

DISTRIBUTION A:

Approved for public release; distribution is unlimited.

School of Advanced Airpower Studies
Maxwell AFB, AL 36112

Form SF298 Citation Data

Report Date <i>("DD MON YYYY")</i> 01061996	Report Type N/A	Dates Covered (from... to) <i>("DD MON YYYY")</i>
Title and Subtitle The Doctrine Gap: The 27 Year Wait for a New Air Force Operational Doctrine Document		Contract or Grant Number
Authors Reese III, William G.		Program Element Number
		Project Number
		Task Number
		Work Unit Number
Performing Organization Name(s) and Address(es) School of Advanced Airpower Studies Air University Maxwell AFB, AL 36112		Performing Organization Number(s)
Sponsoring/Monitoring Agency Name(s) and Address(es)		Monitoring Agency Acronym
		Monitoring Agency Report Number(s)
Distribution/Availability Statement Approved for public release, distribution unlimited		
Supplementary Notes		
Abstract		
Subject Terms		
Document Classification unclassified	Classification of SF298 unclassified	
Classification of Abstract unclassified	Limitation of Abstract unlimited	
Number of Pages 73		

THE DOCTRINE GAP
THE 27 YEAR WAIT FOR A NEW AIR FORCE
OPERATIONAL DOCTRINE DOCUMENT

BY

WILLIAM G. REESE III

A THESIS PRESENTED TO THE FACULTY OF
THE SCHOOL OF ADVANCED AIRPOWER STUDIES
FOR COMPLETION OF GRADUATION REQUIREMENTS

SCHOOL OF ADVANCED AIRPOWER STUDIES

AIR UNIVERSITY

MAXWELL AIR FORCE BASE, ALABAMA

JUNE 1996

Disclaimer

The conclusions and opinions expressed in this document are those of the author. They do not reflect the official position of the US Government, Department of Defense, the United States Air Force, or Air University.

Contents

	<i>Page</i>
DISCLAIMER	ii
LIST OF ILLUSTRATIONS	v
LIST OF TABLES	vi
ACKNOWLEDGMENTS	vii
ABSTRACT	viii
<i>THE OPERATIONAL DOCTRINE GAP: TRUE PROBLEM OR FALSE DILEMMA?</i> . 1	
The Issue...the “Doctrine Gap”	1
Assumptions, Definitions, and Limitations	3
Preview of the Argument	6
Methodology	8
<i>THE DOCTRINE GAP GENESIS: DOCTRINE DEVELOPMENT AND THE</i> <i>CURRENT(?) AFM 2–1</i>	10
Doctrine Development: Theory and Problems.....	11
The Current(?) AFM 2–1	14
The Doctrine Gap	16
<i>THE DOCTRINE GAP WIDENS: DEVELOPMENTS IN OPERATIONAL AIRPOWER</i> <i>EMPLOYMENT CONCEPTS PRIOR TO DESERT STORM</i>	19
The Airpower Technology Base: Radical Change	19
TACM 2–1: Tactical Air Command’s Update to AFM 2–1.....	22
Goldwater–Nichols and the new “Jointness”	23
US Army Doctrine and Operational Art.....	25
The Operational Level of War and <i>The Air Campaign</i>	27
Summary.....	28
<i>THE DOCTRINE GAP CONSEQUENCES: INITIAL DESERT STORM PLANNING</i> 31	
<i>A Tower of Babel: Initial Air Operations Planning During the Persian Gulf Crisis</i>	31
Competing Plans Comparison.....	34
Conclusions	37

<i>THE DOCTRINE GAP CLOSED?: POST DESERT STORM OPERATIONAL DOCTRINE DEVELOPMENT</i>	39
The USAF Revisits the Operational Level of War.....	39
Joint Doctrine and Operational Airpower Employment	42
Summary.....	45
<i>GREAT EXPECTATIONS: AFDD2, “THEATER AIR WARFARE”</i>	46
Has the USAF proven that it no longer needs an operational–level airpower employment doctrine manual?	47
What information or guidance should AFDD2 provide in order to be useful and relevant as an operational airpower doctrine manual?	50
Does the proposed version of AFDD2 adequately fill the requirement for a USAF operational doctrine document?.....	50
Summary.....	52
CONCLUSIONS AND IMPLICATIONS.....	55
Findings	55
Implications and Areas for Further Research	57
Closing	58
GLOSSARY.....	60
BIBLIOGRAPHY	62

Illustrations

	<i>Page</i>
Figure 1. Contextual, Technological, and Doctrinal Developments Affecting Operational Airpower Employment	48

Tables

	<i>Page</i>
Table 1. Differences between Current Practice and AFM 2–1 Doctrinal Guidance.....	17
Table 2. Comparison of the Initial Air Operations Plans in the Persian Gulf Crisis	34
Table 3. Joint Publications Covering Topics Relating To Operational Level Airpower Employment.....	43
Table 4. The Evolution of Operational Level Theory and Doctrine.....	53

Acknowledgments

Never before has a supposedly “solo” project owed so much to so many.

I would like to extend my sincerest gratitude to the faculty of the School of Advanced Airpower Studies for providing the most favorable intellectual and professional environment imaginable for preparing this paper. In particular, Professor Dennis M. Drew, my thesis advisor, and Dr. David R. Mets, my thesis reader, deserve my heartfelt thanks for their earnest and constant efforts to steer this paper towards the cherished goals of clarity, conciseness, and completion. Special thanks to Col Maris McCrabb for suggesting an interesting thesis topic when I was fresh out of ideas.

I would also like to express my gratitude to the Air Force Doctrine Center for allowing access to the draft version of AFDD2. Without their help, this project would not have gotten off the ground.

Finally, I want to thank my wife and daughters for not minding (well, maybe a little bit) when the project intruded upon nights and weekends at home.

Abstract

Twenty-seven years old and growing older by the day, AFM 2-1 became technically obsolete and largely irrelevant in the early 1980s as doctrinal guidance for the employment of airpower at the operational level of war. In response to a rapid onset of contextual and technological change, a body of informal doctrine grew to fill this doctrinal gap between practice and published guidance. In the opening weeks of the Persian Gulf crisis, the USAF's reliance on informal doctrine to guide operational airpower employment had the adverse consequences of introducing unwanted fog and friction into the air campaign planning process. Nonetheless, the USAF's largest test of the operational employment of airpower since the Vietnam War – Operation DESERT STORM – ended in resounding success. Following the conclusion of the Gulf War, theater-level airpower employment has received much attention in joint doctrine manuals and USAF publications. This guidance has served to largely “close the gap” between practice and doctrine regarding the operational employment of airpower. The USAF's intended replacement for AFM 2-1, the October 1995 draft version of AFDD2 *Theater Air Warfare*, is unambitious and is likely to be ignored by its intended audience as it does not present any new information not already readily available in joint doctrine manuals or AFM 1-1. As such, it misses an opportunity to provide useful guidance and new insights to potential JFACCs and their staffs on operational airpower employment topics that have long generated debate and discussion. One such subject falls under a USAF core-competency area, strategic attack. For example, what is the USAF doctrinal position on the operational efficacy of strategic attack against national electrical systems? This issue, and others like it, will continue to

loom large in the decision making process of future JFACCs during future contingencies. Therefore, while there is no disputing the importance of operational doctrine, and despite the fact that the USAF *does* need a relevant operational doctrine document to replace AFM 2-1, I conclude that the wait should continue until a more adequate version of AFDD2 is proposed.

Chapter 1

The Operational Doctrine Gap: True Problem or False Dilemma?

Air Force Doctrine is a statement of officially sanctioned beliefs and warfighting principles which describe and guide the proper use of aerospace forces in military action. It is authoritative but requires judgment in application.

—Air Force Policy Directive 10–13 “Aerospace Doctrine”

We don’t use the ‘D’ word around here...

—Remark by Lt Gen Charles “Chuck” Horner,
CENTAF

The Issue...the “Doctrine Gap”

According to AFM 1–1, *Basic Aerospace Doctrine of the USAF*, doctrine is “what we believe about the best way to do things”¹; “...it is based on experience...is a guide for the exercise of professional judgment...and should be *alive* – growing, evolving and maturing (*emphasis added*).”² By these standards, USAF doctrine at the operational level has long been dead and buried. Dated 2 May 1969, the *current* USAF operational doctrine manual, AFM 2–1, is over 27 years old and has been functionally obsolete since at least the late 1970s.³ By contrast, AFM 1–1 *Basic Doctrine of the USAF*, has been updated five times over the same period. Time waits for no man; so, too, does doctrinal

change wait on no publication schedule. A “doctrine gap”, 27 years wide, now exists between published USAF operational doctrine and actual practice.

Is this a true problem or is it a “false dilemma?”

Despite the lack of a relevant operational service-level doctrine document, a robust but informal operational USAF doctrine indisputably exists. Evidence lies in the extraordinary success of airpower during Operation DESERT STORM and the USAF’s role as the lead agency in exploiting new airpower technologies and concepts to prosecute a joint theater-level air operations plan. That air plan contributed significantly towards crushing Iraqi military capabilities and demonstrated that the years between the close of the Vietnam war and the beginning of the Persian Gulf Crisis were not wasted.

With the success of Operation DESERT STORM, the operational strategy governing airpower employment has become a hot topic. War-fighters from all services have since struggled to define the airpower lessons learned from the Persian Gulf conflict. The publication of joint documents dealing with theater level air operations issues has greatly accelerated with the appearance of such manuals as Joint Pub 3-0 *Doctrine for Joint Operations* and Joint Pub 3-56.1 *Command and Control for Joint Air Operations*.

Yet, despite the hard-earned lessons learned from DESERT STORM air campaign planning and execution, as well as the volumes of material written on the subject since, the update to AFM 2-1, Air Force Doctrine Document 2 (AFDD2) *Theater Air Warfare*, languishes in draft status.⁴ Moreover, with its DESERT STORM success and the growing amount of guidance available in joint doctrine documents, the USAF seems to have proven that it doesn’t need its own service-level operational doctrine document. Hence,

the primary purpose of this thesis is to answer a fundamental research question: *Does the USAF need an operational doctrine manual and does AFDD2 fill the bill?*

The answer is not likely to be simple. A mere “NO!” smacks of submitting to the status quo without a fight – laziness may be the primary motivation rather than a realistic appraisal of the situation. On the other hand, a simple “YES!” would certainly be politically correct (who wants to argue *against* doctrine?), but not intellectually rigorous. Therefore, the true answer may lie somewhere between these two extremes and it is the aim of this thesis to mark that position as accurately as possible.

Assumptions, Definitions, and Limitations

It is a fundamental assumption of this paper that doctrine matters profoundly. Consider these words attesting to the importance of doctrine to warfighting:

*At the very heart of war lies doctrine. It represents the central beliefs for waging war in order to achieve victory...It is the building material for strategy. It is fundamental to sound judgment.*⁵

—General Curtis E. LeMay, USAF

*Doctrine provides a military organization with a common philosophy, a common language, a common purpose, and a unity of effort.*⁶

—General George H. Decker, USA

*Doctrine [is] every action that contributes to unity of purpose... it is what warriors believe in and act on.*⁷

—Captain Wayne P. Hughes, Jr., USN
Fleet Tactics

*Doctrine establishes a particular way of thinking about war and a way of fighting...doctrine provides the basis for harmonious actions and mutual understanding.*⁸

—Fleet Marine Force Manual 1
Warfighting

Not coincidentally, these four quotes also appear on page five of the capstone joint warfare doctrine document, Joint Pub 1, *Joint Warfare of the US Armed Forces*. Moreover, these words are backed up by significant DOD resources devoted to the development of doctrine, e.g., the Army's Training and Doctrine Command (TRADOC) and the USAF's Air Force Doctrine Center. Finally, history provides strong evidence of doctrine's importance by dint of numerous battles in which the link between defeat and outdated doctrine, or *dogma*, is widely accepted.⁹ Given this evidence, the assumption that doctrine is critically important to warfighting is not unreasonable.

It is a second fundamental assumption of this thesis that the operational level of war is critically important and that it cannot be ignored in favor of the strategic and tactical levels of war. Joint Pub 1-02 defines the operational level of war as:

The level of war at which campaigns and major operations are planned, conducted, and sustained to accomplish objectives within theaters or areas of operations. 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.¹⁰

The United States Army (USA) FM 100-5 is a bit more succinct. It calls the operational level of war "the vital link between national- and theater-strategic aims and the tactical employment of forces."¹¹ In the United States Marine Corps' (USMC) FMFM 1, the operational level war is described as "the art of winning campaigns."¹² Finally, AFM 1-1 notes that it is "the level at which generals fight."¹³ These definitions leave little room for doubt regarding the services' perceptions of the crucial importance of the operational level of war. This paper, therefore, shall assume likewise.

