NAVAL WAR COLLEGE
NEWPORT, R.I.

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NAVAL AIR OPERATIONS WITHIN THE ROLE OF JFACC: LESSONS LEARNED AND FUTURE ROLES

By

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A paper submitted to the Faculty of the Naval War College in partial satisfaction of the requirements of the Department of Operations.

The contents of this paper reflect my own personal views and are not necessarily endorsed by the Naval War College or the Department of the Navy.

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17 June 1994

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SECURITY CLASSIFICATION OF THIS PAGE

REPORT DOCUMENTATION PAGE

1a REPORT SECURITY CLASSIFICATION UNCLASSIFIED	1b RESTRICTIVE MARKINGS
2a SECURITY CLASSIFICATION AUTHORITY	3 DISTRIBUTION AVAILABILITY OF REPORT DISTRIBUTION STATEMENT A: APPROVED FOR PUBLIC RELEASE; DISTRIBUTION IS UNLIMTIED.
2b DECLASSIFICATION/DOWNGRADING SCHEDULE	
4 PERFORMING ORGANIZATION REPORT NUMBER(S)	5 MONITORING ORGANIZATION REPORT NUMBER(S)
6a NAME OF PERFORMING ORGANIZATION OPERATIONS DEPARTMENT 6b OFFICE SYMBOL (If applicable) C	7a NAME OF MONITORING ORGANIZATION
6c ADDRESS (City, State, and ZIP Code) NAVAL WAR COLLEGE NEWPORT, R.I. 02841	7b ADDRESS (City, State, and ZIP Code)
8a NAME OF FUNDING/SPONSORING ORGANIZATION 8b OFFICE SYMBOL (If applicable)	9 PROCUREMENT INSTRUMENT IDENTIFICATION NUMBER
8c ADDRESS (City, State, and ZIP Code)	10 SOURCE OF FUNDING NUMBERS PROGRAM ELEMENT NO. / PROJECT NO. / TASK NO / WORK UNIT ACCESSION NO.

11. TITLE (Include Security Classification)

NAVAL AIR OPERATIONS WITHIN THE ROLE OF JFACC: LESSONS LEARNED AND FUTURE ROLES (U)

12. PERSONAL AUTHOR(S)

LCDR JOHN M. DALY, USN

13a. TYPE OF REPORT	13b. TIME COVERED	14. DATE OF REPORT (Year, Month, Day)	15 PAGE COUNT
FINAL	FROM _____ TO _____	8 FEB 94	32

16. SUPPLEMENTARY NOTATION A paper submitted to the Faculty of the Naval War College in partial satisfaction of the requirements of the Department of Operations. The contents of this paper reflect my own personal views and are not necessarily endorsed by the Naval War College or the Department of the Navy.

17 COSATI CODES		
FIELD	GROUP	SUB-GROUP

18 SUBJECT TERMS (Continue on reverse if necessary and identify by block number)

THEORY; STRUCTURE; JFACC; COMMAND & CONTROL; INTEGRATION; INTEROPERABILITY

19 ABSTRACT (Continue on reverse if necessary and identify by block number)

THIS PAPER DEALS WITH HOW NAVAL AIR OPERATIONS ARE INTEGRATING AS PART OF THE JFACC. IT WILL ANALYZE NAVAL AIR OPERATIONS IN THE KOREAN WAR AND THE PERSIAN GULF WAR AS A MEANS TO DETERMINE WHERE NAVAL AVIATION IS TODAY. THE NAVY LEARNED SEVERAL VALUABLE LESSONS DURING DESERT STORM. THE NAVY HAS MADE GREAT PROGRESS TOWARD BECOMING FULLY "JOINT" WITH OTHER SERVICES. THE QUESTION THAT MUST BE ANSWERED IS: HOW DOES NAVAL LEADERSHIP INTEND TO SUPPORT JOINT OPERAIONS, SPECIFICALLY, THE JFACC? CAN WE ALLOW OURSELVES TO PLAN FOR THE NEXT CONFLICT BASED ON THE LAST WAR FOUGHT? MILITARY HISTORY IS FULL OF EXAMPLES THAT MUST NOT BE REPEATED. THIS PAPER PROPOSES JOINT AIR EDUCATION TRAINING, FULL INTEGRATION INTO THE JFACC STAFF, ACCELERATING C4I SYSTEMS TO THE FLEET, AND OPERATIONAL TRAINING EXERCISES AS THE WAY FOR TOMORROW'S JOINT OFFICER TO BE READY WHEN CALLED UPON.

20 DISTRIBUTION/AVAILABILITY OF ABSTRACT ☒ UNCLASSIFIED/UNLIMITED ☐ SAME AS RPT ☐ DTIC USERS	21. ABSTRACT SECURITY CLASSIFICATION UNCLASSIFIED
22a. NAME OF RESPONSIBLE INDIVIDUAL CHAIRMAN, OPERATIONS DEPARTMENT	22b TELEPHONE (Include Area Code) 841-3414 / 22c OFFICE SYMBOL C

DD FORM 1473, 84 MAR 83 APR edition may be used until exhausted. All other editions are obsolete

SECURITY CLASSIFICATION OF THIS PAGE

U.S. Government Printing Office: 1988—439-812

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Abstract of

NAVAL AIR OPERATIONS WITHIN THE ROLE OF JFACC: LESSONS LEARNED AND FUTURE ROLES

This paper deals with how naval air operations are integrating as part of the JFACC. It will analyze naval air operations in the Korean war and the Persian Gulf war as a means to determine where naval aviation is today. The Navy learned several valuable lessons during DESERT STORM. The Navy has made great progress toward becoming fully "joint" with the other services. The question that must be answered is: how does naval leadership intend to support joint operations, specifically, the JFACC? Can we allow ourselves to plan for the next conflict based on the last war fought? Military history is full of examples that must not be repeated.

This paper proposes joint air education training, full integration into the JFACC staff, accelerating C4I systems to the fleet, and operational training exercises as the way for tomorrow's joint officer to be ready when called upon.

PREFACE

The author of this paper has participated in several joint and combined military exercises. Most recently, I was assigned to the USS INDEPENDENCE (CV-62), forward-based in Yokosuka, Japan. Assigned as the Assistant Strike Operations Officer, I was directly involved with DESERT STORM/SOUTHERN WATCH operation in the Persian Gulf from May to September 1992. Prior to leaving the ship, I was, again, directly involved with planning for air operations during TEAM SPIRIT '93. I also have had the painful pleasure of trying to "communicate" via CAFMS and CTAPS. Several assumptions are based upon those experiences as the Assistant Strike Operations Officer.

NAVAL AIR OPERATIONS WITHIN THE ROLE OF JFACC: LESSONS LEARNED AND FUTURE ROLES

INTRODUCTION

... Saturday, 24 December 1994: The Democratic People's Republic of Korea (DPRK) invades southward into the Republic of Korea (ROK) in an attempt to unify the Korean peninsula by force. Despite increased tensions for the past few months between all parties concerned and several limited incidents along the Demilitarized Zone (DMZ), United States and ROK leadership are taken aback and the combined U.S.-ROK forces north of Seoul are being driven southward.

