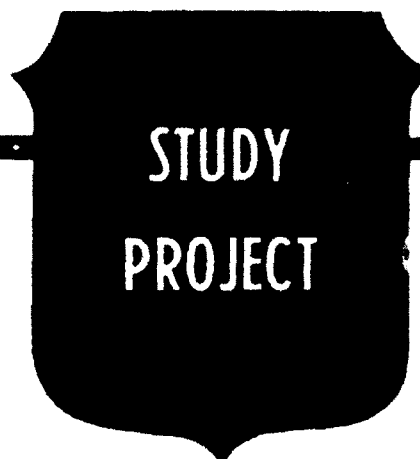


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**AIR SUPERIORITY:
BLUNTING NEARSIGHTED CRITICISM**

BY

LIEUTENANT COLONEL JOHN D.W. CORLEY
United States Air Force

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AIR SUPERIORITY: BLUNTING NEARSIGHTED CRITICISM

AN INDIVIDUAL STUDY PROJECT

by

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"Everything is possible if you have air superiority-little is possible if you lose it." General Charles Horner, architect of the decisive DESERT STORM Air Campaign, clearly articulates a need to control the medium of air. While the logic of General Horner's statement is obvious to the airpower practitioner, it may not be apparent to those who remain unconvinced about this fundamental tenet. This paper serves as a vehicle to provide an understanding of air superiority and compelling arguments for its value. To document that value, air superiority is examined from a historical perspective. While the history of air power is short relative to other forms of warfare, it does provide a laboratory to examine theory. The paper focuses on the operational level of war and does not deal in tactical employment, nor does it address how to destroy enemy fighters in aerial combat. It does attempt to answer the fundamental issue of why control of the air must remain a high-priority role of critical necessity.

AIR SUPERIORITY: BLUNTING NEARSIGHTED CRITICISM

"The Air Force has traditionally preferred to have dogfights with enemy aircraft in the sky rather than support the Army's troops on the battlefield by bombing enemy positions."

Robert J. Art¹

Following the conclusion of DESERT STORM Professor Art published a paper entitled Strategy and Management in the Post-Cold War Pentagon. Within the pages of this work were substantially unflattering and highly charged emotional characterizations of the United States Air Force as a service that has "not wanted to provide battlefield support for the Army."² Is Art correct? Has the Air Force pursued the air superiority mission to a degree that jeopardizes support for joint force commanders? Or, does Art fail to grasp the value of air superiority evident in a thoughtful examination of air power employment?

The examination of how best to apply the aerospace element of military power can serve as a vehicle to demonstrate the uniqueness of (and contributions from) air forces in meeting a commander in chief's objectives. General Charles Horner summed up the stakes involved when he wrote, "We have a moral obligation to ensure military forces are applied in the most effective and efficient manner in order to save lives, shorten the conflict period, and achieve victory."³ Achieving victory contributes to attaining the

military objectives necessary to win war - war deemed vital to resolve competing political purposes.

The purpose of this paper is to provide an understanding of air superiority and compelling arguments for its value. To document this value, air superiority will be examined from the historical perspective used to formulate aerospace doctrine. While the history of air power is short relative to other forms of warfare, this methodology can provide a laboratory to examine theory. The paper's focus will be at the campaign, or operational level of war but not to the exclusion of tactical or strategic impacts. The author's intent is not to deal in tactical employment by building a cookbook of how to destroy ingressing fighters in aerial combat. Further, this article has not been developed to dwell on technical issues nor to be dominated by specific weapons or weapons platforms. It is an attempt to answer the fundamental issue of why control of the air must remain a high-priority role of critical necessity.

CONTROL THEN EXPLOIT

Throughout history theater commanders have sought to exploit the full capability of their assigned forces. From World War II until the present, commanders have relied on their aviation arm to accomplish two principal tasks: first, to develop an operations plan that provides the utmost in aggregate air capabilities and second, to devise a requisite

method that best employs the capabilities of air assets while reducing their limitations.⁴ Careful examination of the successes and failures while attempting to meet these tasks has contributed to the development of Air Force Manual 1-1 (AFM 1-1), Basic Aerospace Doctrine for the United States Air Force.