Clearly, then, if *doctrine* and the *operational level of war* are assumed to be critically important to warfighting, then this thesis' third fundamental assumption can be derived as follows: *operational-level doctrine* is critically important to the warfighter, as well. This thesis will limit its discussion to "*aerospace operational doctrine*" which Air Force Instruction 10-1301, *Aerospace Doctrine*, defines as:

Principles and ideas that guide the employment of aerospace forces in campaigns and major operations. More specifically than basic doctrine, it proposes ways aerospace forces can best be employed to solve specific military problems, attain specific types of objectives, achieve specific type of advantages, and attain national goals. Operational level doctrine anticipates technical and strategic and strategic needs....¹⁴

It is important to fully understand what operational doctrine is and what it is not. Note that the definition explicitly states that operational doctrine is more "specific" than basic aerospace doctrine, which according to AFI 10-1301 is "broad enduring guidance for sound employment of aerospace forces in war...it describes principles, concepts, and considerations for using aerospace forces to solve military problems of all types."¹⁵ For example, operational doctrine is not about "centralized control, decentralized execution, balance, concentration, persistence, etc." Those are the basic tenets of airpower. On the other hand, operational level doctrine is not as specific as tactical doctrine which conveys "detailed tactics, techniques, and procedures to guide optimum employment of aerospace forces performing specific military tasks."¹⁶ "Wingmen will fly 6000-9000 feet line abreast in a high threat environment" is an expression of tactical, not operational, doctrine. Operational aerospace doctrine is about employing airpower in "campaigns and major operations." Thus, for the purposes of this paper, the practical embodiment of operational

level doctrine is air campaign planning and execution; it is in this context that the “doctrine gap” will be studied.

Another key assumption concerns the current draft version of AFDD2 dated 13 October 1995, the intended replacement for AFM 2–1. Although AFDD2 is still in the review process, this paper assumes that the October 1995 draft of AFDD2 represents the most comprehensive expression of service–level operational doctrine that the USAF has to offer.

A limitation of this thesis is that while it may find fault with the draft AFDD2, it does not offer its own finished version of a USAF operational doctrine manual. As it took a team of 10 field grade officers almost two years of full time work to produce the 1992 version of AFM 1–1,¹⁷ presenting a wholly new AFDD2 within this thesis would seem to be an act of considerable hubris. However, this does not preclude *general* content suggestions regarding an operational doctrine document.

Preview of the Argument

Due to the mismatch between the rapid speed of contextual change and the slower pace of doctrinal development, there will almost always be a “gap” between published doctrine and reality. In the case of AFM 2–1, this “gap” grew quickly; by the late 1970s, the document was already largely irrelevant. However, USAF institutional practice on theater level operations continued to evolve in response to contextual change. As the “gap” between published doctrinal guidance and operational reality grew, a body of “informal doctrine” developed which was gleaned from a variety of sources: daily

experience with new airpower technologies, ideas advocated by other services, new joint doctrine concepts, and opinions of “visionary” USAF officers.

This growing reliance on informal doctrine in response to the widening “doctrine gap” had its drawbacks. For example, in the initial weeks of the Persian Gulf crisis, significant disagreements among planners concerning concepts for a theater air campaign may have resulted partly from the paucity of USAF operational doctrine.

Since DESERT STORM, a significant number of USAF publications and joint doctrine manuals have addressed operational airpower employment issues to the extent that the “gap” between practice and doctrine is significantly narrowed, if not closed altogether. For example, volume I of AFM 1–1 includes an entire chapter on the operational level of war while Joint Pub 3.0 discusses operational art at length.

However, while this new doctrinal guidance covers a wide variety of operational airpower employment topics, it is not all inclusive. For example, the many operational considerations of strategic attack, a USAF core competency, are not adequately addressed in joint doctrine. Unfortunately, the proposed draft of AFDD2 misses the opportunity to provide new insights regarding operational airpower employment. It does little more than repeat information already available in other doctrine manuals.

Drawing upon the evidence regarding the importance of operational doctrine, the effects of its absence, the current doctrinal guidance available in other forms, and the proposed draft of AFM 2–1’s replacement document, the thesis then draws its conclusion regarding the answer to the question, “Does the USAF need AFDD2?”

Methodology

Chapter Two discusses doctrine development theory and briefly reviews the contents of the current but out of date AFM 2–1 to establish an operational doctrine baseline. The growth of a body of informal operational airpower employment doctrine during the 1970s and 80s in response to the widening “doctrine gap”, as well as the character of the accompanying contextual and technological change, is examined in Chapter Three. Chapter Four examines the initial air campaign planning against Iraq to determine the effects, if any, that the lack of a current, officially sanctioned USAF operational doctrine may have had on the planning process. Chapter Five reviews the continued evolution of theater-level doctrinal concepts in the post–DESERT STORM era via an analysis of joint manuals such as Joint Pub 3–0 *Doctrine for Joint Operations* and Joint Pub 3–56.1 *Command and Control for Joint Air Operations*. Chapter Six is devoted to an in–depth look at the proposed AFDD2 and analysis of its contents. To conclude the thesis, Chapter Seven presents the study’s findings, discusses their implications for future operations, and identifies areas for further research. A glossary is also included to assist readers who may be unfamiliar with some of the acronyms used in the paper.

Notes

1. Air Force Manual (AFM) 1–1, *Basic Aerospace Doctrine of the United States Air Force*, vol. 2, March 1992, 282.
2. Ibid., vol. 1, vii.
3. AFM 2–1, *Aerospace Operational Doctrine*, is dated 2 May 1969. A TAC specific operational doctrine manual, TACM 2–1, was issued in April 1978 and was the last USAF 2–1 manual issued.
4. Telephone interview with Mr. Wayne Williamson, AFDD2 POC, USAF Doctrine Center, Langley Va, Nov 95.
5. Quoted in Air Force Manual 1–1, *Basic Doctrine* (Washington, DC: Department of the Air Force, 1984), frontispiece.

Notes

6. General George H. Decker, USA, speech given at the US Army Command and General Staff College, Fort Leavenworth, Kansas, 16 December 1960, quoted in Robert D. Heinl, Jr., *Dictionary of Military and Naval Quotations* (Annapolis, Maryland: Naval Institute Press, 1986), 28.
7. Captain (retired) Wayne P. Hughes, Jr., USN, *Fleet Tactics: Theory and Practice* (Annapolis, Maryland: Naval Institute Press, 1986), 28.
8. Fleet Marine Force Manual 1, *Warfighting* (Washington, DC: Department of the Navy, 1989), 43.
9. Just a few of the examples that come to mind are: Agincourt, Pickett's charge, trench warfare in WWI, and the early B-17 raids of the CBO.
10. Joint Pub 1-02, *Department of Defense Dictionary of Military and Associated Terms* (Washington, DC: GPO, 1994), 275-6.
11. Field Manual 100-5, *Operations* (Washington, DC: Department of the Army, 1993), 6-2.
12. Fleet Marine Force Manual 1, 23-24.
13. Air Force Manual 1-1, 297.
14. Air Force Instruction 10-1301, *Aerospace Doctrine* (Washington, DC: Government Printing Officer, 5 January 94), 7.
15. Ibid.
16. Ibid.
17. Col Dennis M. Drew, "Inventing a Doctrine Process", *Airpower Journal*, Winter 1995, 52.

Chapter 2

The Doctrine Gap Genesis: Doctrine Development and the Current(?) AFM 2–1

In order not to be left behind, we must work fast – clay feet are irreconcilable with the lightness of wings.

—Guilio Douhet

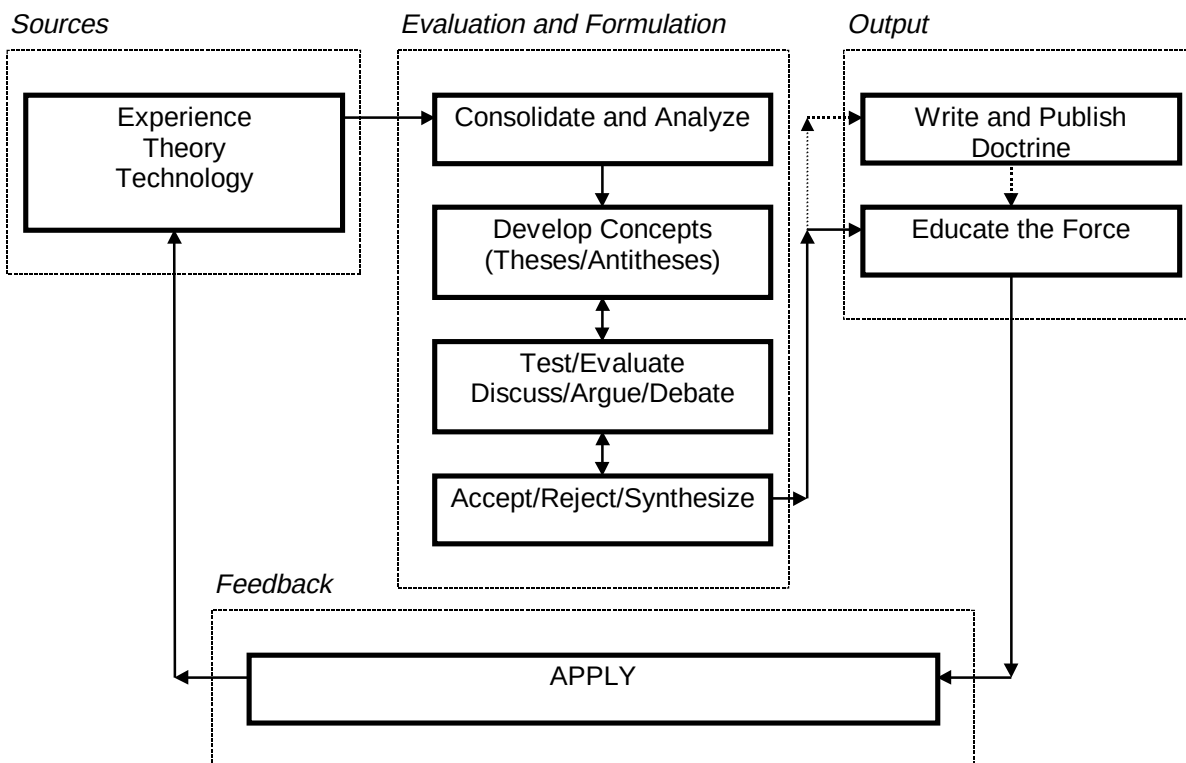
When Douhet wrote the above words, he was warning Italy’s national leaders about the dangers of falling behind in the exploitation of the new wonder weapon, the airplane. Ironically, the same warning may also be repeated to the developers of USAF aerospace doctrine. Due to the pace of contextual and technological change, USAF doctrine writers must work fast or risk “being left behind”, thus rendering the fruits of their labor irrelevant. As Douhet might have said had he been speaking to the keepers of USAF doctrine, “clay pens are irreconcilable with the lightness of wings.”

Unfortunately, USAF doctrine writers have done everything but “work fast” in updating AFM 2–1 and irrelevant is just what the USAF operational doctrine document has become. There is a vast gap between the airpower employment principles and procedures in AFM 2–1 and those that are actually in use today. This chapter will examine the genesis of this gap by first reviewing doctrine development theory; perhaps a clearer understanding how the doctrine development process *should* work and the problems inherent in *making* it work may facilitate a deeper appreciation for the consequences when

it *fails* to work. AFM 2–1 will then be briefly examined to establish a baseline from which to launch the following chapter’s investigation on how, and to what extent, other sources began to fill the “Doctrine Gap.”

Doctrine Development: Theory and Problems

The diagram below depicts a general doctrine development model as envisioned by Col (USAF, ret.) Dennis M. Drew, one of the principal authors of the current AFM 1–1.¹



As the diagram shows, doctrine development is a simple process in which the effects of contextual change are constantly evaluated, new doctrine devised, and the results of its application taken as new input for further change. The development of doctrine is a dynamic process – in fact, one commentator coined the term “Doctrine Loop” to emphasize its continual nature.² This springs from the fact that new impetus for doctrinal

change arises daily from experience (history), theory, and technological innovation.³ In response, this stimulus for change is evaluated and a doctrinal response formulated which can be either formal (published) or informal (unpublished). Whatever the output, education of the force plays a large role in the proper dissemination and use of new doctrine.

The ultimate test of any doctrine is “real world” application. The results of doctrinal application are closely studied and these in turn provide feedback for further change. Ideally, we quickly evaluate “the lessons learned” from large scale training exercises, new implications of revised basing schemes, or newly operational weapon systems. We then decide on appropriate doctrinal changes, educate the force accordingly, and study the results of the new doctrine carefully.

