy into adopting a desired course of action. Often, this involves accession to demands other than simple capitulation, although that may be among the desired objectives. In successful instances, strategic attack is most often coupled with complementary diplomatic initiatives. In December 1972, US bombing of North Vietnam combined effectively with diplomatic pressure to successfully coerce North Vietnamese leadership. US-led efforts to defeat the North Vietnamese Easter Offensive in 1972 culminated in Operation LINEBACKER I (largely an aerial interdiction effort), which stopped North Vietnamese action in the field. This created the context for diplomatic initiatives, which made good progress until after the US November elections. Post-election North Vietnamese diplomatic retrenchment was answered with Operation LINEBACKER II's strategic attacks, which effectively coerced the North Vietnamese into signing a peace accord amenable to the US. A similar result was achieved through similar means during OAF.

ROLE OF AIR AND SPACE POWER IN STRATEGIC ATTACK

Air and space power is especially well suited to accomplishing strategic attack: its speed, range, lethality, perspective, flexibility, and precision give it great advantage. Surface forces and SOF also conduct strategic attack, but air and space forces have the unique ability to apply power simultaneously and rapidly against the full range of military, economic, and political targets. Air and space power is as effective as any other form of military power in defeating or redirecting enemy strategy and no other form of military power can have as precise and immediate an effect upon enemy leadership and resources. In most instances of successful strategic attack, airpower has been the key—if not the sole—instrument of force employed. In some cases it has played a lesser supporting role, as during Operation JUST CAUSE in Panama. In most others it has been used in concert with other forces or as an integral part of a larger, complementary strategy integrating all national instruments of power, as during LINEBACKER II and the UN campaign against Iraqi WMD from 1991-98. In some instances, it has been the sole player, as in the atomic bombing of Japan.

Strategic attack was successful during World War II and other industrial age conflicts. Its effectiveness grew during the first conflicts of the information age. As the tools and understanding required to wage modern war grow more sophisticated, its effectiveness should continue to grow. This has been borne out by results of recent conflicts. Properly employed, strategic attack continues to represent one of the Air Force's most decisive warfighting capabilities and gives the warfighting commander a remarkably powerful, potentially war-winning tool.

CHAPTER TWO

COMMAND AND CONTROL

Order or disorder depends on organization.

— Sun Tzu

GENERAL

Effective C2 is crucial to the success of strategic attack. The joint force air and space component commander (JFACC), when appointed, should be the supported commander for strategic attack when joint air operations constitute the bulk of the capability needed to achieve desired strategic effects or directly attack enemy strategic COGs. This means that appropriate forces of all Services in a theater (and many from outside) will support this commander, who acts for the JFC when accomplishing strategic attack. The JFACC's strategic attack operations, in turn, support the entire joint force in the overall campaign or conflict. The concept of centralized control and decentralized execution of air and space forces is vital to effective strategic attack because the synergy of all applied force elements is needed to debilitate the adversary's willingness and capability to wage war. The fragmented air command structure and "gradualist" targeting philosophy used during the Vietnam War proved that piecemeal application of force by the various assigned Services and force elements dilutes the effectiveness of the overall operation and often serves to extend an operation with no resolution.

CENTRALIZED CONTROL AND DECENTRALIZED EXECUTION

Two tenets of air and space power are flexibility and versatility. Flexibility allows air and space force to be applied to multiple missions and tasks often with little, if any, weapons or systems modifications. Even with this inherent flexibility, however, there is rarely enough airpower available to satisfy all demands. Versatility in air and space power derives from the fact that it can be employed effectively at the strategic, operational, and tactical levels of warfare. **Centralized control maximizes airpower's potential by emphasizing the integration of limited air and space resources during planning for air operations.** It also minimizes undue dissipation and fragmentation of effort and ensures coherence and focus on essential national or theater objectives. Because no single commander can personally direct all the detailed actions of a typical complement of available air and space forces, decentralized execution of air and space tasks is usually necessary and is accomplished by delegating appropriate authority for execution. As a rule, **decentralized execution ensures effective employment of limited assets, allows tactical adaptation, and accommodates the Services' different employment concepts and procedures in a joint environment.**

However, the nature of strategic attack operations may require increased direct influence in execution. Tactical- and operational-level activities, although complex to plan, often entail the accumulation and execution of more clearly defined "tactical" tasks. Centralized control, to focus the effective capabilities against desired tasks, and decentralized execution, to give tactical commanders the ability to fight in the most effective way, continue to be the preferred methods to employ air and space power. Strategic attack operations, however, may require very precise timing and highly focused actions based upon rapidly changing intelligence. In these circumstances, increased direct influence into tactical-level execution of strategic attack missions may be appropriate. Nevertheless, centralized control and decentralized execution remain fundamental tenets of air and space power employment. Commanders should continue to push decision-making authority to the lowest practical and appropriate level.

The air and space operations center (AOC) integrates all air and space operations into a seamless whole based on the JFC's guidance.

COMMAND RELATIONSHIPS

American military power is employed under the direction of combatant and joint force commanders tasked by the President or SecDef. In this context, air and space forces must train, equip, and plan as an integral element of a joint or multinational force. However, particularly for achieving strategic objectives through direct attack, Air Force forces must also be prepared to operate as a single Service under combatant commander/JFC control. The criteria for either joint force or Service component applications are the expected overall effectiveness and the availability of appropriate forces for the tasks at hand. In most instances joint operations will rightly predominate, but this requirement should not preclude the effective use of single-Service component operations in appropriate instances. Depending on the situation, the adversary, the weapons to be used, and the objectives to be attained, strategic attack may be controlled directly by the President or SecDef or, more often, by a designated combatant commander/JFC.

In any operation, a Commander, Air Force Forces (COMAFFOR) will be assigned and attached to the Air Force component command. **The COMAFFOR will exercise centralized command and control of the Air Force forces assigned to a combatant commander or JFC at the unified command, subunified command, and joint task force levels.** Air Force forces are temporarily assigned to the COMAFFOR within an expeditionary force structure formed to perform a specified mission in wartime or in military operations other than war (MOOTW). The air and space expeditionary task force (AETF) provides the JFC with a tailored package of air and space capabilities in an expeditionary force (as a numbered air force), wing, or group structure that preserves Air Force unity of command. Force elements within the AETF are assigned according to their ability to accomplish the missions directed by national authorities and

joint force commanders. AETF forces are assigned strategic attack missions in accordance with their ability to achieve desired strategic effects.

For the most part, the command relations described in Joint Publication (JP) 0-2, *Unified Action Armed Forces (UNAAF),* and AFDD 2 will prevail without modification when conducting strategic attack. If air and space forces comprise the preponderance of strategic attack capability, the JFACC, when appointed, may be the supported commander for strategic attack operations. In other instances, the combatant commander/JFC may wish to retain direct control of strategic attack operations in order to integrate and coordinate the efforts of all participating components and agencies.

In joint or multinational operations, the JFC normally designates a JFACC or combined force air and space component commander (CFACC) to ensure the proper application of the joint air effort. The JFACC should be the Service component commander with the preponderance of air assets and the command, control, and communication infrastructure necessary to plan and conduct air and space operations. The JFACC's authority, guidance, and responsibilities are assigned by the JFC and include, but are not limited to, recommending apportionment to the JFC and planning, coordinating, allocating, and tasking based on the JFC's apportionment guidance. Although the JFC has great latitude in determining command relationships, the COMAFFOR normally exercises operational control (OPCON) over all assigned and attached Air Force forces. However, some Air Force forces and capabilities (such as intertheater airlift and space assets) must maintain a global focus, thus preventing the transfer of operational control to the JFC and COMAFFOR. Where appropriate, the JFC and COMAFFOR should be given tactical control (TACON) over these assets to integrate the additional capabilities they provide to the joint force. Where neither OPCON nor TACON of such Air Force forces is appropriate, the JFC (and, in turn, the COMAFFOR) will receive support capabilities specified by a supported/supporting command relationship. Once the President or SecDef establishes broad supported/supporting command relationships (for example, Commander, US European Command designated supported commander and Commander, US Transportation Command designated supporting commander) for a particular operation, the corresponding Air Force components (in this example, US Air Forces in Europe and Air Mobility Command) should work directly with each other to further detail the associated support for the COMAFFOR. For supporting and supported relationships, it is essential to construct an establishing or implementing directive well in advance to remove any potential command ambiguities.

MINUTEMAN III Launch

US Strategic Command (USSTRATCOM) makes assignments for those assets used to carry out US nuclear plans. These forces remain under the direct control of the President, the only authority who may approve the use of nuclear weapons.

USSTRATCOM creates nuclear plans based on guidance from the President and SecDef and assigns appropriate assets to achieve desired effects. It maintains a C2 system designed to quickly disseminate posturing and execution orders from the President and SecDef to the forces in the field. USSTRATCOM will coordinate strikes with the affected JFC. However, the nature of its mission precludes assigning OPCON or TACON over these assets to that commander.

Some assets critical to effective strategic attack may operate from other combatant commanders' areas of responsibility (AORs). OPCON of those operating from the CONUS—B-2s for example—should normally transfer forward to the commander executing the mission at sortie generation. OPCON of assets that conduct sustained operations within, but are stationed outside the theater of operations, should normally go forward to the supported combatant commander/JFC (for instance, during Operation DESERT STORM some B-52s operated from the island of Diego Garcia in US Pacific Command's AOR, but were employed in US Central Command's AOR). Circumstances may require other arrangements, however. During OAF, most US assets were attached to Joint Task Force NOBLE ANVIL (JTF-NA) the US contribution to OAF which was a NATO operation, with OPCON delegated to JTF-NA's JFACC. However, Supreme Allied Commander, Europe, OAF's overall commander, chose not to attach certain high-value assets (like B-2s, F-117s, and U-2s) to JTF-NA, but delegated OPCON of them to the Commander, US Air Forces in Europe, with JTF-NA's JFACC exercising TACON while they were employed. Such command relationships may be warranted by circumstances, but specific arrangements concerning who controls what, where, and when should be worked out as far in advance and in as much detail as possible to avoid confusion.