AFM 1-1 was derived from what airmen had learned about aerospace power and its application since the dawn of powered flight. The document "describes [the airman's] understanding of the best way to do the job - the world as it should be."⁵ This historically based doctrine does not provide specific formula that can be applied without modification to present or future situations. It does, however, establish a broad conceptual framework for understanding aerospace power. Simply stated, current aerospace doctrine is a jumping off point for airmen to examine contemporary problems. But how did air superiority become an essential part of this doctrine, and where does it fit in the inextricably linked roles and missions accomplished by air power practitioners?

*Everything is possible if you have air
superiority-little is possible if you lose it.*
General Charles Horner⁶

Air Force pilots consistently tout air superiority as their number one priority. While this thought seems logical to airmen who live and breathe air power, it is often difficult to convince others of this fundamental tenant.⁷ To comprehend how air-minded theorists arrived at this closely

held position, consider the mission of the United States Air Force. The Air Force Chief of Staff, General McPeak, describes that mission as "defending the United States through **control** and **exploitation** of air and space. Control is easy enough to understand. If we control air and space ourselves we can move through it at will and we can decide who else shall move through it. Whoever does this, whoever controls air and space, accrues enormous military advantages . . . it's worth noting here only because it has come to be taken for granted that we will do this, as though air superiority were an American birthright."⁸

Birthright or not, air superiority can play an essential part in meeting a joint force commander's objectives. The process of meeting these objectives, or goals, can be likened to participating in any team sport. Each mission (or player) performs a necessary function toward fulfilling the team's goals. Coaches build their team, then assign players to perform the critical tasks they are best suited for. The 1992 edition of Air Force Manual 1-1 Vol. II says "aerospace forces have several different roles (aerospace control, force application, force enhancement, and force support) to perform in obtaining the commander's campaign objectives."⁹ The fundamental role played by air superiority assets is to gain control of the air, not as an end in itself, but as an enabling means.

ROLES, MISSIONS AND DEFINITIONS

Control of the air is the ability to fly against an enemy so as to injure him, while he has been deprived of the power to do likewise.

Giulio Douhet¹⁰

One role performed by air forces is to gain aerospace control, a subset of which is atmospheric control or air control. The need to control the medium of air is usually a prerequisite to effectively accomplish other air, land, and sea roles and missions. Gaining control of the atmosphere is the product of successfully performing the counterair mission. Colonel John Warden describes counterair as having both offensive and defensive elements. Offensive counterair (OCA) is initiated to destroy the enemy's ability to operate in the medium of air by attacking systems (or their support systems) that operate in the atmosphere.¹¹ In a similar way, defensive counterair (DCA) protects against attack from enemy systems that operate in the atmosphere.¹² Clausewitz says the purpose of war is to compel the enemy to do your will.¹³ If friendly counterair missions gain air control to enable the violent application of air, land, and sea power while precluding the enemy from inflicting similar measures of violence against friendly forces, then it follows that air superiority contributes toward compelling the adversary to do your will.

The stated definitions for counterair include a discrimination between offensive and defensive aspects of the mission. However, looking solely at definitions will not capture the essence of aerospace control. Can other discriminators such as capability, time, and location be used to further define aerospace control? Air superiority and air supremacy are frequently used interchangeably, but is there a difference? Is the difference important? These concepts are not clearly codified and must be examined to increase competency in the study of aerospace control.

Air superiority is a concept, and an objective. Habitually, this concept is considered apparent at face value. Too frequently military experts regard the definitional debates surrounding the air superiority concept to be of little substantive value, but not unlike George Bernard Shaw's notion of two great nations separated by a common language, words have meaning and the meaning for air superiority isn't fully cognizable. The following historical examples provide a glimpse at the lack of consensus for an air superiority definition:

*Freedom of air navigation when maintained by
one side through successful, sustained combat.*
Major Alexander P. de Seversky¹⁴

*A means to an end: the capacity to achieve our
own object in the air and to stop the enemy
from achieving his.*

Air Marshal J. C. Slessor¹⁵

Gaining and maintaining freedom of action in the air and also freedom from enemy air attack.

General Charles L. Donnelly, Jr.¹⁶

Securing control of the air in order to deny its use to the enemy to such an extent as will ensure the unrestricted use of that element in carrying out offensive operations not only in the air but on land and sea.

General Omar N. Bradley¹⁷

A state of moral and material superiority over the enemy, which prevents him from seriously interfering with hostile air operations, and at the same time denies him the successful employment of his own air forces.