We have just described an *ideal* doctrine development model. Perfection in any process is rarely, if ever, achieved in practice and doctrine development is no exception. Problems exist. They are legion. And they are persistent.

Perhaps the most common problem is that we ignore or misinterpret contextual change (experience, theory, technology, etc.). For example, most of the world’s armies persisted in maintaining horse cavalry up until the eve of WWII despite the preponderance of experience from the American Civil War, WWI, and the inter-war period.⁴ In the 1930s, members of the Air Corps Tactical School misinterpreted the implications of the performance edge which bombers enjoyed at that time over fighters and adopted the mistaken, and very costly, doctrinal belief that the “bomber will always get through.”⁵ Whether contextual change is ignored or simply misinterpreted leads to same result: bad doctrine.⁶

There is another problem which plagues doctrine development that is more subtle than merely ignoring or misinterpreting contextual change but whose end result – bad doctrine – is the same. The problem is *responsiveness* and it may be one of the driving factors behind the USAF’s operational doctrine gap. To examine the issue of responsiveness, we must return to Drew’s doctrine development model and focus on the “output” part of the process.

Drew notes that while the development of doctrine is a continuous process, the...

...writing and publication of doctrine are *episodic*. At the same time...we accept, teach, and apply new concepts even though we have not yet published new doctrine. This is what we might call *informal doctrine* on the best way to use airpower – beliefs that evolve constantly but have not been written, published, and *officially sanctioned*.⁷ [emphasis added]

The major implication of continuous doctrine development, yet episodic publication, is the dual output of the evaluation and formulation process, i.e., published (formal) doctrine, and unpublished (informal) doctrine (informal doctrine can be thought of as a hodgepodge of untested theory, personal experience, ad hoc solutions, etc.). Both have their uses. Formal doctrine will always be “wrong” to some extent because it will always lag contextual change; “informal doctrine” can compensate for this problem by helping to “fine-tune” the guidance provided in formal doctrine. Ideally, formal doctrine should be updated frequently enough to ensure that there is little difference between formal and informal doctrine.⁸ However, if a doctrine development process is *unresponsive*, i.e., it is not successful in producing published doctrine on a timely basis, the “gap” between published doctrine and institutional practice (the expression of informal doctrine) may grow.

While informal doctrine has the advantage of being more timely than formal doctrine, it also has the disadvantage of not being subjected to the normal rigors and thorough examination of the formal doctrine publication process.⁹ Because informal doctrine is not codified or sanctioned, it may be incomplete, subject to widely varying interpretation, and not uniformly accepted. To paraphrase General Sir Edward Hamley, informal doctrine may often be “nothing more than the opinion of the senior officer present.”¹⁰

Over-reliance on informal doctrine can be dangerous. Informal doctrine is akin to a temporary structure; it can be quickly modified or added to, but it is not uniformly designed, it is generally built of flimsy material, and it may rest on a shaky foundation. The result is a structure that gets uglier as time progresses and will likely blow down in the first strong storm. In a later chapter, this study will specifically evaluate how the USAF’s substitute for formal operational doctrine fared in its first stint of severe weather, Operation DESERT STORM. For now, is sufficient to be aware of the potential problems posed by a large discrepancy between published doctrine and institutional practice.

The Current(?) AFM 2–1

The opening paragraph of AFM 2–1 reads as follows:

This manual describes the operational doctrine and capabilities of USAF tactical air power and sets forth fundamental principles for USAF tactical air force operations in three of five combat air functions – counter air, close air support, and air interdiction...¹¹

As this self-description indicates, AFM 2–1 is a mission-oriented document. The manual is focused around three fundamental combat airpower missions – counter air, close air support, and air interdiction – to which it devotes a chapter apiece. For each mission, AFM 2–1 first discusses general considerations such as purpose, principles, and

limitations, then addresses planning, control, and execution issues. Rarely straying into specifics, AFM 2-1 speaks in broad terms and does a credible job of imparting general employment principles for each mission area. However, while this generality serves to make much of the mission area discussions still relevant today, it is also a weakness; readers searching for information regarding the considerations involved in placement of the Fire Support Coordination Line (FSCL), “push-CAS” and Fast-FAC employment, etc., must look elsewhere.

AFM 2-1’s other chapters cover the subjects of general theater considerations, airpower employment principles, planning, targeting, and weather. It is here that AFM 2-1 “shows its age”; by today’s standards, its treatment of these topics may be less comprehensive than desired. In AFM 2-1’s discussion of theater command and control, joint force composition is described as being comprised of service components only with the AFACC (Air Force Component Commander) responsible for command and control of only USAF units.¹² The discussion of airpower employment principles is actually a restatement of basic airpower doctrine and is sketchy at best.¹³ Planning is addressed at the mission or strike package level with no discussion of an over-arching air campaign or its elements (Air Tasking Order, Master Air Attack Plan, etc.).¹⁴ Finally, while there is some discussion about general targeting considerations (vulnerability, weaponeering, etc.) and possible targets sets (military forces, POL, etc.), little specific guidance is provided regarding a process for target prioritization, selection, or assignment.¹⁵

The Doctrine Gap

Just how wide is the gap between AFM 2–1 doctrine guidance and the practices in use today? AFM 2–1’s publication date is 2 May 1969, some 27 years ago. A brief list of some of the major contextual and technological changes that have occurred since then – complete force modernization, development of stealth and precision–guided munitions, end of the cold war, theater–wide real time command and control, etc. – would convince even the most tradition–bound airman that indeed, many of the procedures and concepts advocated by a Vietnam–era document may be invalid or inadequate today.

Table 1 lists some of the major discrepancies between the employment concepts in practice today and the doctrinal guidance available in AFM 2–1. The “gap” between our current institutional practices and AFM 2–1 guidance is very wide. Yet, the procedures and concepts in use today did not suddenly appear from out of thin air; they gradually evolved over the years in response to an impetus for doctrinal change from daily experience, new theory, and technological innovation. In the absence of formal USAF doctrinal guidance, however, a preponderance of informal doctrine complemented by a smattering of formal joint doctrine filled the USAF operational doctrine gap as it grew ever wider between the end of the Vietnam War and the beginning of the Persian Gulf Crisis. How, and to what extent, this body of informal doctrine developed is the subject of the next chapter.

Table 1. Differences between Current Practice and AFM 2–1 Doctrinal Guidance

Current Practice	AFM 2–1 Guidance
<i>COMMAND AND CONTROL</i> Unified control of all theater air assets Theater air assets placed under a single Joint Force Air Component Commander (JFACC) who exercises OPCON over assigned and attached forces and TACON over military capabilities/forces made available from other services.¹⁶ Joint force components can either be functional or service in nature. “Joint forces are organized with a combination of Service and functional components with operational responsibilities.”¹⁷	Fragmented, Service control of airpower Theater air assets remain under OPCON and TACON of separate service component commanders, e.g., only USAF air assets controlled by the Air Force Component Commander (AFCC).¹⁸ No mention of functional components in a joint force.
<i>PLANNING</i> Joint Air Operations planning is theater wide in scale and scope Five phase process: ops environment research, objective determination, strategy identification, COG selection, JAOP development.¹⁹	General operations planning discussion brief; more attention given to “day-to-day” planning of tactical strike missions “Whenever feasible, targets selected for visual attacks should be [reconned] prior to [attacking].”²⁰
<i>TARGETING</i> All air assets and targeting priorities coordinated and deconflicted via specific processes and products such as the JTCB, JTL, and ATO. Targeting cycle well-defined by five-phase ATO cycle, 48 hr (notional) timeline, etc.²¹	General targeting guidance only; no specific procedures. Does not mention ATO by name.
<i>OTHER</i> Artificial airpower divisions eliminated. “Strategic” and “tactical” apply only to missions or effects, not assets.	Divides assets into “Strategic” and “Tactical” categories. “Strategic” airpower assets are not included under the AFCC’s control, only “tactical” assets.²²

Notes

1. Col Dennis M. Drew, “Inventing a Doctrine Process”, *Airpower Journal*, Winter 1995, 44. I’ve taken the liberty cosmetically altering the diagram to illustrate four major characteristics of the doctrinal process: input, evaluation/formulation, output, and feedback.

2. Squadron Leader D. Daulby, “Doctrine Development”, *Airpower — Collected Essays on Doctrine* (London, England: Stationary Office, 1990), 20.

Notes

3. Maj Gen I. B. Holley, Jr., “A Modest Proposal”, *Airpower Journal*, Winter 1995, 19.
4. Maj Gen I. B. Holley, Jr., “Of Saber Charges, Escort Fighters, and Spacecraft: The Search for Doctrine”, *Air University Review*, Sep–Oct 1983, 2–11.
5. Ibid., 8. Other factors contributing to the belief that the “bomber will always get through” were the technical difficulties of producing a long range fighter that could perform well and the ignorance and/or misinterpretation of the significance of radar.
6. It can be argued, and has (see Michael Howard), that doctrine is *always* wrong because it always lags reality. Hence, why should doctrine matter? I argue that while this may be true, doctrine can be wrong by degrees, and it *does* matter whether doctrine is wrong by a lot, or a little.
7. Drew, “Inventing a Doctrine Process”, 47.
8. In defense of informal doctrine, the formal approval process may sometimes water down new ideas to the point that they become meaningless abstractions. Dr. David R. Mets, a professor at the School for Advanced Airpower Studies, describes this process as “good ideas being killed by the dead hand of bureaucracy.”
9. Ibid., 52.
10. Jay Luvaas, *The Education of an Army* (Chicago, 1964), 3.
11. Air Force Manual (AFM) 2–1, *Tactical Air Operations — Counter Air, Close Air Support, and Air Interdiction* (Washington, DC: Department of the Air Force, 2 May 1969), i.
12. AFM 2–1, 2–4.
13. Ibid., 3–1 to 3–4.
14. Ibid., 4–1 to 4–5.
15. Ibid., 7–1 to 7–5.
16. Joint Publication 3–56.1, *Command and Control for Joint Air Operations* (Washington, DC: Government Printing Office, 14 Nov 1994), II–2.
17. Joint Pub 3–0, *Doctrine for Joint Operations* (Washington, DC: Government Printing Office, 1 Feb 95), II–15.
18. AFM 2–1, 2–3. Granted, AFM 2–1 is not a joint manual, so emphasis on USAF control of assets should be expected. Nonetheless, the failure to address joint employment airpower issues is a handicap in today’s environment.
19. JP 3–56.1, III–3.
20. AFM 2–1, 4–4.
21. JP 3–56.1, IV 4–10.
22. AFM 2–1, 2–4.

Chapter 3

The Doctrine Gap Widens: Developments in Operational Airpower Employment Concepts Prior to Desert Storm

Nothing is permanent but change.

—Heraclitus (circa 500 BC)

Although the USAF did not publish an update to AFM 2-1 in the years between the close of the Vietnam war and the start of operation DESERT STORM, a myriad of new concepts and ideas buoyed by radical new airpower technology and tested in numerous contingency operations formed the basis for an unpublished and uncodified, but nonetheless very real, USAF operational doctrine prior to the Persian Gulf crisis. This chapter tracks the development of that informal body of doctrine as it grew in response to the slowly widening gap between actual operational-level airpower employment and the guidance provided by AFM 2-1.

The Airpower Technology Base: Radical Change

Probably the single largest factor behind changes in operational airpower employment doctrine in the 1970s and 80s was the increasing sophistication of the airpower technology base. With the specter of a lightning Warsaw Pact attack against outnumbered NATO ground forces providing significant impetus for improvements in airpower, the USAF

completely modernized its tactical air fleet, added several new key capabilities, and significantly upgraded its battlefield C³I systems.

The USAF significantly enhanced its tactical airpower capability with the acquisition of the F-15, F-16, A-10, and F-15E. The high-low “mix” of the F-15, a pure air-superiority fighter, and the F-16, a multi-role aircraft, greatly improved the USAF’s ability to control the air *and* strike a wide range of targets with deadly lethality. The A-10 was designed to be especially deadly in the Close Air Support role, while the F-15E’s forte was deep all-weather interdiction. The meshing of the differing capabilities of these new aircraft into a coherent and synergistic whole through numerous large-scale training exercises such as RED FLAG and COPE THUNDER provided the USAF with a much more capable and survivable tactical air force.

Development of precision munitions accelerated between the end of the Vietnam War and the beginning of the Persian Gulf crisis. Laser-, thermal-, and optically-guided munitions, having proven their worth in the Vietnam war, steadily improved in accuracy and reliability and began entering the inventory in increasing numbers. Another type of precision munition, the cruise missile, also became operational in the 1980s. Launched from a stand-off platform hundreds of miles from the target area, cruise missiles could be used to strike heavily defended targets with precision accuracy.