Military SOF (and similar forces working for other government agencies) offer a unique emerging set of issues that must be worked through during planning. These forces may perform vital strategic attack functions, but may not fall under the control of the air and space component. Still, they may enable other components to perform strategic attack through surveillance and reconnaissance or other actions. This was done during Operation DESERT STORM, when coalition aircraft were directed to targets as part of SCUD-hunting efforts. During OEF and OIF, similar methods were used to target *Taliban, al Qaeda,* and Iraqi leadership.

In conclusion, when air operations constitute the bulk of the capability needed to directly attack strategic COGs, the JFC will normally task the JFACC, as a supported commander, to conduct such operations. Acting in this capacity, the JFACC can integrate air resources and designate targets, effects, or objectives for other components in support of joint strategic attack operations. Centralized control allows maximization of the synergy between strategic attack and other uses of military power in achieving national or theater objectives.

CHAPTER THREE

PLANNING AND ASSESSMENT

Strategic attack should continue to be a key element of any joint warfighting strategy. It has been a major element of every conflict the United States has engaged in since World War II and has enhanced or decisively shaped many of them. This powerful weapon in the JFC's arsenal, however, cannot be employed effectively if it is not well understood. At the tactical level—to aviators in the cockpit—strategic attack missions look very much like any other force application mission, and this may incline strategists at the operational level to treat them as such. However, there are significant differences between strategic attack and counterforce missions, especially in terms of planning and assessment.

Planning and assessment are combined in this chapter because many of the considerations that govern the former apply to the latter as well. However, as part of an effects-based approach, they form a seamless whole with employment (covered in chapter four) in the context of an overall strategy. Planning before operations begin will obviously be separated in time from employment and assessment, but many of the factors that guide them are the same and must be considered during planning. Once an operation's battle rhythm has begun, the three operate together as part of an ongoing cycle.

When blows are planned, whoever contrives them with the greatest appreciation of their consequences will have a great advantage.

— Frederick the Great

PLANNING

Strategic Attack in Campaign Planning

Strategic attack planning requires understanding not only of the strategic level of warfare, where the effects of strategic attack are manifested, but also of the operational level of war, because it is at this level that the planning, conduct, control, and sustainment of strategic attack occur. Hence, planning for it must take place within the overall context of campaign planning.

The JFC and his staff should consider use of strategic attack early in the planning process. Even though strategic attack is a function often carried out by Air Force assets, it is vital that its use be sponsored and embraced at the JFC/combatant commander level before component planning starts and before courses of action (COAs) are developed. To be used effectively, strategic attack must be integrated and sequenced with other instruments of national power. For example, some forms of coercive diplomacy may require that political actions be carefully synchronized with military actions in order to credibly convey a threat of force or an appropriate sense of urgency. Strategic attack during LINEBACKER II in Vietnam was

carefully orchestrated with diplomatic overtures to North Vietnam, the Soviet Union, and China, which combined to coerce a peace settlement acceptable to the US. Other situations may require the careful integration of informational or economic efforts as well.

Combatant commander/JFC-level attention and planning are required to effectively integrate strategic attack because this represents the lowest level that can obtain the necessary coordination among US government agencies outside the DOD and the governments of other nations, when required.

Once planning for an operation is initiated, the combatant commander's/JFC's strategic estimate constitutes the "first look" at military objectives, the strategic environment, the threat, and possible alternative COAs. Here is where a COA featuring strategic attack, whether stand-alone or in a complementary role, should be introduced. It should be incumbent upon the JFACC (or COMAFFOR, if appropriate), as the component commander possessing the preponderance of capability, to recommend a strategic attack option at this stage even though taskings to the components have not yet been formalized.

Analysis usually contained in the strategic estimate can be vital for effective strategic attack operations. The estimate should include an evaluation of enemy leadership (in particular its underlying psychology and motivations), governing mechanisms, bureaucratic politics, and political vulnerabilities. Enemy leadership is the "target audience" (if not the outright target) for strategic attack and so it is vital to understand how the leadership thinks and what underlies its choice of COAs. The estimate may also be the only place where strategic COGs, the focus of strategic attack, are defined. Analysis of leadership in the estimate is doubly critical because some aspect of the leadership most often comprises a strategic COG. Even if leadership is not the sole COG, its connectivity and relationship to others will shape how other COGs are affected.

Strategic Attack in Air Operations Planning

Planners formulate COAs for the JFACC to recommend to the combatant commander/JFC through the joint air and space estimate process (JAEP), which is the air component portion of the joint operations planning process. The JAEP culminates in production of the joint air and space operations plan (JAOP), which details how air and space efforts will accomplish or support the combatant commander's/JFC's overall objectives. The JAEP consists of the following stages: mission analysis, situation and COA development, COA analysis, COA comparison, COA selection, and JAOP development. The following discussion highlights considerations specific to planning strategic attack within the JAEP.

Mission Analysis

The mission analysis portion of the JAEP establishes the purpose of the operation and broad guidance for its conduct, usually expressed in terms of a JFACC's mission statement. This stage is also where intelligence preparation of the battlespace (IPB) begins. Figure 3.1 illustrates the JAEP.

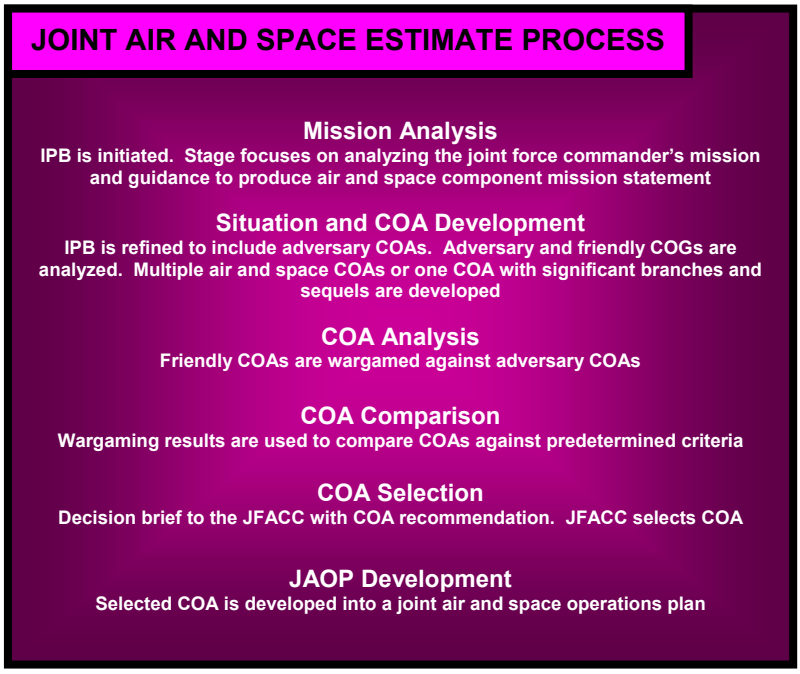


Figure 3.1. The Joint Air and Space Estimate Process
[Based on JP 3-30, *Command and Control for Joint Air Operations*, 5 June 2003]

Objectives and Intent. Determining the purpose of the operation and its desired outcome—establishing the objectives and end state—is the most important part of mission analysis. **Effective use of strategic attack requires clear, attainable, relevant, and decisive objectives. It also requires clear definition of the commander's criteria for the operation's overall success—a logical and achievable end state.**

Clear understanding of the commander's intent, which consists of the end state, objectives, and a comprehensive method for accomplishing them, is especially critical for strategic attack operations, more so than for many other forms of force application. Most counterforce applications seek to achieve strategic objectives through accumulation of tactical- and operational-level effects against enemy fielded forces. Since the defeat of fielded forces will usually aid achievement of strategic-level objectives, efforts against these forces may still be of value even if strategic objectives are not clearly drawn. This is not so with strategic attack. Confused or unattainable objectives will lead to ineffective operations. This is especially so when strategic attack is used in concert with other instruments of national power such as diplomacy. Objectives that were unclear and unattainable within the context of North Vietnamese motivations (e.g., "create conditions for a favorable settlement by demonstrating to the North Vietnamese that the odds are against their winning"[2]) contributed to failure of the strategic attack portion of Operation ROLLING THUNDER in Vietnam. Even though closely coordinated with diplomatic efforts, the 1966-67 bombing accomplished no effects that contributed to attainment of national objectives and sent confused signals to the enemy, the enemy's allies, and the rest of the world.

Intelligence Preparation. Successful strategic attack places unique demands upon intelligence professionals involved in planning them. "Traditional" intelligence methods are well suited to estimating the strength and disposition of enemy forces. Even the intent of the enemy's military forces can usually be surmised from their overt actions. As planning progresses, the effects of force-on-force engagement are relatively easy to estimate, since cause and effect relationships are generally straightforward and well understood, and measures of effectiveness (MOEs) are easy to derive, especially if they are attrition-based.

[2] Memorandum to President Johnson, "A Policy of Sustained Reprisal," 7 Feb 65, in *Pentagon Papers*, III:311.

This is not the case with strategic attack, which requires clear and in-depth understanding of two vital areas beyond those traditionally focused upon during intelligence preparation of the battlespace (IPB). The first is how the enemy functions as a system—how the various components of their state, group, or entity interact and support one another, which functions are key to sustaining other functions, what processes are required to keep the system running, and so on. Those components or processes that enable many other components of the system to function are often the most lucrative targets, as transportation and oil were during the combined bomber offensive (CBO). Enemy leadership is always such a component and, by definition, is always in some way a target of strategic attack.

The second vital IPB requirement is to understand how the causal linkages between action and effect work. As stated before, the effects of strategic attack are almost always indirect—there is some intervening mechanism (often there are several) between the direct effects of attack and the ultimate outcome. This means that some thought must be put into determining these mechanisms or causal linkages—in thinking through the likely consequences of attacks beyond the immediate damage caused by the bombs (or missiles, SOF actions, information attacks, etc.).