"Squadron Leader" (pseud.)¹⁸

Each definition shares common ground with the others. Most address gaining or securing freedom of action for friendly forces while restricting action by the enemy. Some speak of the dimension of time through continuous action or sustained combat. Some address benefits derived for air assets while others include gains for air, land, and sea forces. These definitions, these words (and their meanings), can be studied using the analogy of a coalition.

The glue that holds coalitions together is shared interest. When interests are no longer shared - or are supplanted by more important or conflicting ones - the coalition begins to disintegrate. Historically, military teammates have formed coalitions based on shared interests; a common interest has been the desire to obtain air superiority. Unfortunately, players on the military team

have often defined air superiority differently, developing divergent expectations for its value. These differences have led to fruitless debates over whether air superiority was or was not, could or could not, be of value. Ultimately, the lack of consensus in defining, and understanding, the air superiority concept contributed to a breakdown in the shared interest (control of the air). Without air control to enable the efficient application of force, meeting the joint force commander's objectives was slowed or precluded.

Not surprisingly, differing sides of the air superiority definitional argument have merit. However, the value of this paper is not solely for academic purposes or to measure degree of rightness. It is to promulgate a single, clearly understood definition. Without the clear understanding of aerospace control and exploitation - how air superiority contributes to control and thus enables exploitation - campaign phases may not be successful, may not be attempted, or worse, may lead to operational defeat. The accepted definition for today's U.S. Air Force is contained in joint publications.

That degree of dominance in the airbattle of one force over another which permits the conduct of operations by the former and its related land, sea, and air forces at a given time and place without prohibitive interference by the opposing force.

Joint Pub 1-02¹⁹

A key message captured by this definition is that air superiority permits operations at a given time and place without prohibitive interference. The meaning presupposes that an enemy may possess a residual capacity to operate in, or affect friendly operations from, the medium of air. It addresses limits on friendly air forces' ability to exploit the medium and in turn argues the need for air superiority assets to revisit (or continue to pursue) counterair missions. The phrase also connotes the element of time. This element may be critical to the sequencing of campaign phases or to help determine the appropriate level of capability necessary to meet campaign objectives. Capability and time differentiate air superiority from air supremacy. Unfortunately, there is often little perceived difference between superiority and supremacy, far too frequently they are considered synonymous.

AIR SUPREMACY - SAME OLD THING?

Air Supremacy. That degree of air superiority wherein the opposing air force is incapable of effective interference.

Joint Pub 1-02²⁰

Air supremacy embodies aspects of air superiority but to a somewhat different degree. The relevance of this superset of air superiority is that the elements of time and capability have been assured. Through actions of friendly forces (or the lack of enemy air systems) an adversary is incapable of effective interference. Counterair missions

have been successful, thus the role of air control has been achieved. Friendly exploitation from the mediums of air, land and sea may now take place free from enemy air force interference.

Air supremacy, while a highly desirable state, is exceedingly difficult to attain - or maintain. Due to the inherent flexibility of aircraft, adversary air forces exist throughout the world that possess the capacity to impinge on friendly air forces' ability to gain permanent control of the air. Air Force doctrine recognizes that "aerospace control is rarely absolute. The nature of aerospace power enables an enemy possessing a relatively small aerospace force to pose a significant threat."²¹ Moreover, unlike surface forces, it is far more difficult, if not impossible, to neutralize air forces through isolation.²² An adversary may temporarily withdraw his aircraft from the area of operations, or the theater of operation may be so large that friendly air assets are insufficient to maintain control across its entirety.

These exigencies exemplify the difficulty in attaining, or maintaining, air supremacy and provide further documentation for a needed capacity to continue counterair missions. Williamson Murray in his book, Strategy for Defeat: The Luftwaffe, 1933-1945 says "the struggle for [air] control can be lengthy, continuing throughout a campaign."²³ Simply stated, it may be impossible to achieve air supremacy. If air supremacy can't be achieved, do air forces cease to

contribute to meeting the CINC's objectives? Is air supremacy the prerequisite for exploitation, or is air superiority enough? Offense, defense, time, and capability are air control differentiators; what about location?