... Monday, 26 December 1994: Commander, Seventh Fleet, embarked aboard USS Blue Ridge and enroute to the Sea of Japan, is directed to make preparations to embark the Combined Force Commander (CFC) and his Joint Force Air Component Commander (JFACC). Battle degradation of critical Command, Control, Communications, Computers and Intelligence (C4I) systems have rendered useless the ability to command and control combined military actions from ashore.

Given this hypothetical scenario, would the Navy be prepared to handle this situation or other comparable contingencies? Would naval personnel be available, trained and able to operate as part of, or support embarking, an afloat JFACC staff? Can shipboard C4I support an afloat JFACC staff? What if the CFC were a ROK military commander? Would U.S. national and military leadership support or choose not to support co-locating the ROK CFC and associated ROK personnel in this situation? Each of these questions raises several issues that current joint doctrine, policy and guidance need to consider before U.S. forces confront them during a time critical situation.

Although air operations in DESERT STORM were undoubtedly successful overall, the fact remains that more needs to be done to encourage jointness and unity of effort. Service reluctance to integrate and equipment interoperability problems need to continue to improve.[1] Furthermore, planning and training for joint operations and acquisition programs for equipment modernization need to recognize the uniqueness of the Gulf war. We should not be lulled into planning the next war based solely upon U.S. successes of the Gulf war either, because potential enemies will analyze U.S. successes and failures in an effort to exploit potential weaknesses. In the next conflict involving U.S. forces, we may not have the advantages of airfields waiting for our aircraft, superior port facilities waiting for our logistics might or, more importantly, a cooperative enemy that will allow us the time to prepare prior to hostilities. If Kim Il Sung decides to unify the Korean peninsula by force, his forces most likely will attempt to overrun U.S.-ROK forces, destroying the ROK military infrastructure and denying the initiative desired by U.S. military commanders.

This paper will examine the U.S. Navy's role in support of joint or combined air operations and how the Navy might better prepare itself to support an afloat JFACC or command as the JFACC. Chapter II reviews background information concerning joint air operations and defines command and control relationships. Chapter III compares historical perspectives of joint air operations during the Korean War and the "Air Campaign"[2] during the Persian Gulf War to demonstrate the difference in service doctrine. Chapter IV examines recent joint exercises designed to test, train, and operate a JFACC afloat and ashore, and how specific lessons learned and conclusions drawn from these exercises may aid naval planners.

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[1] Congress, House, Armed Services Committee, Defense for a New Era: Lessons of the Persian Gulf War, report prepared by Les Aspin and William Dickinson, 102d Cong., 2d sess., 30 March 1992, Washington, D.C., U.S. Government Printing Office, 42.

[2] There is a difference of opinion among the services on the use of the word "campaign." Joint Pub 3-0, Doctrine for Joint Operations, defines a campaign plan as "a plan for a series of related military operations aimed to accomplish strategic and operational objectives within a given time and space." Joint Pub 1, Joint Warfare of the U.S. Armed Forces further describes campaigns as the "integration and harmonization of operations on land and sea, undersea, and in the air and space." For the purposes of this paper, operations of theater air are referred to as Air operations instead of the "Air campaign."

The question of supporting a ROK CFC and associated personnel raises an interesting set of circumstances that should be considered since this is a very real possibility in the near-term future. Current joint doctrine briefly discusses integrating liaison personnel into the JFACC staff to coordinate, deconflict and assist with airspace and air operations; however, there is no discussion on incorporating allied command leadership in the JFACC organization.[3] Chapter V makes recommendations for designing and training for future joint and combined exercises that involve establishing a JFACC, and discusses how combined operations integrating allied command leadership in future events would impact upon the JFACC.

[3] Joint Chiefs of Staff, "Command and Control for Joint Air Operations," Joint Pub 3-56.1 Draft Washington, D.C.: 30 July 1992, 15.

CHAPTER II

Joint Air Operations Theory and Structure

JFACC Assignment

A primary concern of the JFC is to achieve unity of effort to accomplish the strategic and operational goals desired. Unity of effort encompasses "solidarity of purpose, effort, and command. It directs all energies, assets, and activities, physical and mental, toward desired ends."[4] To facilitate coordination of the overall air effort, the JFC has the authority to assign a JFACC. Joint air operations and command and control of air operations enables the JFACC to sequence and synchronize efforts of combined air forces in support of the JFC's concept of operations. The JFACC,

> ... derives authority from the joint force commander who has the authority to exercise operational control, assign missions, direct coordination among subordinate commanders, redirect and organize forces to ensure unity of effort in the accomplishment of the overall mission. The joint force commander will normally designate a joint force air component commander. The joint force air component commander's responsibilities will be assigned by the joint force commander (normally these would include, but not be limited to, planning, coordination, allocation, and tasking based on the joint force commander's guidance and authority, and in coordination with other service component commanders and other assigned or supporting commanders, the joint force air component commander will recommend to the joint force commander apportionment of air sorties to various missions or geographic area.[5]

This definition of the JFACC emphasizes authority, coordination, responsibility and tasking. Given this framework, the JFACC will establish a command structure that defines the overall command and control responsibility for air operations. Consequently, communications planning and C4I systems must be interoperable and standardized, and

[4] John M. Collins, Grand Strategy: Principles and Practice (Annapolis, Md.: Naval Institute Press, 1973), 28.

[5] Joint Chiefs of Staff, "Doctrine for Joint Operations," Joint Pub 3-0, Washington, D.C.: 9 September 1993, GL-9. Approved for inclusion in the next edition of Joint Pub 1-02.

personnel trained and familiar with systems and procedures.[6] This a challenging ideal even among joint service operations, but even more so during combined operations with our allies.

Theory

The JFACC can be incorporated into the joint force organization as a staff function of the JFC. Circumstances for this arrangement might be best suited to lesser-scale operations. A second consideration is the JFACC assigned as arm of the JFC, independent of service component commands. Circumstances for this arrangement may involve unique missions. Third, and most common, is to assign a service component commander as the JFACC in addition to his component responsibilities. Finally, the JFACC can be assigned as an equivalent to and independent of the service components. Circumstances for this arrangement may be similar to the second consideration encompassing unique mission requirements.[7]

Current doctrine suggests the third consideration as the primary method for assigning a JFACC. Furthermore, current doctrine suggests assignment should be made based on which service component commander possesses the preponderance of air assets. But it is critically important that the assigned JFACC have the proper facilities, communications systems and a properly manned and trained staff.[8] In most cases, JFACC assignment should be based on preponderance of air assets. However, assignment of a JFACC should equally weigh considerations for command and control capabilities based on location if existing C4I infrastructure and interoperability are deficient at his primary location. Consider, for example, an Air Force component commander, assigned as JFACC, operating from an afloat command and control ship, USS Blue Ridge (LCC-19), or , vice versa, a Naval component commander, assigned with preponderance of air assets, operating from ashore.

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[6] JCS, "Command and Control for Joint Air Operations," 6.

[7] Maureen A. Wigge, The Joint Force Air Component Commander: Theory and Practice (Alexandria, Va.: Center for Naval Analysis, 1993), 6-8, CRM 92-195.

[8] JCS, "Command and Control for Joint Air Operations," 8.