Deriving such intelligence and analyzing it properly are not easy tasks. In-theater intelligence and assessment resources are geared to give limited target systems analyses, but are probably not sufficient for the kind of in-depth understanding necessary for successful strategic attack. Planners will probably need assistance from organizations outside the theater (like the Joint Warfare Analysis Center) or outside the DOD (like the Central Intelligence Agency), and may even require insight from intelligence assets of foreign governments. These agencies must know what is required of them and working relationships must be built before operations begin. In many cases appropriate access will require coordination above the combatant commander/JFC level.

Situation and Course of Action Development

Situation Development. This phase of planning begins with a crucial refinement of the ongoing IPB process. Compelling an enemy to do our will requires denying them those things they need to continue the fight or placing at risk those things they value—we must critically weaken their sources of power. Thus we must understand what their sources of power are and where those sources are, or can be made, critically vulnerable. This may be accomplished through COG analysis.

Defeat of the enemy consists in overcoming the resistance concentrated in his center of gravity….

— Carl von Clausewitz
On War

World War II Poster

Center of Gravity Analysis. A center of gravity is a characteristic, capability, or source of power from which a military force derives its freedom of action, physical strength, or will to fight. In the broader context of strategic attack, the term "military force" used in the joint

definition should be taken to apply to any nation, alliance, or other group being analyzed as well as to military forces. Put another way, it is something that enables the enemy to function or gives them the power to act. COGs can be tangible, like a specific target set, or intangible, like the will of a people to continue fighting. A COG can consist of one target (as in a national leader) or many (as in an enemy's WMD production infrastructure).

Affecting the appropriate COGs in the right way should have the most decisive effect on a conflict. Nonetheless, it is often costly and inefficient to strike a COG "head on." This is particularly true when a COG is capable of active, effective self-defense or contains a great many targets (both of which are true of a military force). Instead, a different approach may be called for. A number of tools and models exist to aid planners in analyzing COGs and how to best attack them. Some of the better-known models can be found in appendices to AFDD 2-1, *Air Warfare*. More detailed guidance can be found in attachments to Air Force Operational Tactics, Techniques, and Procedures (AFOTTP) 2-1.1, *Air and Space Strategy*. Regardless of the analysis method used, opportunities do exist to achieve physical and coercive effects that are well out of proportion to the effort and resources required to accomplish the attacks. Identifying these opportunities requires very sophisticated analysis of a specific adversary's COGs. This analysis should yield critical vulnerabilities (whether they exist already or can be created through friendly action) and understanding of these vulnerabilities should help identify targets or target systems to act against. However, while target nominations ultimately may be derived from COG analysis, the focus of analysis should be at the "scheme of maneuver" level: COGs give a broad view of those parts of the enemy's system that friendly action should orient upon.

One of the key insights of the systems approach is that it emphasizes the vulnerability of complex systems to attacks upon the linkages and interrelationships among components. In many cases, it may be beneficial to strike at a COG both directly and indirectly through parallel attack. This may synergistically place greater stress on the COG than either form of attack could alone. Allied attacks against the German rail network accomplished this effect during the last ten months of World War II. Allied bombers struck rail yards, while near-parallel attacks by medium bombers and fighters destroyed rolling stock and rail track away from cities. These efforts crippled a system the Germans relied upon for freedom of action.

Another technique involves affecting target systems so as to expose new, more accessible vulnerabilities. During Operation DESERT STORM, coalition forces disabled a key portion of the fiber optic network in the Iraqi communication system in order to force reliance on more exploitable forms, such as ultrahigh frequency (UHF) radios.

Course of Action Development, Analysis, Comparison, and Selection

Subsequent phases of the JAEP involve the development, analysis, comparison, and selection of COAs. COAs address who, what, when, where, how, and why joint air operations are to be conducted, including objectives, forces required, and concepts for projecting, employing, and sustaining those forces. In many cases strategic attack will form part of a larger COA or set of COAs, complementing efforts against fielded forces and action by nonmilitary elements of national power, as it did in both Europe and the Pacific in World War II and again in OIF. In some cases, it may form a distinct phase, "sub-campaign," or sequel within a larger conflict, as

LINEBACKER II did in Vietnam or the bombing of Serbia did in OAF. In other cases, it may be employed in an independent COA, as an alternative to force-on-force engagement, although this is not customary US practice. Finally, strategic attacks may be employed separately to accomplish very specific purposes, as in Doolittle's raid on Tokyo, US and British strikes on Rome in 1943 that helped bring about Italian surrender, or Israel's attack on Iraq's *Osiraq* nuclear reactor in 1981. Regardless of how large or small a part of the joint campaign, however, planners must develop and validate a concept of operations for strategic attack, just as they must for counterforce applications.

When developing COAs, planners must carefully think through the causal links between an affected system or target and the achievement of objectives. This is not easy—it is much more art than science. These links almost always involve subjective judgments about the nature of the enemy and how they will react to us, especially at the very highest levels of the "causal chain," where changes in actual behavior occur. Sorting out the linkages will probably require assistance from sources outside the theater and insight from sources with deep knowledge of the enemy. Automated tools may someday help sort through them, but such tools will only be as accurate as the underlying assumptions planners make concerning enemy motivations, psychology, and structure.

Wargaming. Planners should also be aware that during the COA analysis and comparison phases of the JAEP, it may be difficult to accurately wargame the effects of strategic attack. Counterforce operations (e.g., counterland) are somewhat easier to model, since the effects of attrition on enemy forces are often assumed to be linear. The effects of strategic attacks are most often nonlinear and simple force-on-force models are not useful in predicting outcomes. This is true even of strikes against enemy resources, due to the complex adaptive nature of economic activity. It is essential that COA comparison and wargaming be done qualitatively, not just quantitatively, and airmen must be prepared to speak to the complex, nonlinear nature of effects on enemy leadership, perceptions, strategies, and systems. A wargaming format that emphasizes friendly action, enemy reaction, and friendly counteraction may be best suited for strategic attack planning.

The unsuccessful Allied strategic attack effort against the German ball bearing industry during the combined bomber offensive (CBO) offers an excellent illustration of difficulties involved in determining and modeling (or wargaming) causal linkages. Operations analysis revealed that ball bearings represented a critical potential bottleneck in the German war economy. Virtually all engines the Germans manufactured used them and over half of all used were manufactured at one plant in *Schweinfurt*. In 1943, US bombers leveled the plant, reducing German ball bearing production by 38% in one strike. Unfortunately for the Allies, the Germans had anticipated such an attack and had laid up months of reserve stock, purchased tons more from neutral nations, begun the full-scale dispersal of the industry, and researched use of a different type of bearing that was more readily available. The *Schweinfurt* raid, though successful in its direct effects, ultimately failed to have the desired effect on the Nazi war effort. Even the opportunity costs involved in dispersing the industry and researching use of alternative bearings represented net improvements for the German war economy. Further, the price Germany exacted for the raid (over 15% losses) forced Allied planners to dramatically reduce attacks on German industry until a greater degree of air superiority could be attained.

Branches and Sequels. The *Schweinfurt* raid points out another element critical to successful strategic attack planning and COA selection: the anticipation of likely enemy responses to our actions. If the enemy is intelligent, they will develop ways to work around the damage caused them, or find ways to deny elements of friendly strategy. If we are intelligent, we will anticipate their workarounds and build branches and sequels into our plans to account for them.

Branches are options built into the basic or initial plan. They will usually have some specific trigger or triggers delineated, such as a particular enemy action or success of a friendly operation. In terms of strategic attack, a branch might involve shifting the COG or COGs the friendly effort is oriented upon, opening or closing certain target systems to attack, escalating or de-escalating the intensity of effort, and so on. In June 1943, senior Allied leaders built the option to bomb Rome into plans for the invasion on Italy. Implementation of this branch had the desired effects, hastening the downfall of the Mussolini government and Italian surrender.

A branch may also entail a change in the way force is applied through strategic attack. LINEBACKER II represented a dramatic increase in the tempo and intensity of strategic attack coupled with a change in target focus, as did the last several weeks of operations during OAF. Both efforts were successful. Such branches should be planned before operations begin.

Sequels are subsequent operations based on possible outcomes of current operations. At the operational level, campaign phases can be viewed as sequels to the basic plan. They usually represent larger changes in focus or emphasis than branches do. The CBO involved several sequels—in this case implicit campaign phase changes—as the Germans devised workarounds to the damage caused by Allied bombing. The largest was a shift in early 1944 away from bombing war-sustaining resources for their own sake to bombing aircraft production infrastructure and Berlin, which had the effect of drawing the *Luftwaffe* into the teeth of escorting Allied fighters. Strategic attack became subordinate to a larger offensive counterair effort until the *Luftwaffe* was defeated. Essentially, this shift represented a new phase of the CBO. "Industrial web" bombing resumed in full force (and was much more effective) after defeat of the *Luftwaffe*, introducing another phase or sequel. Of course, "reactive phasing" is not the best way to go about business. Sequels in the form of phases should be planned for and made part of the JAOP.

Joint Air Operations Plan Development

Air component planning culminates in production and validation of a JAOP, which provides general guidance and a framework for succeeding air operations directives, master air attack plans, air tasking orders, and similar products that direct air and space efforts once execution has begun. There are a number of considerations unique to strategic attack operations that planners should consider as they assemble the JAOP.

Targeting Considerations. As the JAOP is developed, commanders and planners should continually assess whether the militarily achievable effects they are planning to impose support the campaign's overall objectives. As planning progresses into tactical tasks and individual targets, planners sometimes have a tendency to devolve into "input" or "target-based" planning

rather than effects-based planning. Planners may begin to say, "the plan has these resources; what can we hit with them?" or "let's hit the usual list of targets," rather than determining the desired effects on the enemy system and then deriving resources and capabilities required to achieve those effects. Input-based planning often leads to logical disconnects between ends and means, such as military COAs that cannot achieve the overall political goals, as was the case in Vietnam. Such logical disconnects may not seriously hamper efforts to defeat enemy fielded forces. However, such disconnects may be fatal to strategic attack efforts, however, because success usually requires clear understanding of the more complex logical links between actions and desired effects. The temptation to resort to an inputs-based approach often becomes more pronounced as planning progresses into execution and the stress of daily battle rhythm starts. Planners must be aware of this and compensate. Commanders must be prepared to redirect or refocus planners if they see this happening. Airmen must *think* effects-based if they are to successfully *operate* effects-based.