It is worth repeating that the quest for air superiority is not an end in its self but simply (and critically) an enabling means. Gaining air superiority enables exploitation by other elements of military power. Given the difficulty in achieving air supremacy, air superiority assets should be focused at specific locations - locations defined by the joint force commander to enable the greatest application of leverage against an enemy. The 1992 version of Air Force Manual 1-1 supports this concept of focused application of air superiority assets. "If campaign success depends on complete surprise, then near absolute [air] control at specific points and times may be necessary to prevent observation by enemy aerospace forces. Likewise, highly vulnerable amphibious and airborne operations require a higher degree of aerospace control than does the well-concealed maneuver of an army through a jungle."²⁴ The joint force commander determines where to apply air superiority assets through examination of offensive and defensive courses of action.

TAKE THE OFFENSIVE

Operational conditions may dictate that air superiority assets focus on the defense (for example, the Battle of

Britain), but when conditions permit, operations should rapidly refocus on the offensive to seize control of contested airspace.²⁵ The advantage of taking the offensive is that the enemy's loss of initiative compels him to react rather than act and often reduces the time he has to make decisions. If friendly forces retain the initiative, they can exploit enemy uncertainty while reducing their own fog and friction.²⁶

Offensive counterair operations must be persistent. Air forces that possess the capacity to tenaciously pursue offensive operations provide their enemies with little hope to preserve or rebuild forces. In The Air War, 1939-1945, R. J. Overy observed that "persistent Allied offensive operations gave the Germans and Japanese little opportunity to recover from the attrition their air forces had suffered. As a result, the quality of German and Japanese aircrews progressively declined, which led to even higher losses, which further lowered their air forces' ability to recover."²⁷ While offensive operations are almost always desirable, joint force commanders may discover that taking the offensive isn't always feasible.

BALANCE WITH DEFENSE

Given the flexible nature of air power, even an injured enemy may be able to conduct offensive air operations. Thus a requirement exists for friendly forces to defend against

such attacks. The degree of friendly emphasis on defending (balance between offensive and defensive operations) should be driven by current and evolving situations, plus sequence and importance of campaign phases.

A primary consideration for shifting air forces to the defensive is the significance of operations - current and projected. One reason the Germans were unable to reinforce Stalingrad during World War II was inadequate air protection, resulting in part from the Luftwaffe's failure to shift air assets to the defense.²⁸ Because air power is inherently flexible, the joint force commander has the ability to rapidly reposition these assets. Some operations may require such a great degree of protection that the joint force commander must temporarily emphasize defensive operations over offensive operations.²⁹ Beyond the consideration of offense or defense - beyond the definitions and discriminators of counterair, air superiority, air supremacy, capability, time and location - commanders must evaluate fundamental mission needs to obtain victory.

LYNCH PINS

Operational success or failure frequently rests on a commander's ability to evaluate elements critical to forces, friendly and enemy. Basing and launch facilities, warning and control systems, and surface-to-air defenses are essential air superiority needs worthy of assessment.

Judicious commanders carefully consider these needs in terms of both friendly and enemy air forces' strengths and weaknesses.

The availability of adequate, sustainable, survivable air bases and launch facilities is key to the operation of any air force. Because of the critical nature of air bases and their support systems, protection and location are necessary areas to explore. To generate the sorties required to effectively apply air power, aircraft are often concentrated at specific locations. Concentrating air assets at only a few bases, whether land or sea, makes possible the maintainability and supportability of air power but adds an element of risk. It is easier to destroy large numbers of aircraft on the ground than it is to kill them one-at-a-time in the air. The very factor that adds to supportability (concentration) makes air bases extremely lucrative targets for enemy counterair missions. A devastating surprise attack by Israeli aircraft at the beginning of the Six-Day War in 1967 virtually destroyed the Egyptian Air Force; shortly thereafter the Egyptians sued for peace.³⁰

Advanced warning of an impending enemy counterair attack may allow friendly air forces to get off the ground and avoid destruction. However, the essential support systems that provide sustainability may not survive. Targeting runways, taxiways, munitions' storage areas, maintenance and fuel facilities will severely affect an air forces' ability to

operate. Since critical support systems are vulnerable to attack from enemy counterair and might not survive, friendly forces must control the medium of air. If control isn't gained, an option would be to relocate air bases outside the range of enemy targeting capabilities.