Additionally, the USAF also fielded the world’s first stealth aircraft in the F-117. Aside from the advantage of allowing aircraft to penetrate enemy air defenses with a low probability of detection, stealth also held promise as a great force multiplier. Freed from the requirement for numerous support aircraft to support the strike mission, a squadron of stealth aircraft carrying precision munitions could service a much larger number of target

than entire wings of non-stealthy aircraft. The combination of stealth and increased precision gave airpower planners new options and allowed them to consider attacks against targets previously thought invulnerable due to defenses, location, or size.

Air battle command and control was greatly enhanced by the maturation of AWACS and the increasing sophistication of the communications and computer systems governing information flow. An air component commander's ability to prosecute an air battle utilizing a "centralized control, decentralized execution" philosophy was steadily improved by the continued refinement of the Air Tasking Order (ATO) system which allowed coordination of a daily master attack plan among widely dispersed air assets in-theater.

Moreover, these new airpower technologies were operationally tested prior to DESERT STORM in numerous limited conflicts and contingency operations throughout the 1970s and 80s. Israel proved the deadly combat effectiveness of the F-15 and F-16 against Syrian MiGs in the Bekaa Valley. The value of precision weapons was again underscored in Operation EL DORADO CANYON by their employment in strikes against targets in downtown Tripoli. The F-117 received its first operational combat test Panama during Operation JUST CAUSE. The performance of these and other new airpower technologies under combat conditions provided evidence for airpower thinkers to mull over in their quest to shape the evolution of operational airpower employment doctrine. A first step in that quest was the publication of Tactical Air Command Manual 2-1, *Aerospace Operational Doctrine: Tactical Air Operations*, TAC's update to AFM 2-1.¹

TACM 2-1: Tactical Air Command's Update to AFM 2-1

In 1978, Tactical Air Command published its own operational doctrine manual, TACM 2-1, which represented TAC's effort to codify some of the new ideas and procedures developed during Vietnam.² TACM 2-1 accomplished its stated purpose – “[to] provide a single source document delineating the missions/functions/ activities of all tactical air missions and supporting activities and [show] how they interrelate in tactical air operations”³ – by adhering to an “everything but the kitchen-sink” philosophy. Weighing in at over 240 pages, TACM 2-1 was a *magnum opus* compared to the relatively thin 37-page AFM 2-1. It addressed a broad range of topics, some of which were only remotely connected to the operational level of war. The subjects of TACM 2-1's eleven chapters ranged from the Soviet threat through chemical warfare defense to the command structure of NATO, PACOM, and SOUTHCOM. In fact, only chapters three (*C3I and Interoperability*), four (*Combat Air Operations*), and five (*Combat Support Air Operations*) corresponded to topics addressed AFM 2-1. Nonetheless, TACM 2-1 represented a significant step forward in operational level doctrine.

For example, AFM 2-1 noted that “strategic systems” could be used for “tactical missions”,⁴ as B-52s had flown many more ARC LIGHT missions in Vietnam than LINEBACKER operations. Its chapter on C³I systems and processes laid out the tactical command and control apparatus in great detail, expanding greatly upon the discussion of TACCs, ALCCs, ALCEs, etc. found in AFM 2-1. It even noted the new possibilities inherent in the capabilities of the new command and control aircraft, the E-3A AWACS.⁵ TACM 2-1's treatment of the counter-air, interdiction, and CAS missions included a discussion of a JFC's force apportionment considerations and the relationship of the

missions to each other in the overall campaign scheme.⁶ And, as has already been alluded to, TACM 2–1 covered many areas completely ignored by AFM 2–1. Most notably, these areas included the full spectrum of combat support air missions (air refueling, EW, combat rescue, etc.), tactical collateral functions (ASW, minelaying, sea surveillance), tactical nuclear employment, chemical warfare, maintenance, combat support ops (logistics, weather, engineering, etc.), and training. In summary, while TAC could possibly be faulted for trying to cover too many areas with one manual, TACM 2–1 certainly provided airpower planners with much-needed updated operational employment guidance.

Goldwater–Nichols and the new “Jointness”

The passage of the Goldwater–Nichols Defense Reorganization Act of 1986 represented a fundamental “sea change” for the Department of Defense in the 1980s. Among other things, the Goldwater–Nichols Act gave major new responsibilities to the chairman of the JCS, made the unified combatant command CINCs solely responsible for the employment of forces in their geographical area of responsibility, and limited the services’ role to the support functions of force organization, training, and equipping.⁷ The Goldwater–Nichols Act initiated a new era of “jointness”; a new emphasis on joint doctrine was one of the immediate results.⁸ Consequently, an extremely important joint doctrine document affecting airpower operational employment was published in April 1986. It was Joint Pub 3–01.2, “Joint Doctrine for Theater Counterair Operations.”

JP 3–01.2 was the first publication to officially define the concept of a JFACC, or Joint Force Air Component Commander. It specifically stated that a JFC “will normally designate a joint force air component commander...[whose] responsibilities will include

but not be limited to planning, coordination, allocation and tasking based on the joint force commander's apportionment decision.”⁹ The JFACC represented a quantum leap over the service-limited AFCC as described in TAC 2-1 and TACM 2-1. However, the Marines fully retained their right to reserve Marine Air-Ground Task Force (MAGTF) organic air assets for exclusive support of MAGTF operations via the 1986 Omnibus Agreement which detailed the guidelines for tactical control of marine forces. In fact, a portion of the agreement was included in the JP 3-01.2 as a not so subtle reminder of this fact.

Although JP 3-01.2 was an important step, it did not provide anything resembling comprehensive guidance regarding the joint employment of airpower. While the regulation devoted individual chapters to the topics of OCA, DCA, SEAD, and support operations, it restricted its treatment of these subjects to defining various activities and major considerations associated with each subject area. Its discussion of planning and targeting in the OCA chapter was particularly skimpy as it allocated only one page to the subject and provided air planners with only the barest of guidelines for selecting OCA targets. The chapters on SEAD and Support Operations were little better; the manual dispensed with SEAD in only two and one-half pages while it summarized the entire subject of support operation missions (EW, RECCE, SOF) in one paragraph. However, JP 3-01.2 did expound somewhat upon DCA operations; it noted that the JFACC could also be the Area Air Defense Commander (AADC), detailed a broad range of passive and active air defense measures, and discussed C² options for the various parts of the air defense system.

Additionally, JP 3–01.2 failed to address the major area of interdiction. In fact, interdiction would not be addressed in joint doctrine until the very eve of Operation DESERT STORM when Joint Test Publication 3–03, “Doctrine for Joint Interdiction Operations”, was issued on 11 December 1990. Of course, by that time, its value as current doctrinal guidance for interdiction operations was nil due to the simple fact that the planning for Operation DESERT STORM was largely complete. Thus, Joint Pub 3–01.2 was the single source of guidance from the joint doctrine realm available to airpower planners at the outset of the Persian Gulf crisis.

US Army Doctrine and Operational Art

While the operational level of war was receiving scant attention in USAF service-level doctrine, a renaissance in thinking about operational ideas and concepts was underway in the US Army. The 1982 edition of Army Field Manual 100–5, notable for its articulation of the AirLand Battle concept of tactical maneuver warfare, also reintroduced the concept of the operational level of war to Army doctrine.¹⁰ The 1986 update to FM 100–5 greatly expanded its treatment of this topic, sparking a significant amount of discussion regarding the operational level of war and related topics in the pages of the premier professional journal of the US Army, *Parameters*.¹¹

The 1986 edition of FM 100–5 also introduced the term “operational art” and defined it as “the embodiment of available military forces to attain strategic goals within a theater of war or theater of operations through the design, organization, and conduct of campaigns and major operations.”¹² Operational art quickly became the favorite topic of many army writers; in fact, so much was written on the subject in such a short period of

time that one contributor to *Parameters* called the efforts to describe operational art “a cottage industry.”¹³

In struggling to come to grips with the concept of operational art, Army officers raised many issues that a few years later would ironically prove to be of prime interest to the DESERT STORM air campaign planners. Some of the more important issues discussed were: the need for a comprehensive theater strategy and theater campaign plan (albeit discussed in the context of “green/Army” operations);¹⁴ the requirement to focus upon the correct enemy center(s) of gravity which may or may not be the enemy fielded forces;¹⁵ the philosophy of command and control at the operational level;¹⁶ and the influence of strategic goals and tactical considerations on operational planning.¹⁷

Observing the Army’s fascination with all manner of topics related to the operational level of war, USAF officers could not resist turning their own thoughts to this area of study. Lt Col Price T. Bingham, Chief of the Airpower Doctrine Division at Air University’s Airpower Research Institute, explored the relationship between interdiction, maneuver and the exercise of operational art in an article for the March 1989 edition of *Parameters*.¹⁸ In a Spring 1989 *Airpower Journal* article that was strangely prescient of Lt Gen Charles Horner’s role as JFACC during DESERT STORM, Col Clifford R. Krieger advocated the concept of an independent air interdiction campaign planned and executed by the air component commander in support of a CINC’s strategic objectives.¹⁹

With the guidance of his US Army sponsor at the National War College (NWC), Col John A. Warden III also turned his thoughts to the operational level of war. Warden’s NWC thesis, *The Air Campaign*, became the most compelling and thorough treatise on the operational employment of airpower employment available to air planners at the outset of

the Persian Gulf crisis. Given the role that Col Warden and his staff played in the initial weeks of August 1990, it was arguably also the most influential.

The Operational Level of War and *The Air Campaign*

In Col Warden's words, *The Air Campaign* was his "attempt to come to grips with the very complex philosophy and theory associated with air war at the operational level."²⁰

The Air Campaign's discussion of the classic airpower missions discussed in AFM 2-1 (air superiority, interdiction, CAS) presented the potential theater commander with some interesting points to ponder in each area. After stating the mainstream USAF position that "air superiority is a necessity"²¹, the book entered new territory by defining five sets of distinct circumstances under which the battle for air superiority may be fought.²² The discussion of these cases gave specific recommendations to the air component commander regarding offensive and defensive strategies, target sets, missions, etc. Warden's major points were that airpower is better suited for offensive operations than defensive, superior numbers are important, and striking at the correct enemy center of gravity is all important during offensive operations.

While Warden's conclusions regarding air superiority were not exactly earth shattering, his supporting arguments did cover some important doctrinal ground. For instance, in his discussion of specific target sets as enemy centers of gravity²³, he presented a rationale and methodology for attacking each set. He described command as "a true center of gravity and worth attack in any circumstance in which it can be reached."²⁴ (This preference for attacking command and control would later become evident in Warden's initial concept for an air campaign against Iraq.) He also gave clear

preference to the interdiction mission over CAS, suggesting that CAS should be equivalent to an operational commander's reserve and committed only if absolutely necessary.²⁵

After his discussion of the traditional air missions, Warden put forward some new ideas and concepts in other areas. He suggested that "air reserves" might be an idea worth considering by the air commander, an idea that had long been thought of as "not applicable" to airpower employment.²⁶ He noted that a theater commander should identify a "key" force for a campaign, whether it be land, sea, or air-power, and "orchestrate" the others in support of the key force.²⁷ Finally, he presented a framework for developing an "air campaign" and the considerations that must be weighed by an air component commander when developing it.²⁸

Although it was considered by some as a re-packaging of ideas first expressed by Douhet, Mitchell, and the Army Air Corps Tactical School instructors, *The Air Campaign* was the first comprehensive treatment of operational airpower employment in sixty years. As such, it was widely recognized as a significant contribution to airpower employment theory and its commercial publication in book form guaranteed that it would reach a wider audience than the standard NWC thesis. Compared to the stagnant AFM 2-1, his work represented a newer, more sophisticated treatment of a neglected subject.

Summary

A body of informal doctrine regarding airpower employment at the operational level grew steadily between the close of the Vietnam War and the beginning of the Persian Gulf crisis. New airpower concepts evolved in response to many factors, some of which were

force modernization, operational experience, a growing emphasis on jointness, and sister service doctrinal influences. These new concepts would finally meet the ultimate test when Iraq invaded Kuwait on 3 August 1991 to set in motion the events leading to the “mother of all battles”, Operation DESERT STORM.