Force Considerations. Airmen must be aware that a wide variety of tools can perform strategic attack operations. There is no such thing as an inherently "tactical" or "strategic" asset—virtually any air or information system, regardless of what it is ordinarily used for, may contribute to the overall strategic attack effort. Planners must think broadly: many options will be available. Again, they should avoid resorting to a particular system or weapon because "that's what we usually use." The desired effects should drive the capabilities used and therefore the targets selected.

ASSESSMENT

The conceptual problems in constructing an adequate or useful measure of military power have not yet been faced. Defining an adequate measure looks hard, and making the estimates in real situations looks even harder.

— Andrew W. Marshall

Assessment is essential to successful operations in general and successful strategic attack in particular. It is integral to the effects-based planning-employment-assessment cycle from beginning to end. Planning for it should begin long before forces are engaged and actual assessment efforts may continue long after a conflict ends. It informs day-to-day operations once battle rhythm is established and influences doctrine, strategy, and even procurement in peacetime. Analysts involved in the assessment process are a vital part of US warfighting efforts. Operational and campaign assessment, performed by the air component and JFC respectively, extend analysis far beyond the tactical realm of combat assessment and are especially vital to strategic attack efforts. The focus of these must go beyond assessments of battle damage or weapons effectiveness to anticipatory judgments about what effects strategic attack may have over the course of a campaign or a conflict.

Nonetheless, assessment is often the most difficult part of the planning-employment-assessment cycle to perform consistently well. While direct, physical effects normally provide

key indicators for measuring the success or effectiveness of an operation, the indirect effects are most important for the strategic attack effort and are harder to measure, relying upon qualitative and subjective measures of effectiveness, not quantitative and empirical measures of performance. This will continue to present significant challenges to analysts for the foreseeable future.

Planning for Assessment

Planners, commanders, and analysts may not know the impact of strategic attacks immediately because they most often work through psychological, systemic, cascading, or other higher-order effects. Therefore, successful strategic attack may depend on anticipatory operational and campaign assessment done as part of planning. Accurate assessment provides the groundwork for analysts to determine how well the plan is developing during execution. This is even more the case for strategic attack operations than for many other types of force application because the subjective and sometimes tenuous linkage between cause and effect may make intermediate steps in the effects chain hard to detect and this may lead to the false impression that particular operations are ineffective. As with IPB, deriving such insight is not easy and must be thoroughly planned for. Planners will need help from national-level assets (many of the same used for "up-front" analysis) and since these resources are "low density, high demand," gaining access will be much easier if coordinated early. Planners and intelligence collection managers must also consider ongoing collection requirements during plan execution: what type of information will be needed, what assets will be needed to collect it, how will these assets be controlled and sustained, and so on. Planners should be as thorough and detailed when planning for assessment as when planning for any other aspect of strategic attack.

Requirements

Strategic attack is able to impose systemic/functional and psychological effects that may achieve strategic objectives more directly than does defeat of enemy fielded forces. Historically, however, the ability to measure such effects in order to gauge effectiveness (overall progress toward objectives) has been very limited. Traditional assessment efforts were geared to analyzing the immediate, physical effects of combat: the attrition of enemy troops or equipment, or the damage to facilities caused directly by bombs or other weapons. Planners and analysts during World War II, Vietnam, and even Operation DESERT STORM lacked tools with which to evaluate their progress. Even the US Strategic Bombing Survey (USSBS) after World War II, as deep and comprehensive an analysis as has ever been done, relied on very simplistic linear measures to gauge economic effects of the CBO, ignoring much beyond direct production figures. This missed many of the indirect effects—military, economic, political, and psychological—such as the diversion of resources to air defense and the growing popular pressure for retaliation that led the Nazi regime to waste resources on largely ineffective terror weapons like the V-1 and V-2.

The industrial measures [the USSBS] utilized to criticize the CBO [were] simply too coarse and unappreciative of all but the most direct economic and military effects of strategic bombing.

— James G. Roche and Barry D. Watts
Choosing Analytic Measures

In general, strategists will need to know what kind of indicators can be used to determine progress toward achievement of particular effects and objectives. Most of the indicators available are objective and quantitative; they help measure physical effects. What is often most important for strategic attack operations, however, are subjective and qualitative indicators that help measure indirect effects, especially in realms like economic and psychological impact. These will most likely have to be derived by planners themselves, or by the analysts and intelligence managers assisting them. Some easily quantifiable measures exist, but they may often be deceiving, (like the USSBS' production figures). Planners may be tempted to use them because they are easy to obtain, but should understand their limitations. Some qualitative measures may be straightforward: if enemy capitulation is the objective, it either happens or it doesn't. Most, however, will be much less "black or white," involving a range or gradation of possible effects that will be hard to measure objectively. The indirect economic effects of Allied bombing during World War II are examples. So are the beneficial effects friendly actions have upon parties outside a conflict, like the influence NATO attacks on Serbia had in getting the Russians to coax Milosevic to concede during OAF. Nonetheless, these are real effects that may have a great deal more influence upon strategy and the conduct of operations than do more easily quantifiable effects.

Progress toward accomplishment of even straightforward objectives like surrender can often be very difficult to measure. In many cases, complex systems accumulate effects over time that move them toward a change in state or behavior, but may not exhibit indicators of change until a critical point is reached, at which time the system will fail catastrophically. The point at which this "catastrophe" will occur is often impossible to predict reliably. This was the case with the final deterioration of the German war economy in early 1945, the sudden, unexpected collapse of the Soviet Union in 1991, and the unexpectedly rapid collapse of the *Taliban* regime in Afghanistan during OEF. This unpredictability may frustrate strategists and leaders as a conflict progresses and may translate into pressure to change COAs, refocus efforts, or divert resources from strategic attack prematurely.

Operational Assessment (OA) and Campaign Assessment

Planners must develop solid and logical MOEs and plan for ways to collect intelligence against them during execution. From the Air Force perspective, this effort is the responsibility of the operational assessment team within the strategy division of the air and space operations center. Operational assessment (OA) evaluates the performance of the commander's air and space strategy in terms of its ability to achieve desired effects and objectives. It builds upon the

objective analysis performed during combat assessment, taking a critical look at the selected strategy and COAs to determine if adjustments need to be made. OA is the "entering argument" for assessment of strategic attack, but is only a starting point. Deriving the necessary measures and collection requirements is difficult, conceptually and practically, and commanders should not restrict the assessment to component efforts. Campaign analysis at the JFC level will add perspective, as will assistance from organizations like the Joint Warfare Analysis Center and other national-level resources. Assistance from such organizations should be planned for and coordinated as early as possible.

CHAPTER FOUR

EMPLOYMENT CONSIDERATIONS

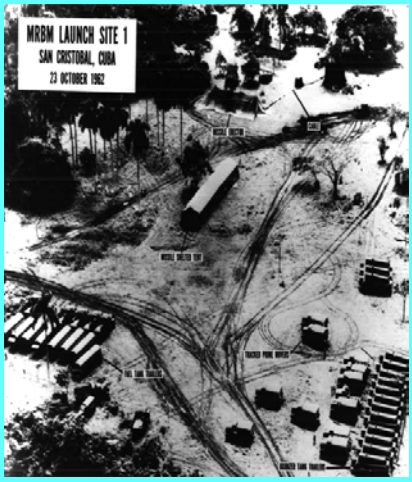
RESOURCES

Department of Defense Directive 5100.1, *Functions of the Department of Defense and Its Major Components*, states that the Air Force is specifically directed to "organize, train, equip, and provide forces for…strategic air and missile warfare." Formerly, strategic attack was defined in terms of nuclear delivery systems or weapons. This is no longer true. Strategic attack is not defined in terms of weapons or delivery systems used—their type, range, speed, or destructiveness—but by their effective contribution to achieving strategic objectives directly at the strategic level. Strategic attack may be carried out with capabilities from all of the Services: bombers, attack aircraft, SOF, ballistic and cruise missiles, IO, offensive space capabilities, and even surface forces in the right circumstances. Each system or weapon has unique capabilities that should be exploited based on the nature of the desired effects. Normally, air and space forces will be predominant in strategic attack operations.

CHEMICAL, BIOLOGICAL, RADIOLOGICAL, NUCLEAR, AND HIGH-YIELD EXPLOSIVE WEAPONS (CBRNE) CONSIDERATIONS

Nuclear forces can be used to conduct strategic attack operations, but only the President of the United States can authorize their use. The Commander, US Strategic Command, employs most national assets that provide the capability for nuclear attack. The fundamental purpose of US nuclear forces is deterrence. If employment is necessary, however, it can be accomplished by a variety of means. Those weapons with intercontinental range are by nature designed for strategic attack against national-level enemy COGs, but theater nuclear weapons may also serve strategic ends, especially if used to thwart or change enemy strategy (as in denying the enemy a particular avenue of attack or preventing a regional power's use of CBRNE).

During the Cuban Missile Crisis [and] the Korean War…the possibility of nuclear use—by one side—contributed to successful coercive diplomacy. As the confrontation over Cuba unfolded, US intelligence informed the Kennedy administration that Soviet nuclear forces were in a poor state of preparedness and that the United States could, if necessary, launch a devastating first strike with a low probability of a robust Soviet response. This dominance allowed Kennedy to stake out a demanding public profile; he knew that the costs of escalation would weigh more heavily on Moscow. In the Korean War, the North agreed to accept talks leading to the continued partition of the country in part because of the election of President Eisenhower, who threatened the use of nuclear weapons to end the conflict.