Locating air bases away from the threat of enemy counterair strikes is an option. Regrettably, the range and accuracy of enemy offensive weapons may influence a joint force commander to move friendly air assets to locations outside the area of operations to guarantee protection. Given a relocation of this magnitude, the advantages derived by the joint force commander from his air power element would be seriously diminished. Basing outside the theater, far from the threat, would increase sortie duration which in turn would reduce the quantity of sorties deliverable per day. Further, distant basing decreases responsiveness while increasing mission complexity. Wesley Craven and James Cate's assessment of the effectiveness of distant basing during World War II concludes that "problems arising from unfavorable base location can be mitigated by the use of long-range aircraft, but these aircraft create their own problems in terms of [reduced] loiter times, responsiveness, and [increased] vulnerability. Air refueling can also ease base location concerns although air refueling increases the complexity of each mission with attendant command and control problems and increased risk factors."³¹

If bases and launch facilities are necessary to enable air assets to control and exploit the medium of air, then the joint force commander must accept a higher degree of risk and prudently place his air bases where they can meet his objectives. Fortunately, successful counterair missions reduce the risk to desirable levels. To fully capture the value of air superiority it is essential to recognize that the benefits from counterair missions are not simply to protect air bases and thus propagate more air sorties, but to enable and enhance exploitation by all military forces.

Lamentably, doctrine from other U.S. services has tended to see air bases and air superiority as useful, and at times necessary, but only as a supporting force in the performance of the ultimate mission; the mission of taking and occupying ground.³² Hopefully, future doctrine will not emphasize which medium - air, land, or sea - is dominant. The emphasis should be on how all elements of military power can be orchestrated to rapidly and efficiently achieve theater objectives. An enabling air superiority force, operating from viable air bases, can be dominant during a campaign phase that leads to the point where maritime or land forces become the driver.³³

By the late summer of 1943, MacArthur had made significant progress in the Huon Peninsula area of New Guinea. This campaign was to lay the base for the eventual investment of Rabaul. The Joint Chiefs, however, in conjunction with the British at the Quadrant meeting in Quebec in August 1943, directed MacArthur to complete the Huon Peninsula operation and then to move along the New Guinea coast toward Vogelkop. He was directed to bypass Rabaul, to leave it for neutralization by air attack as required.³⁴

Ultimately, MacArthur captured only those bases necessary to support air operations against Japanese airfields, and then used the captured fields to extend air superiority out as far as possible. Air superiority established, he jumped over intervening Japanese ground positions to occupy new bases from which air superiority could be further extended.³⁵

The Joint Chiefs' radical direction had started MacArthur thinking of the possibility of bypassing other areas; thus began his campaign to the Philippines. Obtaining viable bases during the air superiority phase established the foundation for further movement and exploitation by air, land, and sea forces. Ultimately, this helped MacArthur achieve Pacific theater objectives. Air bases and launch facilities have repeatedly been demonstrated to be essential lynch pins for air power application, but what about warning and control? Is the air defense structure important in the attempt to gain control of the air?

Warning and control systems determine the ability to detect impending attacks and therefore the time available to

react. Given a capacity to detect attacking forces - along with adequate time and capability to react - an adversary may be able to unacceptably hinder friendly offensive air operations. In a similar vein, the lack of friendly warning and control systems could preclude adequate defenses from responding to enemy air attack.

Today's warning and control systems are centered on radio frequency technologies. The critical elements rely on detecting ingressing air forces by focusing on the electromagnetic spectrum. Examining each system's method of detection may suggest ways to defeat, or degrade, its usefulness. Recognizing that control of the air was necessary to obtain before exploitation could start, General Schwarzkopf developed a plan that used various coalition force elements to defeat the Iraqi air defense system during DESERT STORM.

The challenge would be to seize air superiority, for without it, military missions could not be performed. Special Operations Forces could attack early warning sites while the Air Force would strike against Iraq's hardened air defense sector control centers and headquarters using F-117 stealth fighters. Follow-on strikes by Air Force electronic warfare and Wild Weasel aircraft, complemented by electronic warfare and air defense suppression missions from other services and the coalition air forces, would take down the Iraqi radar defenses, opening up Iraq and Kuwait for destruction by conventional attackers. Aggressive counterair operations could then sweep the skies of any Iraqi fighter that did manage to take off.³⁶

While the destruction of enemy warning and control is key to substantially reducing defenses, enemy surface-based systems (for example, surface-to-air missiles) are also necessary considerations when determining how best to gain air control.³⁷ Surface-based defensive systems - despite being degraded by the loss of warning and control - can operate autonomously. The threat represented by surface-to-air missiles (SAMS) thus has at least two issues of concern. Clearly, the first is the destruction of friendly platforms flying within the SAM's threat range. Second, the existence of enemy SAMS can degrade an air forces' exploitation by forcing friendly aircraft to fly lower, faster, or by using terrain masking which reduces range, payload, endurance, and the ability to find and destroy targets.³⁸ Destroying enemy surface-based air defenses therefore becomes another lynch pin toward gaining air control.