Notes

1. Tactical Air Command Manual (TACM) 2-1, *Aerospace Operational Doctrine: Tactical Air Operations* (Washington, DC: Department of the Air Force, 15 April 1978).
2. Ibid.
3. TACM 2-1, 1-1.
4. Ibid., 1-2.
5. Ibid., 3-13.
6. Ibid., 4-40.
7. James A. Winnefeld, Dana J. Johnson, *Joint Air Operations: Pursuit of Unity in Command and Control, 1942-1991* (Annapolis, Maryland: Naval Institute Press, 1993), 100.
8. Ibid., 101.
9. Joint Pub 3-01.2, *Theater Counterair Operations* (Washington, DC: Government Printing Office, 4 April 1986), III-4.
10. L.D. Holder, “Training for the Operational Level”, *Parameters: Journal of the US Army War College*, Spring 1986, 7. The same edition of FM 100-5 also introduced AirLand Battle as the driving doctrinal theme behind the Army’s concept of tactical maneuver warfare against a Warsaw Pact foe on the European battlefield.
11. Between 1972 and 1985, only one article addressing the operational level of war was published in *Parameters*. Between 1986 and 1989, thirteen articles covering this topic were published in *Parameters* (eight in 1986 alone).
12. US Army Field Manual 100-5, *Operations* (Washington, DC: Government Printing Office, 1986), 10.
13. Dwight L. Adams, Clayton R. Newell, “Operational Art in the Joint and Combined Arenas”, *Parameters: Journal of the US Army War College*, June 1988, 33.
14. William W. Medel, “Theater Strategy and the Theater Campaign Plan: Both are Essential”, *Parameters: Journal of the US Army War College*, December 1988.
15. John F. Meehan III, “The Operational Trilogy”, *Parameters: Journal of the US Army War College*, Autumn 1986.
16. Charles G. Sutton Jr., “Command and Control at the Operational Level”, *Parameters: Journal of the US Army War College*, Winter 1986. Sutton’s article discussed the need for an appropriate command and control philosophy at the operational level. He might have referenced USAF doctrine whose view on that particular topic was loud and clear: centralized control and decentralized execution.
17. David Jablonsky, “Strategy and the Operational Level of War: Part I”, *Parameters: Journal of the US Army War College*, Spring 1987.

Notes

18. Lt Col Price T. Bingham, "Ground Maneuver and Air Interdiction in the Operational Art", *Parameters: Journal of the US Army War College*, Spring 1987.

19. Col Clifford R. Krieger, "Air Interdiction", *Airpower Journal*, Spring 1989.

20. Col John A. Warden III, *The Air Campaign* (Elmsford, New York: Pergamon-Brassey, 1989), xv. While he used a mix of theory and historical example to make his points about the employment of airpower on the operational level, he did not once reference any material from USAF doctrine manuals throughout the course of the book. That omission may well indicate Warden's regard for the status of USAF doctrine at that time.

21. *Ibid.*, 10.

22. *Ibid.*, 17. Warden distinguishes the sets of circumstances primarily by the relative vulnerability of friendly and enemy rear areas to attack.

23. *Ibid.*, 34. Readers should note that Warden's definition of "center of gravity" differs from the Clausewitzian (and US Army) definition. The Clausewitzian concept regarding a center of gravity is "the hub of all power and movement." Warden prefers to reference a center of gravity as "the point where the enemy is most vulnerable and the point where an attack will have the best chance of being decisive."

24. *Ibid.*, 46.

25. *Ibid.*, 142.

26. *Ibid.*, Chap 8.

27. *Ibid.*, 123–124.

28. *Ibid.*, Chap 10.

Chapter 4

The Doctrine Gap Consequences: Initial DESERT STORM Planning

Make no little plans: they have no magic to stir men's blood.

—Daniel H. Burnham

No one could accuse Col John Warden of making “little plans” when, as the Air Staff’s Deputy Director for Warfighting, he supervised an effort to plan an air campaign as the United States’ response to Iraq’s invasion of Kuwait in August 1990. Dubbed “Instant Thunder,” Warden’s air operations concept called for a six-day air campaign against targets throughout Iraq whose destruction would render Iraqi leadership ineffective and disable key military capabilities.¹ However, Warden’s plan was not the only concept for air operations against Iraq; other plans favored by CENTAF and TAC HQ staffs differed substantially. This chapter examines how those plans differed and why. The wide variance among the plans should indicate how the initial air operations planning process was affected by the lack of a relevant service-level operational doctrine.

A Tower of Babel: Initial Air Operations Planning During the Persian Gulf Crisis

The story of the initial development of the air plan against Iraq in the opening weeks of the Persian Gulf Crisis has been well documented.² The situation may be likened to a

modern Tower of Babel: several competing plans, all with significant differences, were favored by various USAF senior officers and these plans vied to become *the* plan for initial air operations against Iraq.

After Iraq's successful invasion of Kuwait on 2 August 1990, Lt Gen Charles Horner (CENTAF) outlined two initial airpower employment options to President Bush in a briefing at a National Security Council meeting on 4 August.³ The first option, the "Punishment ATO", described a single retaliatory strike in response to chemical weapons use by Iraq. The attack was to strike seventeen targets (economic, military, and political), assumed no accompanying ground attack, and was not part of a larger campaign. The second option, the "D-Day ATO", would be executed in response to an Iraqi ground invasion of Saudi Arabia. Resembling the air operations portion of OPLAN 1002 which was exercised during CENTCOM's Internal Look exercise in April 1990, it called for initial defensive air employment which would concentrate on defending against the Iraqi advance via the delay and attrition of ground forces. An offensive phase would follow later as more ground and air forces entered the theater.

On 8 August, Gen H. Norman Schwarzkopf called the Air Force Vice Chief of Staff, Gen John M. Loh, to request help in planning a retaliatory air option against Iraq.⁴ On his own initiative, Col John A. Warden III, the Air Staff's Deputy Director for Warfighting, had already instructed his staff to begin preparing a strategic air campaign against Iraq. His plan, "Instant Thunder", became the Air Staff's answer to Gen Schwartzkopf's request. "Instant Thunder" called for strikes against an array of targets critical to Iraqi "centers of gravity." Warden thought that destruction or neutralization of these targets would destabilize the Iraqi government and compel it to comply with American demands.⁵

Notably, the plan veritably ignored the Iraqi army in the field. It theorized that destruction of the strategic targets, especially those in the command and control category, would paralyze the ground forces.

Senior officers at TAC HQ did not agree and developed their own alternative. Endorsed by Gen Robert D. Russ (COMTAC), it incorporated an escalation strategy which began with a single strike against Iraqi nuclear facilities to show US resolve and was followed by a pause to gauge Iraqi response. Absent Iraqi acquiescence to American demands, it then called for gradual escalation of air strikes in frequency and power against other selected Iraqi targets.⁶

Instant Thunder was briefed to Gen Schwarzkopf on the 10th and 17th of August. He enthusiastically approved it for further development. In the face of Instant Thunder's acceptance, TAC officers shelved their plan. When Instant Thunder was subsequently briefed in-theater to Lt Gen Horner, however, he rejected it. He considered the plan's apparent disregard for the operational consequences of an Iraqi ground assault against Saudi Arabia a major weakness.

Nonetheless, Horner required several of Warden's key staff members to remain in-theater to work on a new version of the offensive air campaign, an effort headed by Brig Gen "Buster" Glosson. Brig Gen Glosson retained many of Instant Thunder's key concepts including target sets, focus, and intent in developing a more comprehensive air operations campaign in which the Instant Thunder plan essentially comprised the first phase.

Competing Plans Comparison

A comparison of the competing plans below reveals that each relied on significantly different operational-level airpower employment concepts to achieve theater objectives.

Table 2. Comparison of the Initial Air Operations Plans in the Persian Gulf Crisis⁷

<i>Plan</i>	<i>Governing Concept</i>	<i>Key Characteristics</i>
Initial CENTAF	Interdiction and Attrition	– Mainly defensive, total effort – Focus of operations targeted against enemy ground forces – Accomplishes objectives by destroying the enemy's army to wage war through interdiction and attrition of ground forces – Offensive ops limited to interdiction/CAS; no strategic attack, targeting of leadership, industrial infrastructure, C2 functions – Adheres to AirLand Battle tenets
Warden	Strategic Paralysis	– Mainly offensive, total effort – Focus of operations against enemy strategic targets, “centers of gravity” – Accomplishes objectives by inducing paralysis in enemy state through destruction of leadership, C2, infrastructure, etc. – Similar to early Air Corps Tactical School/ AWPD-1 theories
TAC	Demonstration of Resolve, Graduated Response	– Offensive, limited effort – Focus of operations against high value enemy targets – Accomplishes objectives through gradual escalation of violence – Similar to Vietnam's ROLLING THUNDER campaign

In developing their primary “D-Day ATO”, CENTAF planners followed an AirLand Battle, NATO-style doctrine whose operational focus was the enemy ground forces. Destruction of the enemy ground forces’ ability to fight was the primary mechanism through which theater objectives would be achieved. This would be accomplished through an airpower plan heavily weighted towards interdiction and CAS, and closely coordinated with the friendly ground forces’ scheme of maneuver.⁸

Warden considered enemy leadership the primary center of gravity. Instant Thunder aimed to destabilize that leadership through heavy strategic attacks against critical sectors

of Iraq's infrastructure, while simultaneously destroying key components of Iraq's offensive military capability. At a minimum, the resulting "strategic paralysis" would persuade Saddam to exit Kuwait; it might also weaken Saddam's regime to the point that it could be overthrown by domestic dissidents. Instant Thunder's reliance on strategic attack to induce national paralysis via cascading effects through inter-related systems was strongly reminiscent of ACTS and AWPB-1 "industrial web" airpower theories prior to World War II.

Finally, HQ TAC staff's proposal of a graduated and escalatory air campaign against high value targets can be directly compared to the Vietnam tactical bombing campaign, ROLLING THUNDER. To be successful, this strategy relied on convincing Iraqi leadership that the future punishment promised by the escalatory air strikes outweighed the benefits of continued defiance.

The pros and cons of each plan is not germane to this thesis; what is important is the *wide variance* between the three plans. Three staffs, headed by key USAF airpower thinkers and leaders, developed three radically different airpower employment options in response to the same set of circumstances. Bitter debate ensued, much time and effort was wasted, and a great deal of friction was unnecessarily introduced into the planning process. Why did this happen?

Col Edward C. Mann, in *Thunder and Lightning*, blames much of the "airpower debates" surrounding the initial air operations plans on a failure by USAF officers to remember basic Air Force doctrinal principles. He states that most of the answers to the questions raised by the disputants — What is airpower capable of accomplishing? Can airpower alone be decisive? How is airpower best employed? — could have been found in

the pages of AFM 1–1.⁹ He notes that the final compromise plan adopted, a melding of the CENTAF approach with Instant Thunder concepts, validated existing USAF doctrine at almost every point.¹⁰

This argument takes a slightly different approach. There's not much doubt that that the key actors involved – Col Warden, Lt Gen Horner, Gen Russ – and their staffs would have had little disagreement over the basic tenets of airpower such as the importance of air superiority, the inherent speed and mobility of airpower, etc. Such concepts, as noted by Mann, have been repeated over and over in basic USAF doctrine since WWII and before. The true bone of contention among these actors and their staffs was how to weave these basic airpower principles into an operational air campaign plan to achieve theater level objectives.

It has been shown in the previous chapters that operational USAF doctrine had been largely ignored over a twenty-year period of exceedingly rapid contextual and technological change, change which in turn affected critical aspects of airpower employment. Therefore, it could only be *expected* that three groups of USAF officers, when confronted with the same operational airpower employment problem, would rely upon a mix of sister-service doctrine, personal theory, and past experience to produce three radically different solutions. In the case of the CENTAF staff and the OPLAN 1002–90, the strongest operational doctrine influence may have been the Army's AirLand Battle doctrine. The doctrinal precepts governing "Instant Thunder" could easily be found in Col Warden's personal NWC thesis, *The Air Campaign*. Finally, TAC HQ's plan was heavily influenced by Gen. Russ, who drawing on his own experience, opted for a less risky ROLLING THUNDER type approach.

The lack of an operational doctrine may also have had another side effect. Comparing the efficacy of the given solutions was complicated by the fact that there was no common operational doctrine to use as a standard by which to judge. Given the lack of objective measures, only subjective opinion remained as the primary arbiter for settling disagreements in the planning process.

Conclusions

To assert that an outdated AFM 2-1 was responsible for all of the problems in the planning process at the outset of the Persian Gulf crisis is ludicrous and reflects mono-causal reasoning taken to the nth degree. Personalities, organizational structure, and a good measure of honest intellectual disagreement were all factors that contributed to the INSTANT THUNDER airpower debate. However, evidence and logic suggest that the absence of a relevant service-level operational doctrine at the outset of the Persian Gulf crisis may have produced two effects: it may have helped to foster a wide variance of views on the operational employment of airpower at the highest levels in the USAF, and it certainly provided no common yardstick against which to measure the merits of the competing plans. Fortunately, despite these early problems, Operation DESERT STORM was a resounding success, due in large part to airpower. The next chapter will explore how airpower's success in DESERT STORM has stimulated a new wave of doctrinal publications addressing the operational employment of airpower, perhaps adequately closing the "doctrine gap."