—Daniel Bynum, Matthew Waxman, and Eric Larson
Air Power as a Coercive Instrument

Nuclear weapons are most effective when their use is implied. Implied use can serve as a deterrent, as demonstrated effectively through the decades of the cold war. Although technically a form of strategic defense rather than strategic attack, implied use may also serve coercive purposes, as demonstrated in the last phases of the Korean War and during the Cuban Missile Crisis. Likewise, US refusal to foreswear nuclear retaliation during Operation DESERT STORM may have prevented Saddam Hussein from using CBRNE weapons. See JP 3-12, *Doctrine for Joint Nuclear Operations*, for detailed employment doctrine.

It is a stated US policy not to employ biological or chemical weapons. CBRNE weapons have great potential for any foe who seeks to induce strategic effects. For example, such weapons may be used to induce terror or mass dislocation, to deter a course of action (e.g., intervention), to deny access, to blackmail, or to enhance international prestige. Air and space forces must be prepared to deter CBRNE use and appropriately respond against any adversary that threatens to use or uses CBRNE. Preemptive strategic attack against an adversary's CBRNE capability before it can be weaponized, relocated, exported, hidden, or used may be a commander's best option against those threats. The growing danger from proliferation of such weapons requires that air and space forces be capable of locating and attacking them with a high degree of accuracy, in order to ensure their destruction while minimizing collateral damage. The potential for catastrophic collateral damage is a particularly important concern when attacking such weapons directly. If an enemy locates CBRNE close to civilian population centers, it may be politically, legally, or morally difficult to target them unless their use is certain and imminent. In such cases, an indirect approach may be better. Directly attacking production or supporting infrastructure, such as plants where nontoxic chemical precursors are made or key means of transportation used to move them may have the desired effects and achieve the objectives. It may be necessary to use nonlethal means to force an adversary to move the weapons to locations where they can be safely attacked. It may also be safest to degrade or destroy some production facilities *before* they begin production, as the Israelis did against Iraq's *Osiraq* nuclear reactor in 1981.

ELEMENTS OF EFFECTIVE EMPLOYMENT

Parallel Versus Sequential Operations

Strategic attack will often be most effective when employed using the parallel warfare concept. Strikes on COGs are almost always necessary, but a parallel approach—simultaneously striking a wide array of targets chosen to cause maximum shock effect across an entire enemy system—limits an adversary's ability to adapt and react and thus places the most stress on the system as a whole. This may offer the best opportunity to trigger system-wide shock, thus inducing paralysis or collapse. The object is to effectively control the opponent's strategic activity through rapid decisive operations. Even when this is not fully realized, parallel attack should work synergistically with other actions to cause favorable changes in enemy behavior.

The successful prosecution of parallel war requires more than compressing sequential attacks into one simultaneous attack. Parallel war exploits three dimensions—time, space, and levels of war. In the opening hours of the Gulf War, all three dimensions were exploited:

- *Time—within the first 90 minutes over fifty separate targets were on the master attack plan. Within the first 24 hours, over 150 separate targets were designated for attack.*
- *Space—the entire breadth and depth of Iraq was subjected to attack. No system critical to the enemy escaped targeting because of distance.*
- *Levels of war—national leadership facilities (strategic level), Iraqi air defense and Army operation centers (operational level), and Iraqi deployed fighting units—air, land, and sea (tactical level)—came under attack simultaneously.*

—Maj Gen David A. Deptula
Effects-based Operations: Change in the Nature of Warfare

Examples of successful parallel attack at the operational level abound. Coalition forces effectively destroyed Iraqi ground resistance using this approach during Operation DESERT STORM and OIF. The Israelis used similar methods to achieve similar results against Arab armies in the 1956 and 1967 wars and the Egyptians achieved it at the tactical level against the Israeli Bar-Lev defensive line in the 1973 war. While the theoretical ideal of complete paralysis was not achieved in any of these instances, enemy forces were still prevented from functioning as coherent systems through the mechanism of parallel attack. Strategic attack aims at similar effects upon an enemy system as a whole. The Allies sought such effects against Germany during World War II's CBO, enjoying success during the last ten months of the war in Europe, when near-parallel and unremitting attack on Germany's transportation network became feasible on a large scale. Coalition bombing during Operation DESERT STORM also approached this result, but the effect was fleeting and did not prevent the Iraqis from taking action such as launching the SCUD campaign against Israel. Similar bombing in OIF may have been more effective if it worked synergistically with parallel attacks against Iraqi fielded forces to ensure swift victory. While not foolproof, a parallel approach may hold the best prospect of causing cascading changes throughout an enemy system.

In some circumstances, parallel operations may not be possible due to resource or political constraints and desired effects must be achieved sequentially. In these cases, attacks should be sequenced so that the resultant effects attain the objectives in priority order. When employed this way, much of the mass and shock effect of air and space power may be compromised.

One of the highest-priority enabling objectives for air commanders will always be to gain the degree of air superiority needed to make other operations possible. Developments in air defense technology may necessitate devoting a substantial weight of effort to obtaining air superiority. This should be done in concert with (and sometimes before) strategic attack operations are

commenced if there is a significant risk of losing the assets employed. The US found this was necessary during World War II, having lost thousands of bombers in attacks against the heart of Europe before switching focus to defeat of the *Luftwaffe* in early 1944. The effectiveness of Allied bombing improved remarkably after this was accomplished. The Israelis also found it necessary to neutralize the Egyptian ground-based air defense system before their air force could operate effectively during the 1973 *Yom Kippur* War.

It is possible to combine parallel and sequential attack strategies. Such a combination recognizes those cases where constraints and restraints may limit the ability to carry out simultaneous attacks, but incorporates as many of the advantages of parallel attack as possible. In combined parallel and sequential operations, high priority objectives are the focus of the initial air and space effort. At phase points, the campaign can be expanded to incorporate additional objectives, while continuing to ensure the previous requirements are met. For example, the first air and space objectives might be to isolate national leadership, destroy CBRNE and the means of delivery; achieve air, space, and information superiority; and destroy certain C2 capabilities. Once these objectives have been met, air and space operations could then expand to incorporate additional objectives, such as disruption of national fuel stocks, electric power, and transportation systems, or dislocation of enemy fielded forces. In effect, this was the approach adopted in Operation DESERT STORM, although the first "phases" were completed much faster than originally planned. The JFACC can tailor a campaign in this manner to a level that maximizes intensity but maintains focus and enhances control. A phased strategy, with varying operational intensity, may also be forced upon commanders by external constraints, as was the case in OAF.

Denial and Coercion

Victory in any conflict requires some mechanism for changing the enemy's behavior. In the largest sense, all mechanisms seek to influence the *will* of the enemy's controlling entity, the leadership. There are two broad methods for doing so: affecting their capability to engage in conflict (hoping that this ultimately changes their will) and attempting to affect their will directly. *Denial* strategies are directed at the enemy's capabilities. *Coercion* strategies seek to redirect the enemy's will, persuading them to choose one set of behaviors over another by making the alternatives less palatable to them.

Denial. Strategic attack can play a significant part in denying the enemy the resources, command capability, and strategic choices they need to continue the fight. The CBO and Pacific bombing campaigns that targeted German and Japanese industrial resources and the coalition strategic air effort against the Iraqi regime during Operation DESERT STORM and OIF are examples of denial. It may soon be possible to compel by inducing strategic paralysis within entire enemy systems, rendering effective resistance impossible—i.e., denying the enemy the ability to act, at least temporarily. The air efforts in Operation DESERT STORM and OIF approached this result.

Coercion. Strategic attack has also been used successfully to coerce. This generally involves more subtle applications or implications of military force and is usually more difficult to accomplish than denial. Early efforts offered a mixed record of success. In the Korean War,

the "strategic" air effort against the North's resources was unsuccessful, but the implication of nuclear escalation (implied use of strategic attack) did bring about a permanent cease-fire. Initial efforts at strategic uses of airpower in Vietnam failed due to a fundamental misunderstanding of the nature and motivation of the enemy, but bombing during LINEBACKER II did coerce the North Vietnamese into a limited settlement that permitted US withdrawal from the war. More recently, the advent of precision weaponry and stealth permitted more discriminate precise use of airpower, improving strategic attack's coercive "track record." Coercive use of strategic attack, although problematic at first, proved indispensable to success in Operation DELIBERATE FORCE and OAF. Of course, the cold war's successful nuclear deterrence (another strategic operation involving the implied use of strategic attack) represented the highest expression of Sun Tzu's dictum, "To subdue the enemy without fighting is the acme of skill."

Past operations have shown that successful coercion with air, space, and information power is a product of one or more of the following factors:

Escalation Dominance. Escalation dominance is the ability to increase the enemy's costs of defiance while denying them the opportunity to neutralize those costs or counter-escalate. Nuclear retaliation remains the ultimate form of escalation dominance and its threat is still valuable in deterring an adversary's use of CBRNE, but many nonnuclear applications of strategic attack offer options as well. The credible threat of a major increase in the tempo or destructiveness of bombing may be effective, as may a change in intended effects: switching from attacks on purely military targets to attacks on dual-use infrastructure (civilian infrastructure supporting military functions). Both of these proved effective during OAF. Escalation dominance must be planned through the full spectrum of actions and counter-actions in the conflict. Effective use requires a clear understanding of the desired friendly political and military end state.

I think…that had we [the Serbian government] rejected that joint [peace] proposal of…the G-7 plus Russia, then there would have been yet another change for the worse that would have placed yet another trump card into the hands of our enemies…. Without doubt, even more massive bombing would have followed in retaliation, with the loss of a great number of lives.

—Slobodan Milosevic
Interview on Belgrade Palma Television, 12 December 2000

Threatening to Defeat the Enemy's Strategy. Strategic attack can accomplish this in a variety of ways. One of the most obvious, deterring or denying use of CBRNE, may be accomplished through threat of nuclear retaliation or by limited or threatened conventional attacks on production and delivery systems. Direct strikes against enemy leadership (as in OEF), or its connectivity to instruments of national power (such as control links to fielded forces, as in Operation DESERT STORM), can remove strategic options. Effects of the latter sort may be difficult to achieve with strategic attack alone, however.