Command and Control

Regardless of forces and location, the primary concern for the JFACC must be his ability to clearly and effectively synchronize the combined air effort and coordinate with component commanders. Synchronization is the function that ensures that all elements of the operational force are efficiently employed to maximize the sum of their effects beyond the sum of their individual capabilities. Synchronization is obtained only through use of responsive and timely command, control, communications and computer systems.[9]

"The clear articulation of aims and objectives... are fundamental prerequisites for unity of effort."[10] Unity of effort should not be confused with unity of command. Command and control functions are elements that make unity of effort possible. Understanding command relationships between the JFC, JFACC and the service components are important for balancing the JFACC's use of air power within the theater of operations.

The JFACC supports the JFC's concept of operations by managing air assets through an air tasking process (commonly referred to as the air tasking cycle) which comprises apportionment, allocation, allotment and tasking of sorties. The air tasking cycle provides a means of requesting and scheduling air sorties to achieve specific objectives of the joint force. It is designed to assure optimum distribution of limited assets which must perform a wide range of missions; and it is a continuous process.[11]

The JFC's apportionment decision is based on recommendations from the JFACC, Joint Targeting Coordination Board (JTCB)[12] , and service component commanders. The JFC's guidance reflects his warfighting objectives and priorities and is promulgated as such to service component commanders. Each of the air capable service

[9] "Command and Control," Naval War College, Operations Dept., NWC 3152, 6.

[10] Joint Chiefs of Staff, "Joint Warfare of the U.S. Armed Forces," Joint Pub 1, Washington, D.C.: 11 November 1991, 22.

[11] JCS, "Command and Control for Joint Air Operations," 61.

[12] Wigge, 3. According to the author the "JTCB ensures a balanced employment of all available air assets in accomplishing the JFC's objectives. The JTCB helps balance the use of air power between support of joint force objectives and direct support of service missions. In practice the JTCB has become the JFC's agent for ensuring the effective application of theater air power. ***The JFACC remains the principal executive agent for employing that air power.***" (Emphasis added.)

components informs the JFC and the JFACC of available direct support and excess sorties. Sorties are mission events assigned to accomplish a specific task. Direct support sorties are the service component's self-imposed requirements to protect its assets or for interdiction of targets within the component's Area of Responsibility (AOR). Excess sorties are those sorties made available to support JFACC overall requirements.[13] The JFACC reviews the service component allocation and with JFC approval prepares to employ available air assets to accomplish assigned missions. The final step in the air tasking process is to inform the supporting and supported service commands of tasked mission assignments. Commands are informed via an Air Tasking Order (ATO) message.

For the most part, the Air Force and the Navy debate concerning JFACC doctrine seems to be waning. However, Air Force doctrine argues that the JFACC should have operational control over theater air to execute overall command of the air. The definition of operational control (OPCON) provides the commander "... full authority to organize commands and forces as the commander in operational control considers necessary to accomplish assigned missions."[14] Conversely, tactical control (TACON) is the "detailed and local direction and control of movements or maneuvers necessary to accomplish missions or tasks assigned."[15] Several Air Force proponents view the JFACC as a functional component commander and argue that the JFACC should be allowed OPCON of all theater air assets to execute the overall air operation.[16] Perhaps, this Air Force preference for OPCON of air assets developed due to the Air Force component commander having dual command of Air Force assets and being assigned as JFACC for having the preponderance of air assets. The size and complexity of joint air operations in DESERT STORM and the Navy's insistence on retaining OPCON probably frustrated Air Force planners' ability to dictate missions, which the Air Force was familiar with from previous exercises.

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[13] JCS, "Command and Control for Joint Operations," 10.

[14] Joint Chiefs of Staff, "Department of Defense Dictionary of Military and Associated Terms," Joint Pub 1-02, Washington, D.C.: 1 December 1989, 262.

[15] Ibid., 361.

[16] Wigge, 14.

Similarly, some analyses[17] of joint air operations argue that naval doctrine considered the JFACC as a coordinator of air operations and was comparable to the Air Resource Element Coordinator (AREC) within the Composite Warfare Commander (CWC) structure where the component commanders also fulfill the role of warfare commanders. The JFACC/AREC would be responsible for coordinating air assets to fulfill component commanders' requests for air missions. Neither the Air Force nor the Navy arguments are completely correct, but it easy to understand the perceived difference of service-specific theory and opinion.

Assigned as the Assistant Strike Operations Officer aboard USS Independence (CV-62), I not only coordinated daily AREC functions within the CWC structure, but participated in several joint and combined operations and exercises.[18] During several post DESERT STORM exercises, differing service definitions and understanding of JFACC roles and mission were observed. Many of the differences were, in part, associated with poor communication connectivity, limited Navy participation within the JFACC staff and ingrained service prejudice. Based on my experience, I concur with the observation of the Deputy Chief of Naval Operations, for Plans, Policy and Operations (DCNO N3/N5) that the Navy "fully subscribes to the operational concept that the JFACC is a supported commander," and not a coordinator.[19] However, recent experience "in the Fleet" demonstrates that continuing efforts must be made to understand better the JFACC's role and that added emphasis should be placed on joint education and training, including joint and combined exercises.

JFACC Staff Integration

The establishment of the JFACC organization should be fully integrated and

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[17] Peter P. Perla and others, eds., The Navy and the JFACC: Making them Work Together, (Alexandria, Va.: Center for Naval Analysis, 1993), 20-22, CNR 202. and Wigge, 14

[18] The author was assigned to the USS Independence (CV-62) from May 1991 to May 1993. Operations and exercises included: Ulchi Focus Lens '91, Valiant Blitz '91, Desert Storm/Southern Watch, and Team Spirit '93.

[19] Deputy Chief of Naval Operations, Plans, Policy and Operations, N3/N5, Memorandum to CNA Report 202, The Navy and the JFACC: Making Them Work Together, by Peter P. Perla and others, eds., Unclassified, 26 August 1993.

truly a joint staff with representation in key billets from all components operating in the theater. Staff billets and personnel should be identified and trained during joint exercises to insure an effective transition to combat operations.[20] Manning should be predesignated; and education and training should be emphasized so that personnel filling billets receive the appropriate training courses and schools to perform their JFACC duties. Moreover, the JFACC staff/organization operates around the clock or 24 hours a day, thus requiring personnel not only to plan and prepare for joint air operations but to monitor events as watchstanders. Personnel designated or assigned to a JFACC staff need to attend an approved joint force air operations course prior to participating in joint exercises or operations.[21] Joint publications recommend this prerequisite training, although very few naval officers have actually attended such joint courses.

According to an article by Majors Carpenter and McClain, USAF, the Air Command and Staff College has developed a new curriculum designed to understand better campaign planning and the use of joint air operations. The section on air operations sets "the foundation for mastering operational art in the aerospace domain and for the exploitation of air power in support of U.S. national objectives. Its goal is to produce students who can plan and execute an air campaign... Students will be able to develop the master attack plan and be familiar with the air tasking order process." [22]

This is exactly the type of education and training needed for personnel filling JFACC billets. Service commanders need to promote such courses and encourage and enable the military's best to attend. Moreover, military leadership should be able to combine key elements of the air campaign curriculum, targeteer's training, and the Navy's Strike Leader's Attack Tactics School (SLATS) into a streamlined curriculum designed to educate future warfighters prior to assignment to an integrated JFACC staff. The Joint Doctrine Air Campaign Course (JDACC) is a two week course that teaches the fundamentals of air operations planning one encounters on the JFACC staff.[23] Given our hypothetical

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[20] JCS, "Command and Control for Joint Air Operations," 10.