Notes

1. Thomas A. Keaney, Eliot A. Cohen. *Gulf War Air Power Survey Summary Report (GWAPS)* (Washington, DC: Department of the Air Force, 1993), 36.
2. Detailed accounts can be found in *The Gulf War Summary Report* by Cohen and Keaney, *Thunder and Lightning* by Edward C. Mann, and *Heart of the Storm* by Richard T. Reynolds.
3. GWAPS, 34–35.
4. Ibid., 37. Also see Col Edward C. Mann, III, *Thunder and Lightning: Desert Storm and the Airpower Debates* (Maxwell AFB, AL: Air University Press, April 1995), 32. Mann describes the request as one for a “strategic bombing campaign.”
5. The targets were initially grouped into eight general categories: strategic air defense, strategic offensive capability, leadership, civil and military telecommunications, electricity, internal consumption of oil, railroads, and NBC research. Mann, 39.
6. Col Richard T. Reynolds, *Heart of the Storm: The Genesis of the Air Campaign Against Iraq* (Maxwell AFB, AL: Air University Press, January 1995), 39–45.
7. Data gleaned from the excellent discussions of these differing air operations plan found in *Thunder and Lightning* (Mann) and *Heart of the Storm* (Reynolds).
8. Mann, 167.
9. Ibid., 171.
10. Ibid., 175.

Chapter 5

The Doctrine Gap Closed?: Post DESERT STORM Operational Doctrine Development

You can't argue with success.

—Common truism

Regardless of the doubtful relevance of AFM 2-1 or the multitude of conflicting opinions concerning the operational employment of airpower in the opening weeks of the Gulf War, there is certainly no arguing with the resounding success of airpower in Operation DESERT STORM. Since the end of the war, interest in the operational employment of airpower has surged as warfighters struggle to distill the lessons learned from the conflict. Numerous joint and USAF publications have addressed the operational level of war and the concepts associated with it such as campaign planning, operational art, and theater command and control. This chapter will survey these post-DESERT STORM USAF and joint publications to determine the answer to a nagging question: has the operational doctrine gap been closed?

The USAF Revisits the Operational Level of War

Following the successful conclusion of Operation DESERT STORM, the USAF doctrinally revisited the operational level of war with the publication of several documents dealing with operational airpower topics. The first of these publications,

TAC/PACAF/USAFE Pamphlet 2-2 *JFACC Concept of Operations*, summarized JFACC authority and responsibilities as defined in joint doctrine. It also described a concept of operations that included three key features: designation of a service commander as JFACC; JFC/JFACC awareness of all planned joint air operations, with the ability to reallocate air assets if required; and a provision for the JFACC to make execution day modifications to the ATO as required.¹ A relatively brief regulation, TAC/PACAF/USAFEP 2-2 nevertheless codified some important lessons learned regarding JFACC operations during DESERT STORM.

In 1992, the USAF concluded an extensive effort to rewrite its basic doctrine manual with the publication of a new version of AFM 1-1.² The 1992 AFM 1-1, which replaced the 1984 edition, was produced by a team of 10 field grade officers working nearly full time for two years in which an estimated 7,000 man hours were spent on research alone.³ One of the areas addressed by the new AFM 1-1 was the operational level of war.

With the publication of the 1992 AFM 1-1, the USAF made a significant stride towards officially closing its operational-level doctrine gap. Volume I's Chapter Three, "Employing Aerospace Forces: The Operational Art," is devoted exclusively to a discussion of topics relevant to the operational level of war. On the topic of campaign planning, Chapter Three notes many of the important influences affecting the employment of aerospace power in a theater campaign, among which are the enemy centers of gravity, the nature of the theater, the characteristics of the conflict, and the forces available to the theater commander.⁴ Chapter Three also provides a working definition of aerospace operational art: "the essence of aerospace operational art is the planning and employment of air and space assets to maximize their contribution to the combatant commander's

intent.”⁵ Chapter Three’s most lengthy section describes the many considerations which a theater commander must weigh in orchestrating aerospace roles (aerospace control, force application, and force enhancement) and aerospace missions (counterair, strategic attack, interdiction, CAS, airlift, air refueling, etc.). In support of the basic propositions forwarded in Chapter 3, Volume II of AFM 1–1 contains several essays such as “Orchestrating Aerospace Control”, “Strategic Attack”, and “Air Interdiction and Close Support.”⁶ In short, AFM 1–1’s treatment of the operational level of war is an effective amalgam which covers topics addressed in AFM 2–1 and TACM 1–1, e.g., aerospace roles and associated missions, while introducing new material regarding campaign planning and operational art.

The *JFACC Primer*, originally published by the Plans and Operations Directorate of the Air Staff in 1992 and revised in 1994, is another USAF manual which appeared immediately following Operation DESERT STORM.⁷ It, too, provides guidance on topics related to the operational level of war, and just as its title suggests, is aimed squarely at potential theater air component commanders. As might be expected, the *JFACC Primer* takes more of “nuts and bolts” approach to operational level topics than does AFM 1–1. It details much more specific information regarding JFACC authority, JFACC command relationships (it includes the entire text of the 1986 Omnibus agreement regarding the control of Marine TACAIR assets), and JFACC responsibilities. Additionally, its lengthy discussion of air campaign planning addresses a JFACC concept of operations, planning assumptions, enemy centers of gravity, planning tools, theater C2, and intelligence support. Annexes provide examples of a JFACC’s Estimate of the Situation, a notional master attack plan, and air campaign plan operations order. The

overall content and focus of the *JFACC Primer* make it an excellent complement to the operational-level guidance contained in AFM 1-1.

Although the USAF did not choose to update AFM 2-1 immediately after DESERT STORM, it did not neglect the operational level of war in its subsequent doctrinal publications. It made a concerted effort to codify many of the JFACC related lessons learned in TAC/PACAF/USAFEP Pamphlet 2-2, specifically addressed operational art and campaign planning in the 1992 AFM 1-1, and described the “nuts and bolts” of JFACC operations in the *JFACC Primer*. However, USAF writings regarding operational aerospace power employment pale in comparison to the great strides which have been subsequently made in the joint doctrine arena.

Joint Doctrine and Operational Airpower Employment

The Persian Gulf War was perhaps the most significant and successful example of the joint employment of airpower at the operational level since WWII. Not surprisingly, the topic has garnered much attention in recent joint doctrine manuals. The table below lists some of joint publications (current or in development) which address operational airpower employment issues. The publications for which the USAF is the lead agency are marked with an asterisk.

**Table 3. Joint Publications Covering Topics Relating To Operational Level
Airpower Employment**

JP 3-0	<i>Doctrine for Joint Operations</i>
JP 3-01	<i>Joint Doctrine for Countering Air and Missile Threats</i>
JP 3-01.2*	<i>Joint Doctrine For Theater Counterair Operations</i>
JP 3-01.4*	<i>Joint Tactics, Techniques, and Procedures for Joint Suppression of Enemy Air Defense (J-SEAD)</i>
JP 3-01.5	<i>Doctrine for Joint Theater Missile Defense</i>
JP 3-03*	<i>Doctrine for Joint Interdiction Operations</i>
JP 3-04	<i>Joint Doctrine for Maritime Operations (Air)</i>
JP 3-09	<i>Doctrine for Joint Fire Support</i>
JP 3-13	<i>Joint Doctrine for Command and Control Warfare (C2W)</i>
JP 3-14	<i>Joint Doctrine; Tactics, Techniques, and Procedures for Space Operations</i>
JP 3-51	<i>Electronic Warfare in Joint Military Operations</i>
JP 3-52*	<i>Doctrine For Joint Airspace Control in the Combat Zone</i>
JP 3-55*	<i>Doctrine for Joint Reconnaissance, Surveillance, and Target Acquisition</i>
JP 3-56.1*	<i>Command and Control Doctrine for Joint Air Operations</i>

Clearly, there is a wealth of joint doctrine providing guidance on a variety operational airpower employment topics. Joint Publication 3-0 *Doctrine for Joint Operations* is the keystone document of the joint operations series; it covers a wide variety of topics germane to the operational level of war, and more specifically, to theater-level aerospace operations.⁸ It allows the possibility of service or functional components in a joint force and notes that a JFC will “normally appoint a JFACC.”⁹ Its chapter on joint operations planning is particularly robust as it covers many general operational concepts in-depth (campaign plans fundamental, operational art, and planning considerations) while also discussing many topics of particular interest to theater air commanders (targeting and the targeting process, apportionment/allocation, fire support coordination measures, etc.).¹⁰

Another extremely important joint doctrine document regarding theater-level airpower employment is Joint Publication 3-56.1 *Command and Control for Joint Air Operations*. True to its title, Joint Publication 3-56.1 provides “fundamental principles

and doctrine for command and control of joint air ops throughout the range of military operations.”¹¹ Similar in focus and approach to the USAF’s *JFACC Primer*, this manual provides detailed information regarding all aspects of JFACC operations such as command relationships, responsibilities, airspace control, staff organization, and even transition considerations if JFACC designation shifts to another command entity. It describes a five-phase joint air operations planning process and discussion of the targeting process includes Joint Targeting Coordination Board (JCTB) considerations, targeting responsibilities, and a detailed description of the ATO cycle to include a list of joint ATO phases. Examples of a Joint Air Operations Plan format as well as descriptions of Joint Air Operations Center (JAOC) liaison elements, divisions, and branches are covered via appendices. Containing enough detail to be useful but not so specific as to be constraining, Joint Publication 3–56.1 provides invaluable guidance to potential JFACCs and their staffs.

Just as AFM 2–1 and TACM 2–1 discussed specific airpower missions in an operational-level context, numerous joint doctrine publications with similar objectives have either been completed or are in development. One such example is Joint Publication 3–03 *Doctrine for Joint Interdiction Operations*.¹² Still in draft status at the time of this writing, Joint Publication 3–03 discusses the problems and considerations involved in synchronizing interdiction and maneuver to achieve optimum benefits, notes the many nuances of the relationship between interdiction and the Fire Support Coordination Line (FCSL), and details targeting considerations important to theater air commanders. It also describes the important elements which must be present to achieve effective interdiction and suggests how various categories of interdiction-capable forces be matched to specific interdiction missions. Other publications which provide similar guidance regarding

different airpower missions are Joint Publication 3–01.4 *Joint Tactics, Techniques, and Procedures for Joint Suppression of Enemy Air Defense (J–SEAD)* and Joint Publication 3–55 *Doctrine for Joint Reconnaissance, Surveillance, and Target Acquisition*.

Summary

If the operational “doctrine gap” has not been completely closed by the attention paid to theater–level airpower employment topics in USAF and joint doctrine publications since DESERT STORM, then it has certainly been narrowed substantially. Will AFDD2 *Theater Air Warfare*, the intended replacement for AFM 2–1, bring anything new to the table? The next chapter critically examines AFDD2 to determine what additional guidance it provides to the war–fighter and evaluate it as the long–awaited stand–in for the moribund AFM 2–1.

Notes

1. TAC/PACAF/USAFEP 2–2, *JFACC Concept of Operations* (Washington, DC: Department of the Air Force, 28 August 1991), 9.
2. AFM 1–1, *Basic Aerospace Doctrine of the United States Air Force, Vol I/II* (Washington, DC: Department of the Air Force, March 1992).
3. Col Dennis M. Drew, “Inventing a Doctrine Process”, *Airpower Journal*, Winter 1995, 52.
4. AFM 1–1, Vol I, 9–10.
5. *Ibid.*, 10.
6. AFM 1–1, Vol II, 125–172.
7. DCS Plans and Operations HQ USAF, *JFACC Primer* (Washington, DC: Department of the Air Force, 1994).
8. JP 3–0, *Doctrine for Joint Operations* (Washington, DC: Government Printing Office, 1 February 1995).
9. *Ibid.*, II 15–16.
10. *Ibid.*, III 1–36.
11. JP 3–56.1, *Command and Control for Joint Air Operations* (Washington, DC: Government Printing Office, 14 November 1994), i.
12. JP 3–03 (unpublished draft), *Doctrine for Joint Interdiction Operations*. Lead agency: USAF

Chapter 6

Great Expectations: AFDD2, “Theater Air Warfare”

Prospect is often better than possession.

—Thomas Fuller (1732)

After twenty seven year gestation period, the birth of a new USAF operational doctrine document may finally be at hand. AFM 2–1’s replacement, AFDD2 *Theater Air Warfare* (Oct 95 draft version), is in a final review process at the time of this writing and its approval as a full–fledged service–level operational doctrine manual may be imminent. However, the fact of the matter is that the USAF has operated for quite some time without a current operational doctrine document, our basic doctrine manual AFM 1–1 already addresses areospace operational art, and there is a wealth of guidance concerning operational airpower employment readily available in joint doctrine publications. Therefore, the USAF finds itself facing some hard questions concerning a USAF operational doctrine manual:

- Has the USAF proven that it no longer needs an operational–level airpower employment doctrine manual?
- What information or guidance should AFDD2 provide in order to be useful and relevant as an operational airpower doctrine manual?
- Does the proposed version of AFDD2 adequately fill the requirement for a USAF operational doctrine document?