Magnifying Threats From Third Parties. In many cases, threats to a hostile regime from third-party sources, such as internal dissidents or a nation external to the conflict, can wield significant coercive power. Strategic attack can contribute to such coercive efforts by reducing the ability of an adversary to defend against a hostile third power or by weakening internal control mechanisms, thus highlighting the fragility of the regime. Efforts of the latter sort played a part in Saddam Hussein's decision to begin his troops' withdrawal from Kuwait during Operation DESERT STORM and in Slobodan Milsoevic's decision to come to terms with NATO during OAF. Strikes against dual-use assets like electrical power, in addition to having system-wide denial effects, may prove effective in coercing regimes in which popular unrest is an issue.

Credible Threat or use of Force. The use of strategic attack, or the implication of its use, must be credible in an adversary's mind if coercion is to be successful. Through words or actions, we must be able to convey to the enemy that we can and will deliver on our promises in ways that endanger what they value. The restricted and graduated nature of US strategic attack efforts in Operation ROLLING THUNDER failed to convey to the North Vietnamese leadership that we intended to or could inflict damage meaningful enough to warrant even a temporary halt to their military action in South Vietnam. In LINEBACKER II, by contrast, the US was able to deliver upon a threat of retaliation with sufficient scope and intensity to coerce a limited settlement from North Vietnam.

There is a danger here: while successful threats or uses of force can enhance credibility, unsuccessful uses can as easily destroy credibility. The "mystique" of certain forms of airpower (such as the B-52 bomber) helped convey the seriousness of US intent during the LINEBACKER operations. On the other hand, some have argued that airpower "failed" in Vietnam, hurting America's overall military credibility. While US failure in Vietnam was a failure of overall political and military policy, not of airpower alone, the *perception* of the "failure of airpower" in some circles led many to discount its capabilities as a coercive tool for a number of years. This may have contributed to Saddam Hussein's decision calculus when planning for Iraq's invasion of Kuwait in 1990 (Hussein's pre-war statements concerning US airpower lend credence to this idea) and contributed to the failure of American efforts to coerce Iraqi withdrawal from that country during Operation DESERT SHIELD.

Enemy Vulnerability and Susceptibility to Coercion. Not all enemies can be coerced and an enemy who was successfully coerced in the past may not be coercible in the future. For coercion to succeed, the enemy must not be so desperate or so devoted to their course of action that they are unwilling to change their behavior for anything short of complete subjugation. Traditionally, parties to ethnic, religious, civil, or national liberation wars have been difficult to coerce. Coercion may still be possible in such conflicts, but it may be more difficult, take more time, and require more force to effect. In general, the coercive "track record" of strategic attack in Vietnam was very poor, due mainly to the implacability of enemy leadership. A dramatic escalation in the level of force used, however, did wring moderate concessions from the North Vietnamese during LINEBACKER II, albeit at a substantial political cost back in the US.

Detailed Understanding of Enemy Leaders' Thinking and Motivations. This is necessary for most aspects of planning and executing strategic attack, but is particularly vital for successful coercion. US failure to understand North Vietnamese leadership led to coercion's poor performance in that war. Much more sophisticated appreciation of the enemy (for example, strike and IO against dual-use commercial assets controlled by the Serbian ruling elite) enabled successful coercion of Slobodan Milosevic during OAF.

Complementary Operations and Synergy

While strategic attack offers commanders independent, potentially war-winning options, it is usually most effective when employed in conjunction with surface forces and other instruments of national power. **Strategic attack contributes to and benefits from the synergistic effects of other operations.** Counterair efforts enable all other applications of airpower to operate unimpeded. Counterspace and counterinformation operations separate an adversary from indigenous or third party support, preventing enemy space or information systems from interfering with strategic attack. Surface maneuver benefits from and supports strategic attack by creating a dynamic environment that the enemy must confront with degraded capabilities. Land offensives create high demands upon both enemy infrastructure and fielded forces by speeding consumption of vital war materiel, thus potentially creating enemy critical vulnerabilities.

During the CBO the Allies waged an extended strategic attack campaign against German oil production before the effects became apparent. German oil consumption began to exceed production in May 1944 and by December the fuel shortage reached catastrophic proportions. The Germans launched the Battle of the Bulge in December 1944 in part to capture Allied stocks of fuel, but failed when many Panzer units ran out of fuel before reaching their objectives. Strategic attack and counterair efforts also worked synergistically to help defeat the Luftwaffe in early 1944, by offering the Germans bomber formation targets they couldn't ignore in order to draw German fighters into the teeth of the new US P-47 and P-51 fighter escorts. Germany's pilots, not its airframes, were its vulnerability. The result took months, but was decisive in achieving the Allies' counterair objectives.

"Between January and April 1944 our daytime fighters lost over 1,000 pilots. They included our best squadron, Gruppe and Geschwader commanders. Each incursion of the enemy is costing us some fifty aircrews. The time has come when our weapon is in sight of collapse."

—General der Jagdflieger Adolf Galland
Luftwaffe War Diaries

Strategic attack may have immediate effects that enhance other operations. For example, during Operation DESERT STORM, one objective was to sever Iraqi leadership's communication links to its fielded forces. The critical vulnerabilities within these links were the

fiber optic lines that ran across the Tigris River bridges in Baghdad. Coalition aircraft destroyed these bridges, crippling the Iraqi national C2 network, which greatly contributed to accomplishment of theater objectives against Iraqi forces in addition to weakening Iraqi leadership.

Complementary operations can enhance delayed strategic effects. Many times, counterforce operations can work hand-in-hand with strategic attack to place maximum pressure upon an enemy system. Similarly, strategic attack can be used to force crucial elements of enemy fielded forces into a conflict, where they can be destroyed by complementary counterforce action.

PITFALLS AND LIMITATIONS

Strategic attack has a proven record of success, but it has also failed in application in a number of cases. Failure was generally due to poor understanding of the enemy or of the pitfalls inherent in a conceptually difficult form of force application. Success requires careful planning; thorough, sophisticated understanding of the enemy; complete knowledge of one's own capabilities, requirements, and vulnerabilities, as well as anticipation of the effects that problems like friction, incrementalism, misprioritization, and restraints/constraints can have on operations.

Friction

Everything in war is very simple, but the simplest thing is difficult. The difficulties accumulate and end up producing a kind of friction that is inconceivable unless one has experienced war.

—Carl von Clausewitz
On War

The workings of chance and the natural inertia that exists within any large organization, like a military force, play havoc in all forms of warfare. There are, however, elements of Clausewitz' concept of "friction" that uniquely influence very complex operations like strategic attack. These include (but are not limited to):

Imperfect Knowledge and Misunderstanding. All forms of warfare may suffer from imperfect understanding of the enemy and their motivations, but strategic attack will almost certainly fail if the enemy is seriously misjudged. Such was the case in Vietnam, where both the military and civilian authorities misunderstood the nature of the conflict and the enemy's degree of resolve. This resulted in part from "mirror-imaging," assuming that the enemy's motivations and priorities are similar to our own. Planners and commanders can guard against the dangers inherent in imperfect knowledge (but not eliminate them entirely) by trying to understand the conflict from the enemy's perspective.

A "Target Servicing" or Attritional Mindset. One of the sources of friction inherent in much US warfighting has been the devolution of effects-based planning and execution into a simplistic approach focused on attrition of enemy systems or the servicing of target lists. This occurs because the latter approach is conceptually simpler and is easier to implement in practice. If enemy fielded forces are the focus of the air and space effort, such a mindset may not significantly hamper operations, even though it is fundamentally a less efficient way to approach warfighting. In strategic attack operations, however, such an approach is almost always harmful. During Operation DESERT STORM, planners deliberately targeted the generator halls of Iraq's 25 largest power stations because they, as the *Gulf War Air Power Survey* cited, "offered the most obvious aimpoints," despite the fact that national-level analysis showed that destroying as few as three plants could have had the same effects. This caused considerable unintended disruption of Iraqi civilian life during and after the war. A robust effects-based approach to warfighting, enforced by commanders, is the best guard against such failures.

Unintended Direct Effects—Collateral Damage. US forces will almost always be directed to avoid civilian casualties and mitigate collateral damage. First, America's moral values demand it. Second, the goodwill of populations in countries whose ruling regimes we are fighting is often an important element in US strategy and this may be harmed by such damage. When it does occur, it may significantly hamper operations, usually by making commanders or national leaders more cautious or "gun shy."

This happened following the coalition bombing of the *al Firdos* C2 bunker in Baghdad during Operation DESERT STORM. As a major national military command center, this was a legitimate and legal target for strategic attack, but the unfortunate fact that the attack killed many civilians the Iraqi regime had quartered in its top levels harmed US efforts publicly and hampered strikes on targets near the center of Baghdad for the rest of the war. Careful planning, especially for intelligence collection requirements, and precise crafting of rules of engagement can mitigate some of the dangers of unintended consequences and collateral damage, but—again—cannot eliminate them entirely.

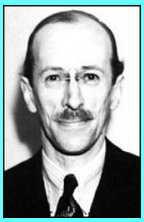
Unintended Indirect Effects. The cause and effect chain is usually very complex in strategic attack operations and some actions will almost certainly entail consequences that cannot be foreseen (however "predictive" battlespace awareness may be). These consequences can be good or bad from the friendly perspective, but some will inevitably hurt friendly efforts. An example of both followed in the wake of the Doolittle Raid: many indirect results of the raid were favorable and helped shorten the war, but the raid also provoked the Japanese into a major retaliatory campaign in eastern China that cost the Allies tens of thousands of casualties.

"Kill Chain" Considerations. A form of friction inherent in the way US forces are organized and controlled may affect the prosecution of time-sensitive or fleeting strategic targets. Striking such targets will likely have high-level political implications and therefore may require approval from the combatant commander/JFC or even the President. The unique political nature of strategic attack may, of necessity, add layers and seams to the target approval process, which costs the executing commander time. Successful strikes, however, may require swift action. This essential tension has led to the escape of important fleeting targets in the past. Modern communication technology has made it possible to compress the time required to find, fix, track,

and engage such targets, but has not compressed the time required to *decide* whether to attack them. Effective operations against such targets require careful planning beforehand and thorough understanding of the risks and consequences of ad hoc strategic attack without careful prior coordination at all levels of command, and a shared view of the intent of commanders above the COMAFFOR/JFACC's level.