[21] Ibid., 11.

[22] Mason P. Carpenter, and George T. McClain, "Air Command and Staff College Air Campaign Course," Airpower Journal, 7, no. 3, (Fall 1993): 81.

[23] Maris McCrabb, "Air Campaign Planning," Airpower Journal, 7, no.2, (Summer 1993): 12.

scenario, will the USS Blue Ridge (LCC-19) be staffed with qualified personnel educated and trained to operate as part of an afloat JFACC or will personnel outside the command have to be transferred in to man and support joint air operations? In a time critical war, circumstances probably will not wait for the experts to arrive.

Communications

Experiences and lessons learned from the Gulf War clearly demonstrated the services' poor communications interoperability. Since then each of the services has sought to improve existing hardware and to acquire and modernize interoperable systems. The C4 Systems Directorate (J-6), The Joint Staff, recently published its vision and concept for joint interoperability among the services entitled C4I for the Warrior. Today's service goals are to obtain functional integrated or fused information based on operational requirements. "The essence of the C4I for the Warrior concept is his capability to respond and coordinate horizontally and vertical to prosecute effectively and successfully any mission in the Battlespace."[24] Communications systems are the means by which command and control of forces are executed. It is essential that information flows quickly and freely through the appropriate channels. Joint operations require service specific communications systems to be interoperable. Poor connectivity defeats the JFACC's execution of air operations if he is unable to communicate effectively with the supporting services. Such was the case during DESERT STORM when sea-based commanders were unable to receive the ATO via the Air Force developed CAFMS (computer assisted force management system) due to the aircraft carriers' lack of SHF capability. Additionally hampered by unacceptable transmission delays over existing communication channels, the carrier-based commanders and their airwings relied upon air courier service between Riyadh, Saudi Arabia and the aircraft carrier to deliver the next day's ATO. From the carrier the ATO was distributed via helicopter to the remaining ships. Incompatible communication systems between the services often meant the ATO was delivered to the Carrier and Tomahawk Land Attack Missile (TLAM) capable ships only a few hours prior to tasking for that day.

CAFMS has been replaced by CTAPS (contingency [tactical air command

[24] Joint Chiefs of Staff, "C4I for the Warrior," J-6, Washington, D.C.: 2.

system] automated planning system) which provides for a common computer system architecture adhering to joint standards. Additionally, command and control ships, aircraft carriers and amphibious command ships have installed SHF capabilities allowing for CTAPS connectivity. Several additional initiatives have and are being made to upgrade C4I architecture. For instance, over the last year the Navy has "created a sophisticated command and control system aboard command ships from which a Joint Task Force (JTF) commander could direct air strikes, naval maneuvers and even an amphibious landing during a war or regional crisis. This strategy is designed to support and defend a joint task force commander at sea, either aboard a command flag ship or an aircraft carrier. That platform also will be able to support a sea-based command center for creating and distributing daily air tasking orders for both Navy and Air Force pilots and communicate instantly with leaders in Washington and at naval shore commands."[25]

In the case of combined operations with allied nations, "a recognition of *dependence and interdependence also calls for renewed efforts* to develop and deploy interoperable military equipment, particularly command, control, communications and intelligence (C4I) systems. If we work with friends and allies in most future contingencies, it makes sense to develop in peacetime not only procedures and understandings, but also the equipment to make that cooperation as smooth as possible."[26] This may be especially true for forces operating in Korea, where current command relationships integrate forces across cultural and language barriers. That was not the case with the coalition forces during DESERT STORM. Multiple languages and not enough time to establish well defined command relationships only allowed for deconfliction of the coalition air forces. Combined military efforts in Korea have been fostered for many decades. U.S. and ROK forces train and exercise together in combined exercises like TEAM SPIRIT. ROK Air Force units and U.S. Air Force units share airfields, train together, and integrated into the Tactical Air Control Center (TACC). Even the daily training master air plan for ROK-USAF air forces is called the Integrated Tasking Order

[25] Don Ward, "East Meets West," Navy Times, 10 January 1994, 13.

[26] James Blackwell, Michael J. Mazarr, and Don M. Snider, The Gulf War: Military Lessons Learned (Washington, D.C.: Center for Strategic and International Studies, July 1991), 9.

(ITO) instead of an ATO. Yet, despite years of training, cooperation and technological advancements, communications interoperability likely would be the biggest challenge for a Joint Command-and-Control (JCC) ship, like the Blue Ridge, in a major regional contingency.

CHAPTER III

Comparison: Korean War and Desert Storm

Although they happened decades apart in different parts of the world, the Korean war and the Persian Gulf war still share several similarities, which, with the benefit of historical hindsight, are easier to recognize and explore. For instance, each of these conflicts was an aggressive and immediate action that both surprised U.S. leadership and occurred while U.S. military forces were being reduced following the end of two major wars--World War II and the Cold War, respectively.

One can only speculate about the consequences if Saddam Hussein had not invaded Kuwait in 1990, but had waited two or three years later. Would we have been able to protect national interests in the region given smaller U.S. forces? Would our forces have been trained and equipped? Would adequate strategic lift have been available? Fortunately for the United States, Iraq invaded Kuwait prior to our military's sustaining major cutbacks, and the United States was able to mass an effective coalition of forces to push Iraq out of Kuwait.

Despite the relative stability of Korea today, which is debatable, the United States was not as prepared in June of 1950 to counter Kim Il Sung's communist advance down the peninsula. Five years had elapsed since the end of World War II and U.S. Armed Forces were severely reduced. Moreover, the various services were fighting among themselves over missions, roles and defense dollars. This rivalry was especially heated between the Air Force and the Navy as each competed for superiority of the air. As was the case prior to the Persian Gulf war, strange fortune threw our armed forces into the Korean conflict that would resurrect U.S. forces from post World War II defense cutbacks. The two conflicts are different in many respects including geography, terrain, climate, enemy

capabilities and conviction. However, there are several elements that, studied in the context of these two wars, may provide valuable lessons for conducting joint air operations in the next potential conflict.

The Korean War

Korea was an important experience for naval aviation, since both the future employment of carrier forces and the Navy's future acquisition strategy were affected by the Korean war. The war was also an important lesson for the Air Force. Prior to the north's invasion southward, Air Force doctrine and strategy had shaped itself around strategic nuclear systems and capabilities. The Far East Air Force (FEAF), located in Japan, had conducted very little Close Air Support (CAS) training with the U.S. Eighth Army stationed in Korea because CAS missions were not viewed by the Air Force as an effective means of utilizing air power against the enemy.[27] Additionally, the North Koreans had overrun the South Korean airbases forcing Air Force aircraft to fly missions from Japan. Maneuverability and mobility of the aircraft carriers allowed naval air power to reach most targets in Korea and to respond more quickly to CAS requests.

