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EXERCISE / EXERCICE NEW HORIZONS

**CENTRALIZED CONTROL AND DECENTRALIZED EXECUTION:
A FUNDAMENTAL GUIDING MYTH OF AIR POWER**

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ABSTRACT

The principle tenet of air and space power, according to Air Force Basic Doctrine 1, states that air power should be centrally controlled and decentrally executed in order to ensure the most effective and efficient means of employment. Although one might expect air power's principle tenet to be well understood by most airmen, this is unfortunately not the case. In order to add some clarity to the subject, this paper will review of the historical and doctrinal evolution of air power's principle tenet. It will then define the terms *centralized control* and *decentralized execution*, each within the framework of existing doctrine and contemporary command and control (C²) research. Analysis will reveal that centralized control is inextricably related to the concept of command and that decentralized execution is not an accurate reflection of what the concept is trying to convey. In fact, this paper claims that decentralized execution should be replaced with phrase the 'adaptive control.' As such, this paper claims that centralized control and decentralized execution does not accurately reflect the practical application of air power and concludes that air power's fundamental guiding principle no longer deserves doctrinal tenet status as a 'fundamental guiding truth.'

INTRODUCTION

The application of air power is guided not only by the time tested principles of war developed by classic military theorists like Sun Tzu, Clausewitz, and Jomini; but also, by fundamental guiding truths, specific to air power, developed by airmen such as Douhet, Trenchard, and Mitchell. Codified in Air Force Doctrine Document (AFDD) 1, *Air Force Basic Doctrine*, these fundamental guiding truths are referred to as ‘tenets’ because “[t]hey reflect not only the unique historical and doctrinal evolution of air power, but also the specific current understanding of the nature of air and space power.”¹ Air power’s principle tenet, one of eighteen foundational doctrine statements in AFDD 1, states that air power “[s]hould be centrally controlled and decentrally executed.”² Furthermore, AFDD 1 maintains that this fundamental organizing principle, historically proven over decades of practical application, is critical in order to ensure air power’s most effective and efficient employment.³

Given the doctrinal importance of air power’s principle tenet, one might expect it to be well understood by most airmen. Unfortunately, this is not the case. For example, at the 2002 Air Symposium hosted by the Canadian Forces College, some participants interchangeably used the expressions “centralized command and decentralized execution”

¹ United States, Department of the Air Force, Air Force Doctrine Document (AFDD) 1, *Air Force Basic Doctrine* (Washington, D.C.: November 2003), 27. The author has chosen to use United States Air Force (USAF) doctrine for two reasons: first, the Canadian Forces is presently operating without official air power doctrine as *Out of the Sun: Aerospace Doctrine for the Canadian Forces* (Winnipeg: Craig Kelman & Associates Ltd., n.d.) was rescinded in 2004; and second, USAF doctrine, currently used for educational purposes at the Canadian Forces College, provides an excellent reference for the study of air power doctrine. Additionally, for the remainder of this paper ‘air and space power’ will simply be referred to as ‘air power.’

² *Ibid*, 27.

³ *Ibid*, 28.

and “centralized control and decentralized execution” without an appreciable understanding of the differences between the two.⁴ This confusion is not surprising given the inconsistent terminology found in Western doctrine manuals. Both AFDD 1 and *British Air Power Doctrine* (AP 3000) refer to the term “centralized control” while the recently rescinded *Out of the Sun: Aerospace Doctrine for the Canadian Forces* makes reference to the term “centralized command and control.”⁵ Similarly, published research on the subject offers little to clarify the confusion. It is not difficult to find evidence of the words *command*, *control*, and *execution* used interchangeably and in various combinations when making reference to air power’s principle tenet.⁶ Notwithstanding the differences in phraseology that exist between doctrinal documents and research, some air power advocates claim that the employment of air power has moved away from its doctrinal foundation of decentralized execution toward a philosophy of centralized execution.⁷ Needless to say, the inability of airmen to pinpoint

⁴ Allan English, “Rethinking ‘Centralized Command and Decentralized Execution,’” in *Air Force Command and Control*, ed. Douglas L. Erlandson and Allan English, 71-81 (Winnipeg: Canadian Forces Training Material Production Centre, 2002), 71.