Commanders contemplating offensive operations should evaluate the interaction and individual characteristics of elements of enemy surface-based defenses. Similarly, commanders should orchestrate aerospace and surface forces. Surface forces can be especially effective in degrading enemy surface-based defenses because such defenses are vulnerable to surface attack.³⁹

"The Israeli army's maneuver across the Suez Canal during the 1973 war had the additional - perhaps unintended - bonus of exploiting the vulnerability of Egyptian surface-to-air missile sites to ground attack, enabling Israeli air operations to become even more effective."⁴⁰

WHAT THE FUTURE HOLDS

The Cold War provided the stark simplicity of confrontation between superpowers and their alliances. Likewise, the era established a stable defense framework where force planners lived within lines of power etched with remarkable clarity. Those lines changed slowly if at all. With the demise of the Cold War, the world is likely to be safer from the chance of a cataclysmic clash. Therefore, pressures to strip enabling air superiority assets and emasculate defense to save money will be intense.

The uncertainties of the 1990s, and beyond, demand change in U.S. force planning priorities. Change will dictate a greater necessity for military members to understand not only the respective merits and limitation of alternative force structure choices but also the ability to communicate the values of the right force elements, including air superiority assets. Force planning should remain the process of establishing military requirements based on an appraisal of the security needs of the nation, then selecting military forces to meet those requirements within fiscal limitations.⁴¹

This paper has attempted to answer the issue of why control of the air is, and must remain, a critical role in helping meet our nation's security requirements. Understanding lynch pin needs, recognizing offensive value

while retaining the defensive balance, gaining consensus for counterair definitions, and grasping the need to control then exploit affirms why air superiority must continue to play a fundamental part in control of the air, not as an end in itself, but as an enabling means.

Air superiority enables exploitation for all the components of military power - land, sea, and air. If the United States is to retain its effective global leverage supplied by the element of military power, the tool of air superiority must remain viable. In the end, military force planners must pursue responsible force structures that include capable air superiority assets. Despite the belief that serious threats to the United States national security have been vanquished, conflict always has a way of surprising the optimists.⁴²

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³¹Information regarding the ability of aircraft to effectively operate from long range bases is taken from Air Force Manual 1-1 Vol II, 142. In turn, AFM 1-1 is based on Wesley F. Craven and James L. Cate, eds., The Army Air Forces in World War II, vol. 3, Europe: ARGUMENT to V-E Day, January 1944 to May 1945, (Chicago: University of Chicago Press, 1951; new imprint, Washington, D.C.: Office of Air Force History, 1983), 141-178.

³²Harold R. Winton, "Reflections on the Air Force's New Manual," Military Review, November 1992, 29.

³³John A. Warden III, The Air Campaign Planning for Combat, (National Defense University Press, 1988), 149.

³⁴ D. Clayton James, The Years of MacArthur 1941-45, (Boston: Houghton Mifflin Company, 1975), 190.

³⁵ *Air Campaigns of the Pacific War*, 39-42

³⁶ Department of the Air Force, Reaching Globally, Reaching Powerfully: The United States Air Force in the Gulf War, September 1991, 12.

³⁷ Air Force Manual 1-1 Vol II, 140.

³⁸ Ibid.

³⁹ Ibid, 141.

⁴⁰ Ground attack by Israeli forces neutralized four surface-to-air missile sites which created a gap in Egyptian surface-based defenses for Israeli air force to exploit. M. J. Armitage and R. A. Mason, Air Power in the Nuclear Age, (Urbana, Ill.: University of Illinois Press, 1983), 131-135.

⁴¹ Richmond M. Lloyd and Dino A. Lorenzini, "Framework for Choosing Defense Forces," Naval War College Review, January/February 1981, 46.

⁴² John T. Correll, "Strategy Editorial," Air Force Magazine, October 1992, 2.

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