The overriding problem for U.S. forces at the outset of the war was the lack of an effective joint command structure. The Far East Command (FEC) of General MacArthur was primarily an Army staff headquarters, which lacked significant representation of the Navy and Air Force.[28] This ineffective command structure hindered communication and coordination of the joint forces to the point that CAS requests by the Eighth Army were severely delayed and the Air Force's ability to respond rapidly to emergency CAS was never established in Korea. Likewise, naval units' limited communication capabilities made command and coordination difficult with the FEAF.

The issue of controlling naval air resources concerned inadequate communications, however the greater concern was the FEAF's insistence on unifying

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[27] Roger F. Kropf, "The U.S. Air Force In Korea," Airpower Journal, 4, no. 1 (Spring 1990): 32-33; and Richard P. Hallion, The Naval Air War in Korea, (Baltimore, Md.: Nautical and Aviation Publishing Company of America, 1986) Both authors provide an in-depth analysis concerning the services' views of close air support.

[28] William W Momyer, Airpower in Three Wars, (Washington, D.C.: Government Printing Office, 1978), 52-54.

command of all theater air power under its command. Possibly, the problem of operational control (OPCON) of air assets had its beginnings at this juncture. The Navy not only supported ground forces in Korea, but was responsible for sea control, the sea lines of communication, fleet defense, and defense of Formosa.[29] The FEAF believed that coordination of carrier based air and FEAF air operations over Korea needed to be ***operationally*** controlled by FEAF to get the most out of the total air assets. Naval air never relinquished OPCON of its air assets, but both sides agreed to coordinate (deconflict) their efforts. Naval air was given an Area of Responsibility (AOR) for supporting ground forces along the Korean east coast. Part of the problem in coordinating efforts was the incompatible communication systems used by the two services. Problems that hindered the effective use of air power in the Korean war, however, lend themselves to interpretation for future wars. The first lesson learned is that a joint command structure must be established and properly organized. Second, the key to jointness is for officers to understand the application of air power, naval, space, and land warfare.[30] The Korean war provides an important example of integrating air interdiction efforts into the overall campaign. The "cause and effect" understanding that a joint officer must have is:

> ... air interdiction and ground maneuver must be synchronized so that each complements and reinforces the other. Synchronization is important because it can create a dilemma for the enemy that has no satisfactory answer. His dilemma is this: if he attempts to counter ground maneuver by moving rapidly, he exposes himself to unacceptable losses from air interdiction; yet if he employs measures that are effective at reducing losses caused by air interdiction, he cannot maneuver fast enough to counter the ground component of the campaign. Thus, regardless of action the enemy chooses to take, he faces defeat.[31]

Despite the obvious disunity of effort during the Korean war and a wealth of experience to improve upon, it has taken the U.S. military 40 years to approach the concept of unity of effort in the air.

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[29] Kropf, 37.

[30] Ibid., 43.

[31] Price T. Bingham, "Ground Maneuver and Air Interdiction in the Operational Art," Parameters, (March 1989): 16-31.

Desert Storm

Iraq's invasion into Kuwait on 2 August 1990 provided the U.S. Forces an opportunity to demonstrate to the world the awesome power that United States technological superiority, precision weapons and, most importantly, trained, equipped and motivated professionals could bring to bear on an aggressor. A great deal has been reported and written about the "Air Campaign" and how it was largest and most successful air operation in our history.

However, lessons from the Gulf war should bear in mind its uniqueness. Future circumstances will never be exactly the same. "The region itself was perfectly adapted to the application of air power. Unlike in Korea, the enemy had few places to hide. Communication and logistics lines were visible and easily targetable. Moreover, coalition forces faced an enemy that was inept in almost every aspect of warfare beyond intimidating a civilian population.[32] The initial air effort easily destroyed the Iraqi air defenses and command centers which the desert terrain was unable to conceal. Furthermore, the JFACC staff had five months to provide for planning and sustainment of the air operation.

Unlike the Korean war, U.S. leadership had effectively organized a joint command structure, with clear command lines and guidance as to what was expected of the joint command structure. The 1986 Goldwater-Nichols Defense Department Reorganization Act provided that guidance. The unified chain of command allowed and provided the JFC the authority to assign a JFACC making it possible to integrate the air effort. The ability to determine the command relationships quickly and early-on enabled U.S. leadership and the military to hold the initiative throughout the Gulf war. The U.S. could decide when, where, and how the campaign would begin.

The Gulf war was "nearly a textbook application of U.S. Air Force doctrine, with the other services playing important supporting but not starring roles."[33] Despite this assertion, the question that will need to be answered for the next conflict is: Can airpower

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[32] James A. Winnefeld and Dana J. Johnson, Joint Air Operations: Pursuit of Unity in Command and Control, 1942-1991, (Annapolis, Md.: Naval Institute Press, 1993), 98.

[33] James W. Canan, "Lesson Number One," Air Force Magazine, October 1991, 26-31.

exert the same leverage in future conflicts of a very different nature?[34] In the Gulf war, terrain favored the use of air power. Mountainous terrain or highly populated areas would not be as easy for air operations as the desert. Again, we need to be careful to understand the limit of our successes and where they may not achieve the same results. This possibility exists for Korea today.

The JFACC staff in Riyadh was primarily an Air Force staff.[35] It was joint only to the extent of liaison and coalition officers assigned to it on a temporary basis. The JFACC utilized his existing component staff to fulfill many of the JFACC staff responsibilities. Several complaints about the lack of sister service integration are for the most part correct, but the services were slow to fill liaison positions with enough senior and qualified personnel to make an impact on the staff. The Navy provided the JFACC staff only a small number of action officers to help plan and control joint air operations. Although the Air Force component staff numbered approximately 3000, only about 40 naval officers worked on the JFACC staff.[36] The importance of integrating all component services into a joint staff provides:

> ... the necessary balance against any parochialism on the part of the commander, senior members of the staff, and individuals supporting commanders. But even more important, it ensures that the JFACC is presented with a broad range of views and expertise as he arrives at and executes his decisions.[37]

A significant problem for the naval units at sea was difficult and ineffective communications with the joint command structure in Riyadh. As mentioned earlier, the carriers were unable to receive the ATO from the JFACC via CAFMS due to the lack of SHF capabilities aboard the ships.[38] But more than connectivity was at issue. Prior to

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[34] Winnefeld and Johnson, 110.

[35] Dwight R. Motz, "JFACC: The Joint Air Control 'Cold War' Continues ...," Marine Corps Gazette 77, no. 1, (January 1993): 68.

[36] Perla and others, 26.

[37] Winnefeld and Johnson, 135.

[38] Lyle G. Bien, "From the Strike Cell," United States Naval Institute Proceedings 117 no. 6 (June 1991): 59 "The JFACC air tasking order (ATO) proved effective in managing 3000 daily sorties flown by coalition air forces during Desert Storm, but the 48-hour ATO cycle did not permit rapid response to mobile targets. In a more dynamic war, only a reduced ATO cycle--which appears to be almost physically impossible-- or greater reliance on aircraft standing strip or airborne alert will be required."