Failure of Analysis

Sometimes the intelligence preparation process is simply wrong in choosing COGs or their critical vulnerabilities. Among the more famous examples is the case of early operations analysts choosing the German ball bearing industry as a focus for attack, as was discussed in the section on wargaming. Assuming a static, unreactive enemy is most often the cause of such analysis failures. Strategists must never lose sight of the fact that the enemy is a thinking, reacting agent and that war is fundamentally a contest of wills. Wargaming friendly COAs against the gamut of potential enemy COAs, a process built into the joint planning construct, is the best way to avoid such failures, but no method is foolproof.



For success, two major problems must be solved—dislocation and exploitation…. The importance of these two problems has never been adequately recognized—a fact that goes far to explain the common indecisiveness of warfare.

—B.H. Liddel-Hart
Strategy

Incremental or Sequential Application of Force

History has shown that one of the most powerful methods of defeating an enemy is to impose shock (Liddel Hart's "dislocation") upon them. For millennia, armed forces have attempted to impose shock on opposing military forces. In many cases, the most efficient use of strategic attack is to impose shock directly upon enemy leadership or upon an entire enemy system at the strategic level. Such a strategy may not be appropriate for all conflicts. Nonetheless, in those cases where it is possible and appropriate, there may be pressure upon commanders to employ force incrementally or sequentially, in ways that prevent the imposition of system-wide shock and dislocation. This may arise from a lack of understanding of the nature of armed conflict on the part of higher-level leadership (as was the case with President Johnson and SecDef McNamara during Vietnam). It may also arise if the military personnel prosecuting a conflict devolve into a "target-servicing" or attritional mindset. The first problem may be intractable from the COMAFFOR's or JFACC's perspective (although commanders should make the effort to convince those "up the chain" of the correct course of action), but the second can be combated with thorough planning and conscious maintenance of an effects-based approach throughout a conflict.

Technical or physical limitations may also force incremental or sequential operations, as the limitations of existing weapon systems did during World War II and Vietnam. Lack of available resources may do so as well. Planners and commanders must be flexible and adaptive,

always prepared to seek the highest "payoff" for the least "cost" in operations. The increasing sophistication of the tools used for strategic attack may help ameliorate some of these considerations.

Misprioritization

The prioritization of strategic attack missions versus others may create dilemmas for the COMAFFOR/JFACC as well as the combatant/JFC. Air and space power is immensely flexible and capable and will always be pulled in different directions by competing demands. Since strategic attack represents the highest potential payoff, commanders should avoid the temptation to divert resources from it to service the operational- or tactical-level fight. Near-term parts of the fight may be more urgent, but they are not necessarily more important. The temptation to divert resources may be exacerbated by the fact that it is sometimes difficult to perceive progress toward strategic attack's objectives until they are met. As a general rule, strategic attack should constitute a campaign's highest priority unless the combatant/JFC deems other efforts essential for attainment of campaign objectives or survival of some part of the joint force is threatened.

Restraints and Constraints

Political actions and conditions often form a necessary complement to strategic attack operations. However, commanders must be prepared to operate within political or diplomatic restraints and constraints that force less than optimal uses of military power and must consider them during planning and employment. Restraints prohibit certain actions; constraints compel them. Commanders must realize that political considerations may limit or meter the pace of a campaign, and may even dictate incremental or sequential air operations. During OAF, an early incremental approach to the campaign was a political necessity until consensus developed among NATO allies that stronger military force would be necessary to prevail. Some research suggests that this benefited the NATO effort by affording escalation dominance. In other cases, however, restrictions may hamper even combined strategic attack/diplomatic efforts and prevent effective coercion, as happened during ROLLING THUNDER.

As a practical matter, US commanders will almost always be constrained to minimize friendly combatant and enemy civilian casualties. They will also almost always be restrained from striking targets of special cultural, religious, or humanitarian significance. This applies to strategic attack as much as to any other application of force through airpower. Methods to meet the political or diplomatic restraint/constraint challenge include:

- Proactively articulating how strategic attack operations can achieve the combatant commander's objectives for the existing political and diplomatic situation. It may help to point out that strategic attack often offers the least expensive alternative in terms of physical destruction.

- Monitoring the political and diplomatic situation to anticipate events and circumstances that affect strategic attack operations.

- ✪ Developing alternative plan branches and sequels based on probable changes in the political and diplomatic environment.

Failure of Assessment

Assessment failures can degrade effectiveness, cause unnecessary expenditure of resources, or even cause strategic attack operations to fail. Such problems most often result from a lack of assessment planning. In Operation DESERT STORM, almost no assessment planning was done and all echelons in the process lacked trained personnel and other resources. As a result, many important targets, like WMD storage facilities and electrical system components, were struck again and again, long after initial precision strikes had destroyed them. While this did not cause operations to fail, it did divert scarce resources from other priorities and place flyers at risk over well-defended targets. Robust assessment and ISR collection planning are the best preventive measures.

BOTTOM LINE

Strategic attack seizes upon the unique capability of air and space power to achieve objectives by striking at the heart of the enemy, disrupting critical leadership functions, war-sustaining resources, and strategy, while at the same time avoiding a sequential fight through layers of forces. The proper use of air, space, and information superiority, centralized command and control, and accurate intelligence assessment are vital to successful strategic attack. Realizing that strategic attack can be the most effective use of limited air and space forces, commanders must be willing to resist the temptation to divert resources to other efforts unless such diversions are vital to attaining objectives or to the survival of an element of the joint force. Whether used in parallel attack that overwhelms enemy systems with multiple crises or more limited strikes that disrupt or coerce the enemy, strategic attack can have a decisive impact in war.

At the very Heart of Warfare lies Doctrine…

SUGGESTED READINGS

Air Force Publications

AFDD 2, *Organization and Employment of Aerospace Power*

AFDD 2-1, *Air Warfare*

Air Force Operational Tactics, Techniques, and Procedures (AFOTTP) 2-1.1, *Air and Space Strategy* (U), (Secret)

AFOTTP 2-1.2, *Operational Art and Tactics* (U), (Secret)

Joint Publications

JP 0-2, *Unified Action Armed Forces* (UNAAF)

JP 3-0, *Doctrine for Joint Operations*

JP 3-12, *Doctrine for Joint Nuclear Operations*

JP 3-30, *Command and Control for Joint Air Operations*

DOD Publications

DOD Directive 5100.1, *Functions of the Department of Defense and its Major Component.*

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Roche, James G. and Barry D. Watts, "Choosing Analytic Measures," *Journal of Strategic Studies* 11, issue 2 (Jan 1991), 165-209.

Strange, Joe, *Centers of Gravity and Critical Vulnerabilities: Building on the Clausewitzian Foundation So that We Can All Speak the Same Language* (Quantico, VA: Marine Corps University) 1996.

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Warden, John A., III. *The Air Campaign: Planning for Combat* (Washington, DC: National Defense University Press) 1988.

Watts, Barry D., et al, *Gulf War Air Power Survey, Vol II, Part II, Effects and Effectiveness* (Washington, DC: US Government Printing Office) 1993.

Watts, Barry D., *Clausewitzian Friction and Future War*, (Washington, DC: National Defense University Press) 1996.

GLOSSARY

Abbreviations and Acronyms

AETF	air and space expeditionary task force
AFDD	Air Force Doctrine Document
AFOTTP	Air Force Operational Tactics, Techniques, and Procedures
AOC	air operations center [JP 1-02] air and space operations center {USAF}
AOR	area of responsibility
C2	command and control
CAS	close air support
CBO	combined bomber offensive
CBRNE	chemical, biological, radiological, nuclear, and high-yield explosive weapons
CFACC	combined force air component commander [JP 1-02]; combined force air and space component commander {USAF}
COA	course of action
COG	center of gravity
COMAFFOR	Commander, Air Force Forces
CONUS	continental United States
DOD	Department of Defense
IJA	Imperial Japanese Army
IJN	Imperial Japanese Navy
IO	information operations
IPB	intelligence preparation of the battlespace
ISR	intelligence, surveillance, and reconnaissance
JAEP	joint air estimate process [JP 3-30]; joint air and space estimate process {USAF}
JAOP	joint air operations plan [JP 1-02]; joint air and space operations plan {USAF}
JFACC	joint force air component commander [JP 1-02]; joint force air and space component commander {USAF}
JFC	joint force commander
JP	joint publication
JTF-NA	Joint Task Force NOBIL ANVIL
MOE	measures of effectiveness
MOOTW	military operations other than war

NATO	North Atlantic Treaty Organization
OA	operational assessment
OAF	Operation ALLIED FORCE
OEF	Operation ENDURING FREEDOM
OIF	Operation IRAQI FREEDOM
OPCON	operational control
RAF	Royal Air Fore (UK)
SecDef	Secretary of Defense
SOF	special operations forces
TACON	tactical control
UHF	ultrahigh frequency radio
UN	United Nations
UNAAF	Unified Action Armed Forces [JP 0-2]
US	United States
USAF	United States Air Force
USSBS	United States Strategic Bombing Survey
USSTRATCOM	United States Strategic Command
WMD	weapons of mass destruction