⁵ Ministry of Defence, Directorate of Air Staff, *British Air Power Doctrine* (AP 3000), 3rd ed. (Norwich: Her Majesty’s Stationary Office, 1999), 1.3.6.; and, *Out of the Sun: Aerospace Doctrine for the Canadian Forces* (Winnipeg: Craig Kelman & Associates Ltd., n.d.), 38.

⁶ Richard T. Reynolds and Edward C. Mann, “Liars Fools and Zealots – The Origins of 21st Century Command and Control,” in *Air Force Command and Control*, ed. Douglas L. Erlandson and Allan English, 1-8 (Winnipeg: Canadian Forces Training Material Production Centre, 2002), 5, makes reference to “Centralized Command – Decentralized Control”; English, “Rethinking ‘Centralized Command and Decentralized Execution,’” . . . , 71, makes reference to “Centralized Command and Decentralized Execution”; and , Eliot A. Cohen, “The Mystique of U.S. Air Power,” *Foreign Affairs* 73, no. 1 (January/February 1994): 116, makes reference to “Centralized Planning, Decentralized Execution.”

⁷ Philip S. Meilinger, “Preparing for the Next Little War: Operation Enduring Freedom Points to New Ways of Warfighting,” *Armed Forces Journal International* (April 2002), 40; and, Stuart Peach, “The Airmen’s Dilemma: To Command or To Control?” in *Air Power 21: Challenges for the New Century*, ed. Peter W. Gray, 123-152 (London: The Stationary Office, 2000), 127. Interestingly, Air Commodore Peach refers to both “centralised command and centralised execution” and “centralised control and centralised execution” on the same page.

air power's principle tenet is somewhat alarming. Therefore, this paper will examine air power's principle tenet and argue that centralized control and decentralized execution no longer reflects 'the specific current understanding of the nature of air power' and, as such, should no longer be considered a key tenet of air power.

This paper will begin with a review of the historical and doctrinal evolution of air power's principle tenet by separately examining the component parts of *centralized control* and *decentralized execution*, tracing the former to the deserts of North Africa and the latter to the skies over Vietnam. After establishing their respective origins, the terms will then be defined and analyzed, each within the framework of existing doctrine and contemporary command and control (C²) research. This analysis will demonstrate that centralized control and decentralized execution does not accurately reflect the practical application of air power and concludes that air power's fundamental guiding principle no longer deserves doctrinal tenet status as a 'fundamental guiding truth.'

ORIGINS OF AIR POWER'S PRINCIPLE TENET

Centralized Control – Operation TORCH

The concept of centralized control in US doctrine dates back to the First World War and owes its historical origins to Colonel William 'Billy' Mitchell. Immediately after the United States (US) entered the war in 1917, Mitchell visited the headquarters of Major General Hugh Trenchard, the Royal Air Force commander in France. It was there that Mitchell was exposed to the concepts of unifying air assets under a single commander, allocating the minimum number of aircraft necessary to support ground operations, and concentrating air assets so they could be focused in time and space upon

the enemy.⁸ However, when US air assets arrived in theatre they were not commanded by a single commander but were organized under the Air Service, American Expeditionary Forces (AEF). As an integral component of the ground forces, the Air Service units were commanded by the commanding generals of the ground formations to which they were assigned. As stated by Brigadier General Mason Patrick, Chief of Air Service, AEF, the command and control concept was “[t]he Air Service originates and suggests employment for its units but the final decision is vested in the commanding general of the larger units, of which the Air Service forms a part.”⁹

The command and control of Air Service, AEF assets was changed, however, in preparation for the St. Mihiel offensive in September 1918. Mitchell, who was now Chief of the Air Service, 1st Army, reviewed the missions that were assigned to ground forces and determined that the current distribution of air assets was not adequate to support the impending ground attack. Contrary to the plans established by 1st Army Chief of Staff, Colonel Hugh Drum, Mitchell reallocated air assets ensuring that the largest number of assets was given to those ground units that were designated as the main effort.¹⁰ In essence, he recognized the need to centralize the control of air forces in order to achieve operational level objectives. In addition to AEF air assets, Mitchell also utilized aircraft from British, French, and Italian air units and centralized them under his control for execution (1481 aircraft, fourteen major airfields, and 30,000 officers and

⁸ Robert Frank Futrell, *Ideas, Concepts, Doctrine: Basic Thinking in the United States Air Force, vol. 1, 1907-1960* (Maxwell AFB: Air University Press, December 1989), 21.