DESERT STORM, naval air units had limited training in joint air operations and were not familiar with the air tasking cycle. In the past, naval units had operated in combined exercises, such as TEAM SPIRIT, but unity of effort was limited to deconflicting air events between the services. Very little emphasis and importance was placed on coordination between Navy and Air Force staffs, focusing attention on unit level training instead.

Primarily, the Navy was unaccustomed to joint operations. A joint air operation was not the focus of its planning, training, or its command and control system. Naval doctrine still adhered to its Maritime strategy: operating at sea against the Soviet naval threat. Naval leadership subordinated its component command and advisory responsibilities within the joint force organization to fleet operational responsibilities. "The Navy's lack of foresight to immediately augment the JFACC with a major staff of senior and experienced personnel laid the foundation for the lack of integration in both the planning and execution phases of the campaign."[39]

Despite the overall successes of joint air operations during DESERT STORM, the Navy recognized it had to improve connectivity problems and, most importantly, prepare and train its personnel to operate jointly. Several characteristics of joint air operations are likely to be repeated in future conflicts. Joint control of air operations under a JFACC will be required. More emphasis will be made on stealth technology, improvements to precision-guided munitions and long-range cruise missiles, and surveillance systems to provide commanders with required intelligence. However, Lobdell's assessment is right on the mark in regard to where the Navy needs to improve:

> Future combat operations will be fought within the JFC structure. The Navy must train to operate to support this structure. A program to improve joint operability must directly address lessons learned from DESERT STORM. These would include 1) Joint academic training at the operational level.
> 2) Interoperability of communications and battle management systems.
> 3) Development of a joint planning, allocation and tasking (ATO) system for air operations.
> 4) The staffing of joint billet assignments with the Navy's best personnel.[40]

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[39] John D. Lobdell, "The U.S. Navy and the JFACC Concept" Naval War College, Operations Department, NWC 3156, 7.

[40] Ibid., 16.

CHAPTER IV

Recent Joint Exercises

Since cessation of DESERT STORM combat operations, several joint exercises have been conducted in an effort to improve several areas of JFACC command and coordination. OCEAN VENTURE '92 and '93, and TANDEM THRUST '92 and '93[41] are some of the more recent examples of the Navy's improvements in the joint arena. In each exercise, special emphasis was placed on integrating the JFACC staff and utilizing improved connectivity to command and control systems to disseminate the ATO.

Joint Staff Integration

The assignment of key staff billets was a noted interservice deficiency. OCEAN VENTURE '92 attempted to integrate better its JFACC staff during the exercise. The commanding general of the Twelfth Air Force (12AF) was the JFACC. His staff included component augmentees and liaison officers, but was numerically dominated by Air Force officers. Additionally, the JFACC staff and air component were one and the same.[42] Naval planners still were reluctant to make personnel available to staff key billets on the JFACC staff. Most of the naval interaction with the JFACC was via the JTCB. Senior naval personnel were included as members of this board, where campaign objectives and apportionment of air assets were recommended for change. Often, the JTCB acted more like an agent of the components than of the JFC due to the services' tendencies to compartmentalize their own requirements and, thus, tended to match missions to accomplish specific objectives.[43]

[41] TANDEM THRUST '93 was conducted in August 1993. Seventh Fleet, aboard USS Blue Ridge, was assigned as the JFC for the exercise. To date, details and lessons learned have not been published.

[42] Peter P. Perla and others, The Navy and the JFACC: Making Them Work Together Alexandria, Va.: Center for Naval Analysis, 1993, 34, CNR 202.

[43] Perla, 35

TANDEM THRUST '92 saw improvements toward JFACC staff integration. Unlike OCEAN VENTURE '92, the JFACC and JTCB remained afloat with the JFC. The core element of the JFACC staff comprised the Eleventh Air Force's Tactical Air Command Center (TACC). However, service integration was more evenly distributed among the participating services and key billets were held by the augmentees.[44] During the exercise, the JTCB effectively translated the JFC's campaign objectives into apportionment and targeting guidance, which the JFACC used to allocate sorties for strike missions. Overall, TANDEM THRUST '92 provided division of responsibility among the JFC, JTCB, the components and the JFACC.[45]

OCEAN VENTURE '93 greatly expanded upon the lessons learned in previous joint exercises. Aided by vastly improved C4I capabilities, the USS Mount Whitney (LCC-20) operated as a JCC providing requisite space to host the JFC, JFACC, and several critical coordination cells, operational and intelligence centers.[46] More importantly, OCEAN VENTURE '93 established a truly joint force structure contained aboard the JCC. Second Fleet served as the JFC and the JFACC was Commander, Carrier Group Six (COMCARGRU SIX). The Deputy JFC and JTCB chairman was an Army major general, embarked, and the Deputy JFACC was an Air Force colonel.[47] The integrated joint structure also extended to other key billets on the JFACC staff. The advantages of co-locating several commanders together had a "synergistic effect through the dynamic and personal 'eye-to-eye' interplay on the JTCB, thus allowing early or preemptive conflict resolution and providing clear guidance for producing the Joint Integrated Prioritized Target List. (JITPL)"[48] This would support a change since DESERT STORM in Navy attitude

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[44] Perla, 37

[46] Ibid., 40. The JFC delineated the campaign plan and guided what role air power would play. The JTCB provided direction for the components and JFACC, but refrained from telling them how to do it. The components worked hard to offer as many excess sorties that were available, instead of 'padding' their need for direct support sorties. The JFACC made sure that the overall air effort was synchronized with the JFC's theater objectives.

[46] Robert D. Gourley, "Time For A Joint Ship," United States Naval Institute Proceedings, 120, no. 1 (January 1994): 59.

[47] Floyd D. Kennedy, "Commanding A Joint Air Campaign--From a Ship?" United States Naval Institute Proceedings, 119, no. 8 (August 1993), 34.

[48] Joint Staff, J7, CDR Mariner, "FTX OCEAN VENTURE '93", JULLS file no. 60133-86986, (January 1994), a Joint Staff After Action Report.

and the importance placed on allowing Naval commanders and components to co-locate with the joint structure if it were ashore. Advanced technology and even improvements in connectivity cannot take the place of being able to interface directly with one another.

Given the successes of OCEAN VENTURE '93, the Navy must not relax its initiative to improve JFACC staff integration and training of assigned personnel. The problem of deciding how to man a JFACC staff effectively is still in question. A means for providing a nucleus of trained experts to perform JFACC duties is still lacking. During OCEAN VENTURE '93, the afloat JFACC was staffed by personnel "pulled" from other commands.[49] "The creation of a standing JFACC staff is probably not justified, although a cadre organization could be formed. Each service could be required to designate building-block elements to staff a JFACC headquarters, and this capability could be exercised periodically."[50]

Interoperability and the ATO

The greatest naval improvements to the joint air planning process has involved substantial efforts and funding to upgrade and modernize naval communications. The essential link between assignment of air assets and their tasking is the ATO document. Much consternation on the Navy's part centered around transmitting and receiving the ATO. The most difficult problem the Navy faced with the ATO was its delivery and acceptance via existing connectivity paths. As a result, strike planners received the ATO only a few hours prior to its execution, limiting thorough mission planning. Many of the communication problems experienced during DESERT STORM are being fixed. Improvements are still being made throughout the Navy so that many of the critical command ships can communicate effectively within a joint structure.