Answers to the above will be gleaned from a review of the evidence presented in earlier chapters and via a critical examination of AFDD2 itself. Following this analysis,

the answer to this study's ultimate question – “Does the USAF need AFDD2?” – should become self-evident.

Has the USAF proven that it no longer needs an operational-level airpower employment doctrine manual?

While there is widespread agreement that operational doctrine is important, the USAF's operational doctrine document has been obsolete for quite some time. However, the USAF has demonstrated that it can overcome any “gap” between published doctrine and actual practice by successfully prosecuting one major war and several contingency operations. Moreover, it would appear that recent operational-level doctrinal guidance found in both USAF publications and particularly in joint doctrine manuals may have somewhat “closed” the gap between practice and published doctrine. Given this, has the USAF proven that it no longer needs its own service-unique operational doctrine document?

Evidence indicates that the answer may be “No” for two primary reasons. First, success does not equate to optimum performance. The lack of an operational doctrine document may have hindered USAF airpower employment efforts in the past as suggested in Chapter Five by the recounting of the air campaign planning difficulties in the opening weeks of the Persian Gulf crisis. Future efforts, therefore, could be hampered as well. Second, while the amount of operational airpower employment doctrinal guidance has certainly increased in joint and USAF publications, there remain areas which have not been adequately covered and should be addressed in USAF operational doctrine.

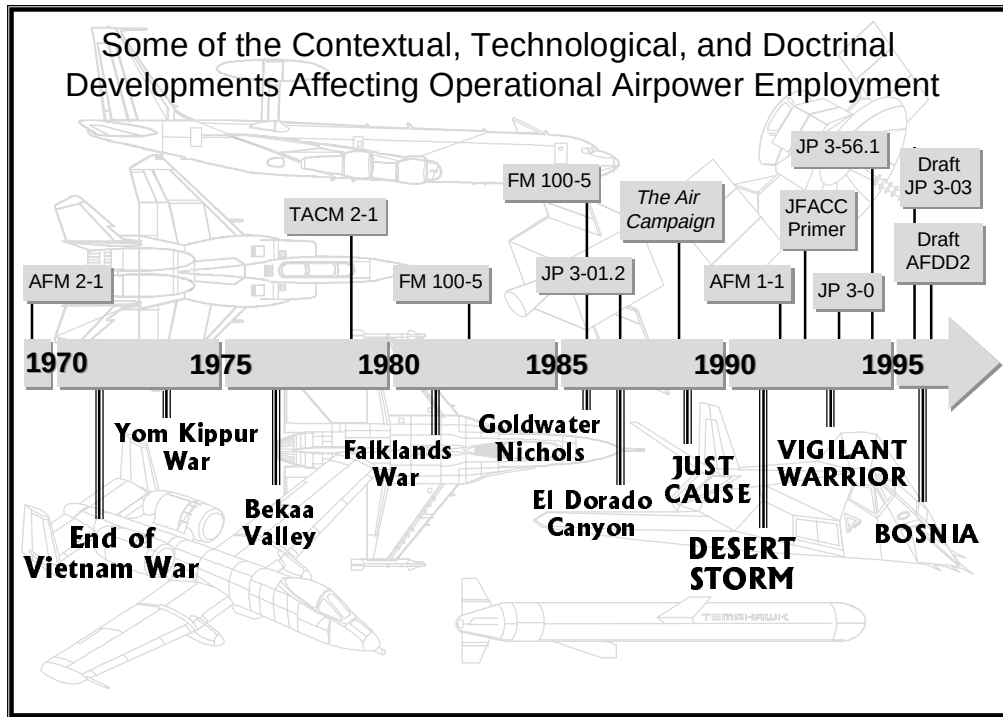


Figure 1. Contextual, Technological, and Doctrinal Developments Affecting Operational Airpower Employment

The discussion of doctrine development in Chapter Two showed what could happen when doctrine development lags contextual change – “informal” doctrine will grow to replace outdated formal doctrine as the gap between practice and reality slowly grows. As was discussed in Chapter Three, and illustrated in Figure 1, a great degree of contextual, technological, and theoretical change affecting operational airpower employment occurred between the end of the Vietnam War and the beginning of the Persian Gulf Crisis. The gap between published doctrine and actual practice widened substantially, a gap which was eventually filled by informal doctrine. Chapter Four detailed the difficulties and friction in the initial air campaign planning process during the opening stages of the Persian Gulf crisis, problems which were possibly exacerbated by the lack of a commonly agreed-upon USAF operational doctrine. It cannot be said that Operation DESERT STORM was a success *because* the USAF lacked a relevant operational doctrine

document, but rather the campaign was a success *in spite* of that fact. Given different circumstances in the future – a more competent foe, fewer resources, less time, no serendipitous intervention by a Warden-like airpower theorist – the outcome might be substantially different.

With regards to the other USAF and joint publications, the coverage of operational airpower employment is extensive but far from complete. AFM 1-1, for example, provides *basic* airpower doctrine, and its guidance regarding operational airpower employment is very general and open-ended. By design, AFM 1-1 does not provide guidance to the level of specificity required in an operational-level doctrine manual.

Joint military doctrine focuses its attention on the intersection of service capabilities: command and control, coordination, support responsibilities, etc. It does not address service-unique core competency issues – such is the purview of service doctrine. For example, strategic attack is a core USAF competency, a subject about which joint doctrine has nothing to say. What are the operational-level consequences of a strategic attack against a national electrical system? When should it be attempted? What is the best method of execution? Joint doctrine is silent on such issues. Unfortunately, because it does not have a current operational doctrine document, the USAF also has very little to say officially about several of our core-competencies.

Evidence reviewed above provides a strong argument for a USAF operational-level airpower employment document. The USAF's intended replacement for its current but outdated operational doctrine document, AFM 2-1, is AFDD2.

What information or guidance should AFDD2 provide in order to be useful and relevant as an operational airpower doctrine manual?

This thesis does not pretend to be able to answer this question with any degree of satisfaction except to offer the most general suggestions for directions of further research. Clearly, AFDD2 should attempt to provide guidance on theater-level airpower employment issues not already addressed in joint doctrine. The core competency area of strategic attack was referenced earlier in the chapter as an example of an issue not adequately addressed in joint doctrine. Strategic attack versus the targeting of fielded forces generated much discussion and controversy during Operation DESERT STORM; many articles and theses have been devoted to the topic since. One paper advocated abandoning strategic attacks against national electric systems due to questionable operational effects.¹ What is the USAF-sanctioned opinion on this issue? Unknown. It is not addressed in doctrine. This is unfortunate because issues such as these will almost surely bedevil JFACCs in future conflicts. Strategic attack is but one area that is worthy of investigation in USAF operational-level doctrine. Other topics could be aircraft basing (composite or functional wings?), or the role of airpower in information warfare. What is most important is that our service unique operational doctrine should not merely regurgitate what is already available in joint doctrine. It should aim to “fill the gaps” in those areas where joint doctrine either does not apply or provides insufficient guidance.

Does the proposed version of AFDD2 adequately fill the requirement for a USAF operational doctrine document?

Since the publication of AFM 2-1 twenty seven years ago, a great deal of thought has been devoted to the operational employment of airpower (see Table 4). The intervening

years have also provided a wealth of experience by which to judge the efficacy of various operational airpower employment concepts. As might be expected, the draft AFDD2 *Theater Air Warfare*² bears little resemblance to the document which it is intended to replace, AFM 2-1. Mission-level oriented with a penchant for dropping into tactical level discussions, AFM 2-1 provided a brief treatment of general theater airpower employment considerations before quickly concentrating on specific the specific missions of counter-air, CAS, and interdiction.³ By contrast, the draft AFDD2 completely eschews any discussion of specific airpower missions and consistently maintains a theater-level orientation. Its three main chapters, two through four, focus on command and control, air campaign planning, and air campaign execution.⁴

As the USAF's proposed new operational doctrine document, the Oct 95 draft of AFDD2 disappoints primarily because it provides no new information or insights. Without fail, the topics which it discusses are addressed in more depth and with greater sophistication in existing joint doctrine manuals. For example, Chapter 2 spans a mere one and a half pages and its information on unity of command, JFACC designation, and JFACC responsibilities can easily be found in such publications as Joint Publication 3-0,⁵ Joint Publication 3-01.2,⁶ and Joint Publication 3-56.1.⁷ Similar observations can easily be made regarding the material comprising the more lengthy chapters three and four. Joint Publication 3-56.1's discussion of the targeting process and ATO cycle is far more useful than the information on the same subject presented in chapter four; the same can be said about the subject of air campaign planning.⁸ Operational art is given only a cursory treatment in chapter three; this compares very unfavorably to the elaborate attention devoted to the topic in Joint Publication 3-0.⁹ While this litany of complaints could

continue, the message is clear – the information contained in the October 1995 draft of AFDD2 can already be easily found via a quick perusal of existing joint doctrine. By offering nothing new, the draft AFDD2 is of questionable usefulness.

Summary

Although the USAF has operated successfully for quite some time without a current operational doctrine document, evidence suggests that this is not an optimum situation. It would be to the USAF's advantage if AFM 2-1's replacement seized the opportunity to address operational airpower topics not adequately addressed in joint doctrine. However, the current draft of AFDD2 fails to cover any new ground and therefore runs the risk of being ignored by its target audience. The next and final chapter will draw from these conclusions to answer the ultimate question of this study – *Does the USAF need AFDD2?*

Table 4. The Evolution of Operational Level Theory and Doctrine

Year	Publication	Comments
May 1969	AFM 2-1 <i>Tactical Air Operations — Counter Air, Close Air Support, and Air Interdiction</i>	Roles and missions oriented, but limited to counter air, air interdiction, and CAS. Addressed C2, apportionment/allotment
Apr 1978	TACM 2-1 <i>Tactical Air Operations</i>	Roles and missions oriented, but greatly expanded Includes more combat/combat support air ops missions More detailed discussions on C2, apportionment/ allotment, and targeting Included chapters on maintenance and support functions (logistics, weather, security, etc.)
Aug 1982	FM 100-5 <i>Operations</i>	Introduced AirLand Battle concept of corps-level maneuver warfare
Apr 1986	JP 3-01.2 (originally numbered as JP 26) <i>Joint Doctrine for Theater Counterair Operations</i>	Defined JFACC's authority, responsibilities, and role Limited discussion of air missions, roles
May 1986	FM 100-5 <i>Operations</i>	Emphasized "operational art" as core competency of theater commanders
1986 – 1990	Numerous articles in professional journals regarding operational art, campaign planning, etc.	Highlighted several issues including the proper relationship between interdiction and ground maneuver, criteria for defining enemy COGs, etc.
1988	<i>The Air Campaign: Planning for Combat</i>	Significant treatise on operational employment of airpower Defined five air superiority cases, discussed specific target sets (emphasized leadership as COG) Stressed importance of developing a coherent "air campaign"
Aug 1991	TAC/PACAF/USAFEP 2-2 <i>JFACC Concept of Operations</i>	Three key features included in JFACC concept of ops
Mar 1992	AFM 1-1 <i>Basic Aerospace Doctrine of the USAF</i>	Addresses important influences on theater campaign plan Defines aerospace operational art Discusses orchestration of roles and missions
Aug 1992	<i>JFACC Primer</i> (revised Feb 1994)	Provided detailed guidance to potential JFACCs and their staffs regarding JFACC operations
Sep 1993	JP 3.0 (Revised Feb 1995) <i>Doctrine for Joint Operations</i>	Develops elaborate operational art construct Discussess operational art concepts in-depth Addresses targeting process, apportionment/allocation, fire support coordination, etc.
Nov 1994	JP 3-56.1 <i>Command and Control for Joint Air Operations</i>	Similar in focus to <i>JFACC Primer</i> Detailed presentation of JFACC operations, air campaign planning process, targeting considerations, and ATO cycle
Present	Numerous joint publications detailing specific aerospace missions (CAS, Interdiction, SEAD, etc.)	Provides mission specific information

Notes

¹1. Major Thomas E. Griffith, Jr., *Strategic Attack of National Electrical Systems* (Maxwell AFB, AL: Air University Press, Oct 1994).

2. Air Force Doctrine Document 2, *Theater Air Warfare* , unpublished draft, Oct 1995. OPR: USAF Doctrine Center, Langley AFB, VA.

Notes

3. Air Force Manual 2-1, *Tactical Air Operations — Counter Air, Close Air Support, and Air Interdiction* (Washington, DC: Department of the Air Force, 2 May 1969).