Definitions

air and space power. The use of lethal and nonlethal means by air and space forces to achieve strategic, operational, and tactical objectives. (AFDD 2)

campaign. A series of related military operations aimed at accomplishing a strategic or operational objective within a given time and space. (JP 1–02)

campaign plan. A plan for a series of related military operations aimed at accomplishing a strategic or operational objective within a given time and space. (JP 1–02)

cascading effect. An indirect effect that ripples through an adversary system, usually affecting other systems. Typically, cascading effects flow throughout the levels of war and are the result of interdependencies or linkages among multiple adversary systems. (AFDD 2-1.2)

causal linkage. An explanation of how a particular action contributes or leads to a given effect. It answers the question, "why do planners believe this action will create or help create the desired effect?"(AFDD 2-1.2)

centers of gravity. Those characteristics, capabilities or sources of power from which a military force derives its freedom of action, physical strength or will to fight Also called **COGs**. (JP 3-0) *In Air Force terms, a COG is a primary source of moral (i.e., political leadership, social dynamics, cultural values, or religion) or physical (i.e., military, industrial, or economic) strength from which a nation, alliance, or military force in a given strategic, operational, or tactical context derives its freedom of action, physical strength, or will to fight.* {Italicized definition in brackets applies only to the Air Force and is offered for clarity.}

centralized control. 1. In air defense, the control mode whereby a higher echelon makes direct target assignments to fire units. 2. In joint air operations, placing within one commander the responsibility and authority for planning, directing, and coordinating a military operation or group/category of operations. (JP 1-02) [*The planning, direction, prioritization, allocation, synchronization, integration, and deconfliction of air and space capabilities to achieve the objectives of the joint force commander.*] (AFDD 1) {Italicized definition in brackets applies only to the Air Force and is offered for clarity.}

combatant command. A unified or specified command with a broad continuing mission under a single commander established and so designated by the President, through the Secretary of Defense and with the advice and assistance of the Chairman of the Joint Chiefs of Staff. Combatant commands typically have geographic or functional responsibilities. (JP 1-02)

command and control. The exercise of authority and direction by a properly designated commander over assigned and attached forces in the accomplishment of the mission. Command and control functions are performed through an arrangement of personnel, equipment, communications, facilities, and procedures employed by a commander in planning, directing, coordinating, and controlling forces and operations in the accomplishment of the mission. Also

called **C2.** (JP 0-2)

counterinformation. Counterinformation seeks to establish a desired degree of control in information functions that permits friendly forces to operate at a given time or place without prohibitive interference by the opposing force. (AFDD 1)

counterspace. Those operations conducted to attain and maintain a desired degree of space superiority by the destruction or neutralization of enemy forces allowing friendly forces to exploit space capabilities while negating the enemy's ability to do the same. (AFDD 1)

critical vulnerabilities. Vulnerable components, conditions, or resources of a COG vital to its operation, and susceptible to moral or physical attack that will achieve the most decisive effects in neutralization, degradation, or destruction of the centers of gravity. (AFDD 2-1.2)

cumulative effect. The aggregate result of many direct or indirect effects against an adversary. Typically, cumulative effects flow from lower to higher levels of war, contributing to accomplishment of higher-level objectives through the accumulation—often gradual—of lower-level effects. (AFDD 2-1.2)

decentralized execution. Delegation of execution authority to subordinate commanders. (JP 1-02) [Decentralized execution of air and space power is the delegation of execution authority to responsible and capable lower-level commanders to achieve effective span of control and to foster disciplined initiative, situational responsiveness, and tactical flexibility.] (AFDD 1) {Italicized definition in brackets applies only to the Air Force and is offered for clarity.}

direct effect. The result of action with no intervening effect or mechanism between act and outcome. Also called "first-order effect," almost always physical; usually immediate (e.g., weapons employment results). (AFDD 2-1.2)

effects. A full range of outcomes, events, or consequences of a particular action or set of actions. The action can derive from any element of power—economic, political, military, diplomatic, or informational—and may occur at any point across the continuum from peace to global conflict. (AFDD 2-1.2)

effects-based. Actions, such as operations, targeting, or strategy, that are designed to produce distinctive and desired effects while avoiding unintended or undesired effects. (AFDD 2-1.2)

effects-based operations. Actions taken against enemy systems designed to achieve specific effects that contribute directly to desired military and political outcomes. (AFDD 2-1.2)

indirect effect. Effect created through an intermediate effect or mechanism that produces a final outcome or result. Also called second-, third-, or higher-order effect. May be functional/ systemic, or psychological in nature. An indirect effect is often delayed and typically is more difficult to recognize and assess than a direct effect. (AFDD 2-1.2)

information operations. Actions taken to affect adversary information and information systems

while defending one's own information and information systems. Also called **IO**. (JP 1-02) *[Information operations are the integrated employment of the core capabilities of Influence Operations, Electronic Warfare Operations, Network Warfare Operations, in concert with specified Integrated Control Enablers, to influence, disrupt, corrupt or usurp adversarial human and automated decision making while protecting our own information superiority.]* [AFDD 2-5 draft] {Italicized definition in brackets applies only to the Air Force and is offered for clarity.}

information warfare. Information operations conducted during time of crisis or conflict to achieve or promote specific objectives over a specific adversary or adversaries. Also called **IW**. (JP 1–02)

interdiction. An action to divert, disrupt, delay or destroy the enemy's surface military potential before it can be used effectively against friendly forces. (JP 1–02)

joint. Connotes activities, operations, organizations, etc., in which elements of two or more Military Departments participate. (JP 1–02)

joint force air component commander. The commander within a unified command, subordinate unified command, or joint task force responsible to the establishing commander for making recommendations on the proper employment of assigned, attached, and/or made available for tasking air forces; planning and coordinating air operations; or accomplishing such operational missions as may be assigned. The joint force air component commander is given the authority necessary to accomplish missions and tasks assigned by the establishing commander. Also called **JFACC**. (JP 1-02). [*The JFACC uses the joint air and space operations center to command and control the integrated air and space effort to meet joint force commander's objectives. The Air Force position is that air power and space power together create effects that cannot be achieved through air or space power alone.*] (AFDD 2) {Italicized words in brackets apply only to the Air Force and are offered for clarity.}

joint force commander. A general term applied to a combatant commander, subunified commander, or joint task force commander authorized to exercise combatant command (command authority) or operational control over a joint force. Also called **JFC**. (JP 1–02)

maneuver. 1. A movement to place ships, aircraft, or land forces in a position of advantage over the enemy. 2. A tactical exercise carried out at sea, in the air, on the ground, or on a map in imitation of war. 3. The operation of a ship, aircraft, or vehicle, to cause it to perform desired movements. 4. Employment of forces in the battlespace through movement in combination with fires to achieve a position of advantage in respect to the enemy in order to accomplish the mission. (JP 1–02)

measures of effectiveness. Tools used to measure results achieved in the overall mission and execution of assigned tasks. Measures of effectiveness are a prerequisite to the performance of combat assessment. Also called **MOEs**. (JP 1-02)

operational control. Command authority that may be exercised by commanders at any echelon at or below the level of combatant command. Operational control is inherent in combatant command (command authority) and may be delegated within the command. When forces are

transferred between combatant commands, the command relationship the gaining commander will exercise (and the losing commander will relinquish) over these forces must be specified by the Secretary of Defense. Operational control is the authority to perform those functions of command over subordinate forces involving organizing and employing commands and forces, assigning tasks, designating objectives, and giving authoritative direction necessary to accomplish the mission. Operational control includes authoritative direction over all aspects of military operations and joint training necessary to accomplish missions assigned to the command. Operational control should be exercised through the commanders of subordinate organizations. Normally this authority is exercised through subordinate joint force commanders and Service and/or functional component commanders. Operational control normally provides full authority to organize commands and forces and to employ those forces as the commander in operational control considers necessary to accomplish assigned missions; it does not, in and of itself, include authoritative direction for logistics or matters of administration, discipline, internal organization, or unit training. Also called **OPCON.** (JP1-02)

operational level of war. The level of war at which campaigns and major operations are planned, conducted, and sustained to accomplish strategic objectives within theaters or other operational areas. Activities at this level link tactics and strategy by establishing operational objectives needed to accomplish the strategic objectives, sequencing events to achieve the operational objectives, initiating actions, and applying resources to bring about and sustain these events. These activities imply a broader dimension of time or space than do tactics; they ensure the logistic and administrative support of tactical forces, and provide the means by which tactical successes are exploited to achieve strategic objectives. (JP 1–02)

psychological operations. Planned operations to convey selected information and indicators to foreign audiences to influence their emotions, motives, objective reasoning, and ultimately the behavior of foreign governments, organizations, groups, and individuals. The purpose of psychological operations is to induce or reinforce foreign attitudes and behavior favorable to the originator's objectives. Also called **PSYOP**. (JP 1–02)

strategic air warfare. Air combat and supporting operations designed to effect, through the systematic application of force to a selected series of vital targets, the progressive destruction and disintegration of the enemy's war-making capacity to a point where the enemy no longer retains the ability or will to wage war. Vital targets may include key manufacturing systems, sources of raw material, critical material, stockpiles, power systems, transportation systems, communication facilities, concentration of uncommitted elements of enemy armed forces, key agricultural areas, and other such target systems. (JP 1–02)

strategic attack. Offensive action conducted by command authorities action aimed at generating effects that most directly achieve our national security objectives by affecting an adversary's leadership, conflict-sustaining resources, and/or strategy. (AFDD 2-1.2)

strategic level of war. The level of war at which a nation, often as a member of a group of nations, determines national or multinational (alliance or coalition) security objectives and guidance, and develops and uses national resources to accomplish these objectives. Activities at this level establish national and multinational military objectives; sequence initiatives; define

limits and assess risks for the use of military and other instruments of national power; develop global plans or theater war plans to achieve these objectives; and provide military forces and other capabilities in accordance with strategic plans. (JP 1–02)

tactical control. Command authority over assigned or attached forces or commands, or military capability or forces made available for tasking, that is limited to the detailed direction and control of movements or maneuvers within the operational area necessary to accomplish missions or tasks assigned. Tactical control is inherent in operational control. Tactical control may be delegated to, and exercised at any level at or below the level of combatant command. When forces are transferred between combatant commands, the command relationship the gaining commander will exercise (and the losing commander will relinquish) over these forces must be specified by the Secretary of Defense. Tactical control provides sufficient authority for controlling and directing the application of force or tactical use of combat support assets within the assigned mission or task. Also called **TACON**. (JP 1–02)

tactical level of war. The level of war at which battles and engagements are planned and executed to accomplish military objectives assigned to tactical units or task forces. Activities at this level focus on the ordered arrangement and maneuver of combat elements in relation to each other and to the enemy to achieve combat objectives. (JP 1–02)