CTAPS, which replaced the CAFMS, has enabled the Navy to receive the voluminous ATO from the JFACC in a timely manner. However its introduction to the fleet was not well planned. As with CAFMS, CTAPS is transmitted via SHF circuits and the

[49] Joint Staff, Cdr James, "JFACC Afloat Cadre of Experts," JULLS file no. 52636-10137, (January 1994), a Joint Staff After Action Report.

[50] Winnefeld,135.

ships were only able to receive, as a "remote" terminal, information via CTAPS.[51] Normally, command ships and carriers have only two incoming SHF circuits and several communication requirements compete for the limited connectivity. Additionally, the data rate required to operate CTAPS is immense. Currently, CTAPS standards are modern and suitable for interoperability. During OCEAN VENTURE '92 CTAPS functions were limited by software. However the exercise demonstrated communications connectivity between the Mount Whitney, components, and Air Force Wing Operation Centers (WOCs).[52]

Fortunately these interoperability problems are being addressed now, as is the capability to "host" CTAPS as an afloat JFACC. OCEAN VENTURE '93 demonstrated the LCC's ability to host CTAPS as the afloat JFACC.[53] While the Navy gains the capability to further exploit CTAPS use, it also must emphasize training for personnel not only to operate it, but, as importantly, to maintain the equipment. Since CTAPS was developed and fielded by the Air Force, the Navy has relied on Air Force personnel to install and maintain the equipment. Unforeseen contingencies require the Navy to support manning and training of personnel to effectively use CTAPS.[54]

The issue is not whether the ATO is useful but rather how it can be improved. Experience points to the need for an interactive planning and information dissemination system that can meet timelines imposed by modern warfare. The Navy should continue to fund and pursue automated information systems that are capable of exchanging information among all elements of a joint force. The need for interoperability cannot be overstated.

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[51] U.S. Department of the Air Force, Deputy Chief of Staff, Plans and Operations Headquarters, JFACC Primer, Washington, D.C.: August, 1992, 36.

[52] Ibid., 37.

[53] Joint Staff, CDR James, "LCC Optimum Ship To Host Afloat JFACC," JULLS file no. 52648-18333, (January 1994), A Joint Staff After Action Report.

[54] C. R. Rondestvedt, "Putting the JFACC to the Test," United States Naval Institute Proceedings, 120, no. 1 (January 1994) 60-61. Captain Rondestvedt provides a good post exercise perspective as for the need of a JFACC training program. Personal experience with CTAPS demonstrates this point. The Navy first fielded CTAPS aboard the USS Independence (CV-62) at the outset of SOUTHERN WATCH. CTAPS was still a developmental Air Force system not fully ready. Operational urgency placed CTAPS in the Southwest Asia Command (CJTF SWA) and aboard the carrier. Training and support was not provided to the carrier, despite repeated requests to CJTF SWA. From CTAPS installment to the carrier's departure from the AOR, (20 August-15 September 1992) the ship never received a single ATO via CTAPS. Standard naval messages and air courier service were the means with which the the battle group received the ATO.

CHAPTER V

Conclusions and Recommendations

The valuable insight and lessons learned that we are able to gather from past experiences need to be consciously applied to future exercises and possible military contingencies that U.S. forces might become involved in. Air power theory, service prejudices, and joint doctrine have been sufficiently analyzed. The task for joint officers is to fully comprehend and understand joint doctrine as it applies to operational warfighting. The JFACC staff officer should not have to concern himself with service prejudice, he is too preoccupied with planning and coordinating missions for air unity of effort.

Lessons of coordinated, not joint, operations from the Korean war still remain valid. Command and control, as well as connectivity support, will be critical should the United States find itself engaged in another Korean conflict. Reliable C4I is critical to the JFACC's mission. Joint doctrine does not adequately address procedures for moving the JFACC staff from ashore to an afloat JCC. The Navy should take the lead on this issue and test the movement of the JFACC headquarters during a joint or combined exercise.

In DESERT STORM, naval air forces were initially unprepared to participate in a large-scale joint air operation. Fortunately a cooperative and militarily inept Iraqi regime allowed naval forces time to gain the experience need to be a team player in the air war. Because of vivid lessons learned from the Persian Gulf war, naval leadership recognized areas of weakness and has embarked on an aggressive program to right its ship.

The fleet exercises have demonstrated a great deal of progress on the Navy's part. OCEAN VENTURE and TANDEM THRUST exercises have patiently and deliberately brought the JFACC afloat concept to the point where it provides the joint

commander flexibility. and adaptive C4I systems are being provided to ships that may embark a JFC or JFACC.

The Navy needs to expand its operational exercises to include larger combined exercises, such as TEAM SPIRIT.[35] Practicing the transfer of JFACC duties from a shore facility to an afloat JCC ship could be worked into the exercise. This type of exercise, combined with an amphibious assault, would surely test the joint command infrastructure.

In summary, naval leadership and naval air forces should direct efforts to:

1) Establish an education and training curriculum similar to the Air Force model that will provide the necessary "cadre of experts" when there is a need for manning a JFACC staff.

2) Stress complete integration of the JFACC staff to ensure it is truly joint.

3) Continue to install and accelerate C4I improvements aboard command ships, carriers and amphibious command ships.

4) Continue to schedule joint and combined exercises to train and familiarize more officers in joint air operations. Current naval air scheduling procedures should incorporate the joint planning process and automated planning tools for every day use.

[35] John H. Cushman, "A New Era," United States Naval Institute Proceedings, 119, no. 8 (August 1993), 33-36. LTGEN C. [illegible], USA, retired, provides a good account of OCEAN VENTURE 93. More importantly his observations provide insight as to where the Navy needs to continue evaluating JFACC. Having participated in TEAM SPIRIT '93, I can appreciate the need for improved jointness in the Korean theater.

Selected Bibliography

Allard, C. Kenneth. Command, Control, and the Common Defense. New Haven, Conn.: Yale University Press, 1990.

Blackwell, James, Michael J. Mazarr and Don M. Snider. The Gulf War: Military Lessons Learned. Washington, D.C.: Center for Strategic and International Studies, 1991.

Bien, Lyle G. "From the Strike Cell." United States Naval Institute Proceedings 117, no.6 (June 1991): 58-60.

Bingham, Price T. "Ground Maneuver and Air Interdiction in the Operational Art." Parameters. (March 1989): 16-31.

_____. "Air Power in Desert Storm." Airpower Journal 5, no.4 (Winter 1991): 33-46.

_____. "The United States Needs to Exploit Its Air Power Advantage." Airpower Journal 7, no.3 (Fall 1993): 62-71.

Bird, Julie. "Assignment Korea." Air Force Times, 26 April 1993, 8.

_____. "Tense Backdrop to Team Spirit." Air Force Times, 26 April 1993, 10.

_____. "Spirit: Real-World Missions, First-Time Experiences." Air Force Times, 26 April 1993, 11-12.

Canan, James W. "Lesson Number One." Air Force Magazine, October 1991, 26-31.