4. AFDD2 has 5 total chapters. Chapter 1 is a one page introduction, Chapter 5 uses a page and a half to discuss battle managment and aircrew training.

5. JP 3-0, *Doctrine for Joint Operations* (Washington, DC: Government Printing Officer, 1 Feb 1995), II 13-15.

6. JP 3-01.2, *Theater Counterair Operations* (Washington, DC: Government Printing Office, 4 Jan 1986), III 4-5.

7. JP 3-56.1, *Command and Control for Joint Air Operations* (Washington, DC: Government Printing Office, 14 Nov 1994), II 1-4.

8. Ibid., III 1-7, IV 1-11.

9. JP 3-0, III 9-24.

Chapter 7

Conclusions and Implications

Everything comes if a man will only wait.

—Benjamin Disraeli (1847)

Findings

We can now address the central question of this study: *Does the USAF need AFDD2?* A review of the evidence detailed in the preceding chapters should provide the answer to this question.

As discussed in Chapter Two, if the gap between practice and published guidance grows too large, a body of informal doctrine may arise to fill the void. However, there are several problems associated with informal doctrine: it risks being incomplete, it could be subject to widely varying interpretation, and it may not be uniformly accepted.

Chapter Three showed how AFM 2–1 became technically obsolete and largely irrelevant by the early 1980s due to the rapid onset of contextual and technological change. Predictably, a large body of informal doctrine drawing from many sources grew to fill this “doctrine gap.”

One of these “sources” was Col John Warden who played an important role in the air campaign planning process during the early weeks of the Persian Gulf crisis. Chapter Four examined the differing air campaign plans proposed by Warden and other USAF leaders

for use against Iraq. A lack of a relevant operational doctrine may have contributed to the wide variance of the plans, and its absence also left the USAF leadership without objective criteria for assessing their options. Nonetheless, the USAF's largest test of the operational employment of airpower since the Vietnam War – Operation DESERT STORM – ended in resounding success.

Chapter Five described how, after the Gulf War, the operational level of war and theater-level airpower employment received much attention in joint doctrine manuals and USAF publications, including AFM 1-1. This guidance may have largely “closed the gap” between practice and doctrine regarding the operational employment of airpower.

As noted in Chapter Six, the USAF needs a relevant operational doctrine manual and it should provide useful guidance and new insights to potential JFACCs and their staffs on operational airpower employment topics that have long generated debate and discussion. Unfortunately, despite the importance of doctrine, it is a common complaint that no one reads it. This will be almost certainly be true of the draft AFDD2 as currently written – it sets no higher goals for itself than to merely repeat guidance already adequately covered in existing doctrine publications. Hence, it risks being ignored by its target audience. After 27 years in the making, it deserves a better fate than to be relegated to the trashcan.

Given the above evidence, an answer may then be finally proposed for this thesis' central question.

Does the USAF need AFDD2?

Yes, but not the October 1995 draft version. While there is little dispute over the importance of operational doctrine, and despite the fact that the USAF *does* need a

relevant operational doctrine document to replace AFM 2–1, I must reluctantly conclude that the wait should continue until a more adequate version of AFDD2 is proposed.

Implications and Areas for Further Research

How long can the USAF afford to wait for yet another attempt at producing a worthwhile operational doctrine document? While there's no danger of the sky falling if the USAF doesn't have a suitable replacement for AFM 2–1 in the near future, that fact does not provide an excuse of continuing the status quo any longer than necessary. Some of the areas that could be addressed in an operational doctrine document have already been suggested; many more could be identified through further research. The bottom line is that any doctrinal guidance that can be provided to assist JFACCs in dealing with operational airpower employment issues in future contingencies can only help to ensure mission success.

Given the apparent difficulty of producing a replacement for AFM 2–1, is there a problem with the USAF doctrine development process? In a recent article, Col Dennis M. Drew (USAF, retired), a principal author of the current AFM 1–1, critiques the present USAF doctrine development system. Col Drew writes that there is the lack of a real “system” for doctrine development and characterizes the current process as “episodic”, possessing “neither rhyme nor reason”, and lacking “an organized, systemic, effort to generate, evaluate...new concepts based on...experience, theory, and technology.”¹ Drew notes that the primary weakness of the USAF doctrine development is that there is no real system; that the entire process lacks coherence, is disjointed, and is more of a bureaucratic process than an intellectual one.² Unresponsiveness to contextual change may be a

symptom of these problems and an over-reliance on informal doctrine as opposed to formal doctrine, a primary result.³ However, Col Drew also alludes to the difficulty of developing formal doctrine, noting that it took his team of 10 field grade officers almost two years of full time work to produce the 1992 version of AFM 1-1.⁴ Drew questions whether the current resources devoted to doctrine development in the USAF are sufficient for the task.⁵

It is certainly ironic that current system has produced quality products in the joint doctrine arena while failing to do the same for our own service operational doctrine. As the lead agent for airpower related joint doctrine issues, USAF doctrine writers are largely responsible for much of the material in the joint doctrine publications lauded in chapters five and six. It would seem that USAF doctrine should be written *first* before joint doctrine; service-doctrine forms the conceptual basis from which joint doctrine is developed, not vice-versa. The reality of resource constraints and policy pressure may deem otherwise, but to do so appears to “put the cart before the horse.”

Closing

The development of a new operational doctrine document will almost certainly drag on, but after twenty-seven years, the USAF can probably afford to wait a little longer for a quality product. However, care must be taken to insure that the time is profitably spent, and that the waiting period does not continue indefinitely. Disraeli noted that “everything comes if a man will only wait.” Airmen, who as a group are notoriously short of patience, have been waiting quite some time for a new operational doctrine manual. A very long time. How much longer will they be forced to wait?

Notes

1. Col Dennis M. Drew, "Inventing a Doctrine Process", *Airpower Journal*, Winter 1995, 48–49.
2. Ibid., 48.
3. The problem posed by a mismatch between formal and informal doctrine is subtle. Whereas ignoring contextual change is an example of intentionally *failing to act*, and misinterpreting contextual data is an instance of *acting wrongly*, a large gap between published doctrine and institutional practice indicates a doctrine development process that is *acting too slowly*. The current process is not ignoring the impetus for change, nor is it charging in the wrong direction; rather, it is simply slowly plodding towards a solution and using informal doctrine as a temporary substitute in lieu of timely formal guidance.
4. Drew, 52.
5. Ibid.

Glossary

AADC	Area Air Defense Commander
AI	Air Interdiction
ALCC	Airlift Control Center
ALCE	Airlift Control Element
AFCC	Air Force Component Commander
AFI	Air Force Instruction
AFM	Air Force Manual
ARC LIGHT	Designation for B-52 bombing mission, Vietnam War
ASW	Anti-Submarine Warfare
ATO	Air Tasking Order
CAS	Close Air Support
CENTCOM	Central Command
COG	Center of Gravity
COMTAC	Commander, Tactical Air Command
DCA	Defensive Counter Air
EW	Electronic Warfare
FAC	Forward Air Controller
FM	Field Manual
FMFM	Fleet Marine Force Manual
FSCL	Fire Support Coordination Line
JAOC	Joint Air Operations Center
JAOP	Joint Air Operations Plan
JCS	Joint Chiefs of Staff
JFACC	Joint Force Air Component Commander
JFC	Joint Force Commander
JP	Joint Publication
JTCB	Joint Targeting Coordination Board
JTL	Joint Targeting List
LINEBACKER	Designation for B-52 strategic bombing campaigns, Vietnam War
MAAP	Master Air Attack Plan
MAGTF	Marine Air Ground Task Force
NATO	North Atlantic Treaty Organization
OCA	Offensive Counter Air
OPCON	Operational Control
PACOM	Pacific Command
SEAD	Suppression of Enemy Air Defenses
SOF	Special Operations Forces

SOUTHCOM	Southern Command
TAC	Tactical Air Command
TACC	Tactical Air Control Center
TACS	Tactical Air Control System
TACON	Tactical Control
TRADOC	Training and Doctrine Command
USA	United States Army
USAF	United States Air Force
USMC	United States Marine Corps
USN	United States Navy

Bibliography

Government Manuals, Regulations, and Publications

- Air Force Doctrine Document 2 (unpublished draft). *Theater Air Warfare*. October 1995.
- Air Force Instruction 10–1301. *Aerospace Doctrine*. 5 January 94.
- Air Force Manual (AFM) 1–1. *Basic Aerospace Doctrine of the United States Air Force*, vol. 1/2. March 1992.
- Air Force Manual (AFM) 2–1. *Tactical Air Operations — Counter Air, Close Air Support, and Air Interdiction*. 2 May 1969.
- Field Manual 100–5. *Operations*. June 1993.
- Fleet Marine Force Manual 1. *Warfighting*. 1989.
- JFACC Primer. February 1994.
- Joint Publication 1–02. *Department of Defense Dictionary of Military and Associated Terms*. 1994.
- Joint Publication 3–0. *Doctrine for Joint Operations*. 1 February 95.
- Joint Publication 3–01.2. *Theater Counterair Operations*. 1 January 1986.
- JP 3–03 (unpublished draft). *Doctrine for Joint Interdiction Operations*.
- Joint Publication 3–56.1. *Command and Control for Joint Air Operations*. 14 November 1994.
- TAC/PACAF/USAFEP 2–2. *JFACC Concept of Operations*. 28 August 1991.

Books and Published Papers

- Daulby, D., Sq Leader, RAF. “Doctrine Development”. *Airpower — Collected Essays on Doctrine*. London, England: Stationary Office, 1990.
- Luvaas, Jay. *The Education of an Army*. Chicago, 1964.
- Griffith, Thomas E. Jr., Major, USAF. *Strategic Attack of National Electrical Systems*. Maxwell AFB, AL: Air University Press, Oct 1994.
- Hughes, Wayne P., Jr., Captain, USN (ret). *Fleet Tactics: Theory and Practice*. Annapolis, Maryland: Naval Institute Press, 1986.
- Mann, Edward C. Mann, III, Colonel, USAF. *Thunder and Lightning: Desert Storm and the Airpower Debates*. Maxwell AFB, AL: Air University Press, April 1995.
- Reynolds, Richard T., Colonel, USAF. *Heart of the Storm: The Genesis of the Air Campaign Against Iraq*. Maxwell AFB, AL: Air University Press, January 1995.
- Warden, John A. III, Col, USAF. *The Air Campaign*. Elmsford, New York: Pergamon–Brassey, 1989.
- Winnefeld, James A.. Dana J. Johnson. *Joint Air Operations: Pursuit of Unity in Command and Control, 1942–1991*. Annapolis, Maryland: Naval Institute Press, 1993.

Articles

- Adams, Dwight L., Clayton R. Newell. "Operational Art in the Joint and Combined Arenas." *Parameters: Journal of the US Army War College*, June 1988.
- Bingham, Price T., Lt Col, USAF. "Ground Maneuver and Air Interdiction in the Operational Art". *Parameters: Journal of the US Army War College*, Spring 1987.
- Drew, Dennis M., Col, USAF (ret.). "Inventing a Doctrine Process". *Airpower Journal*, Winter 1995.
- Holder, L.D. "Training for the Operational Level". *Parameters: Journal of the US Army War College*, Spring 1986.
- Holley, I. B., Jr., Maj Gen, USAF (ret.). "A Modest Proposal". *Airpower Journal*, Winter 1995.
- "Of Saber Charges, Escort Fighters, and Spacecraft:: The Search for Doctrine". *Air University Review*, Sep–Oct 1983.
- Jablonsky, David. "Strategy and the Operational Level of War: Part I". *Parameters: Journal of the US Army War College*, Spring 1987.
- Krieger, Clifford R., Col, USAF. "Air Interdiction". *Airpower Journal*, Spring 1989.
- Medel, William W. "Theater Strategy and the Theater Campaign Plan: Both are Essential". *Parameters: Journal of the US Army War College*, December 1988.
- Meehan, John F. III. "The Operational Trilogy". *Parameters: Journal of the US Army War College*, Autumn 1986.
- Mowbray, James A. "Air Force Doctrine Problems 1926–Present". *Airpower Journal*, Winter 1995.
- Sutton, Charles G. Jr. "Command and Control at the Operational Level". *Parameters: Journal of the US Army War College*, Winter 1986.

Unpublished Papers, Speeches, Interviews

- Decker, George H., General, USA. Speech given at the US Army Command and General Staff College, Fort Leavenworth, Kansas, 16 December 1960, quoted in Robert D. Heinl, Jr., *Dictionary of Military and Naval Quotations* (Annapolis, Maryland: Naval Institute Press, 1986), 28.
- Williamson, Wayne. Telephone interview. USAF Doctrine Center, Nov 95.