Carpenter, P. Mason, and George T. McClain. "Air Command and Staff College Air Campaign Course." Airpower Journal 7, no.3 (Fall 1993): 72-83.

Collins, John M. Grand Strategy: Principles and Practices. Annapolis, Md.: Naval Institute Press, 1973.

Cushman, John H. "Command and Control in the Coalition." United States Naval Institute Proceedings 117, no.5 (May 1991): 74-80.

_____. Handbook for Joint Commanders. Annapolis, Md.:United States Naval Institute, 1993.

_____. "A New Era." United States Naval Institute Proceedings. 119, no. 8 (August 1993): 33-36.

Di Rita, Larry. "Exocets, Air Traffic, and the Air Tasking Order." United States Naval Institute Proceedings 118, no.8 (August 1992): 59-63.

Friedman, Norman. Desert Victory: The War for Kuwait. Annapolis, Md.: Naval Institute Press, 1991.

Gordon, Michael R. "Pentagon Studies Plans to Bolster U.S.-Korea Forces." New York Times, 2 December 1993, sec. A, 1(N).

Gourley, Robert D. "Time for a Joint Ship." United States Naval Institute Proceedings 120, no.1 (January 1994): 57-62.

Hallion, Richard P. The Naval Air War In Korea. Baltimore, Md.: Nautical and Aviation Publishing Company of America, 1986.

Hayes, Peter. Pacific Powderkeg: American Nuclear Dilemmas in Korea. Lexington, Mass.: D.C. Heath and Company, 1991.

Horner, Charles A. "The Air Campaign." Military Review 71, no.9 (September 1991): 16-27.

Houle, Edward H. "JFACC--The Sequel." Marine Corps Gazette, 77, no.5 (May 1993): 83-89.

Joint Chiefs of Staff. Joint Warfare of the U.S. Armed Forces. Joint pub. 1. Washington, D.C., 11 November 1991.

_____. Department of Defense Dictionary of Military and Associated Term. Joint pub. 1-02. Washington, D.C., 1 December 1989.

_____. Doctrine for Joint Operations. Joint pub. 3-0. Washington, D.C., 9 September 1993.

_____. Command and Control for Joint Air Operations. Joint pub. 3-56.1. Pre-publication copy. Washington, D.C., 30 July 1992.

_____. C4I for the Warrior. I-6, Washington, D.C., 1993.

Joint Staff, J-7. "Fleet Exercise: OCEAN VENTURE '93." After Action Report, U.S. Naval War College Library, JULLS File no. 60133-86986, (U), January, 1994.

_____. J-5. "Fleet Exercise: OCEAN VENTURE '93." After Action Report, U.S. Naval War College Library, JULLS File no. 52636-10137, (U), January, 1994.

_____. J-5. "Fleet Exercise: OCEAN VENTURE '93." After Action Report, U.S. Naval War College Library, JULLS File no.52648-18333, (U), January, 1994.

Kennedy, Floyd D. "Commanding a Joint Air Campaign--From A Ship?" United States Naval Institute Proceeding, 119, no. 8 (August 1993): 34-35.

Kropf, Roger F. "The U.S. Air Force in Korea." Airpower Journal 4, no.1 (Spring 1990): 30-46.

Levin, Norman D. Security Trends and U.S.-ROK Military Planning in the 1990's. Santa Monica, Calif.: Rand, 1991.

Lobdell, John D. "The U.S. Navy and the JFACC Concept." NWC 3156. Operations Department, Naval War College.

Matthews, William. "Don't Bet on a '94 War in Korea." Navy Times, 10 January 1994, 14.

_____. "North Korea Deal May Cost Team Spirit in '94." Navy Times, 17 January 1994, 23.

Matthews, William, and Patrick Pexton. "Two Years to Train As One Mind." Navy Times, 10 January 1994, 13.

McCrabb, Maris. "Air Campaign Planning." Airpower Journal 7, no.2 (Summer 1993): 11-22.

McKearney, T.J. "The Gator Stumbles." United States Naval Institute Proceedings 120, no.1 (January 1994): 35-40.

Mixson, Riley D. "We Must Do Better." United States Naval Institute Proceedings 118, no.8 (August 1991): 38-39.

Momyer, William M. Airpower in Three Wars. Washington, D.C.: Government Printing Office, 1978.

Morrocco, John D. "War Will Reshape Doctrine, But Lessons Are Limited." Aviation Week and Space Technology, 22 April 1991, 40.

Morton, John F. "U.S. Presence Continues in Japan and ROK: Host Nation Support Remains An Issue." Asian Defence Journal, (April 1993): 14-17.

Motz, Dwight R. "JFACC: The Joint Air Control 'Cold War' Continues ...." Marine Corps Gazette 77, no.1 (January 1993): 65-71.

Mundy, Carl E. "Getting it Right ... From the Sea." United States Naval Institute Proceedings 120, no.1 (January 1994): 69-71.

Perla, Peter P., Barry P. Messina, John Parsons, Richard k. Phares, Gregory Swider, and Maureen A. Wigge. The Navy and the JFACC: Making Them Work Together. Alexandria, Va.: Center for Naval Analysis, 1993.

Picotte, Leonard P. "Fighting Joint." United States Naval Institute Proceedings 120, no.1 (January 1994): 41-3.

RisCassi, Robert W. "Doctrine for Joint Operations in a Combined Environment: A Necessity." Military Review 73, no.6 (June 1993): 20-37.

Rondestvedt, C.R. "Putting the JFACC to the Test." United States Naval Institute Proceedings 120, no.1 (January 1994): 60-61.

Roth, Margaret. "Information Overload." Navy Times, 17 January 1994, 5.

Tangredi, Sam J. "Reconstitution is the New Game." United States Naval Institute Proceedings 118, no.9 (September 1991): 58-61.

U.S. Congress. House. House Armed Services Committee. Defense for a New Era: Lessons of the Persian Gulf War. Report prepared by Les Aspin and William Dickinson. 102d Cong., 2d sess. Washington, D.C.: U.S. Government Printing Office, 30 March 1992.

U.S. Department of Defense. Conduct of the Persian Gulf Conflict: Final Report to the Congress. Washington, D.C.: U.S. Government Printing Office, April, 1992.

U.S. Department of the Air Force, Deputy Chief of Staff, Plans and Operations Headquarters. JFACC Primer. Washington, D.C.: U.S. Government Printing Office, August, 1992.

Valliere, John E. "Stop Quibbling." United States Naval Institute Proceedings 116, no.12 (December 1990): 38-45.

Ward, Don. "East Meets West." Navy Times, 10 January 1994, 12-13.

Warden, John A. The Air Campaign: Planning for Combat. Washington, D.C.: Pergamon-Brassey's, 1989.

Werrell, Kenneth P. "Air War Victorious: The Gulf War vs. Vietnam." Parameters 22, no.2 (Summer 1992): 41-54.

Wigge, Maureen A. The Joint Force Air Component Commander: Theory and Practice. Alexandria Va.: Center for Naval Analysis, 1993.

Winnefeld, James A., and Dana J. Johnson. Joint Air Operations: Pursuit of Unity in Command and Control.1942-1991. Annapolis, Md.: Naval Institute Press, 1993.