⁹ Maj Gen Mason M. Patrick, *Final Report of the Chief of Air Service AEF* (Washington, D.C.: Government Printing Office, 1921): 19, quoted in Futrell, *Ideas, Concepts, Doctrine: . . .*, 22.

¹⁰ James J. Cooke, *Billy Mitchell* (Boulder: Lynne Rienner Publishers, 2002), 86.

men), thus achieving mass firepower and unity of effort.¹¹ The concept of centralized control of air power was born.

Unfortunately, the lessons learned by the Americans over the battlefields of Western Europe were lost during the inter-war years. In 1919, the Air Service Board recommended that most of the Air Service should be assigned to armies, corps, and divisions.¹² This recommendation was supported by the AEF *Superior Board on Organization and Tactics*, which concluded, “so long as present conditions prevail . . . aviation must continue to be one of the auxiliaries of the principal arm, the Infantry.”¹³ Despite these findings, American airmen continued to press for the centralized control of air power. In his December 1924 letter to the War Department, then Major General Patrick, Chief of the Air Service, wrote:

I am convinced that the ultimate solution of the air defense problem of this country is a united air force, that is the placing of all the component air units, and possibly all aeronautical development under one responsible and directing head. . . . The great mobility of the Air Service and the missions it is capable of performing have created a problem in command, the solution of which is still far from satisfactory. . . . Future emergencies will require at the very outset, before the ground armies can get underway, and in many cases before the Navy can make its power effective, the maximum use of air power on strategic missions. . . . We should gather our air forces together under one air commander and strike at the strategic points of our enemy—cripple him even before the ground forces can come in contact. Air power is coordinate with land and sea power and the air

¹¹ *Ibid.*, 87.

¹² Futrell, *Ideas, Concepts, Doctrine*: . . ., 28.

¹³ General Headquarters, American Expeditionary Forces, “Report of Superior Board on Organization and Tactics,” ca. 1 July 1919, in House, *Department of Defense and Unification of Air Service: Hearings before the Committee on Military Affairs*, 69th Congress, 1st Session (Washington, D.C.: Government Printing Office, 1926): 953, quoted in Futrell, *Ideas, Concepts, Doctrine*: . . ., 29.

commander should sit in councils of war on an equal footing with the commanders of the land and sea forces.¹⁴

The air power advocacy displayed by airman such as Patrick eventually led to the publication of Training Regulation (TR) 440-15, *Fundamental Principles for the Employment of the Air Service*. Whilst TR 440-15 was a step towards an independent air arm, it continued to recognize the distinction between observation (which was integral to land formations) and other combat units (which were self-contained and capable of rapidly changing activities from one theatre to another).¹⁵ Considering that ground combat officers from the War Department were responsible for the development of TR 440-15, it is not surprising that the regulation did little to promote the centralized control of air power.¹⁶ Although TR 440-15 was revised in 1935 and renamed *Employment of the Air Forces of the Army*, the new regulation continued to emphasize the primacy of land operations, stating that, “[a]ir forces further the mission of the territorial or tactical commands to which they are assigned.”¹⁷

In 1940, Field Manual (FM) 1-5, *Employment of the Aviation of the Army* replaced TR 440-15, but it too did little toward centralizing the control of air power. FM 1-5 continued to emphasize the long-standing relationship that existed between air and ground forces, effectively splitting the command and control of air assets between the

¹⁴ Maj Gen Mason M. Patrick to The Adjutant General, War Department, letter, subject: Reorganization of Air Forces for National Defense, 19 December 1924: 43, quoted in Futrell, *Ideas, Concepts, Doctrine: . . .*, 43.

¹⁵ Futrell, *Ideas, Concepts, Doctrine: . . .*, 50.

¹⁶ Dr. James A. Mowbray, “Air Force Doctrine Problems 1926-Present,” *Airpower Journal* (Winter 1995) [journal on-line]; available from <http://www.airpower.maxwell.af.mil/airchronicles/api/mowbray.html>; Internet; accessed 15 March 2005.

¹⁷ War Department Training Regulation 440-15, *Employment of the Air Forces of the Army* (15 October 1935): n.p., quoted in Futrell, *Ideas, Concepts, Doctrine: . . .*, 78.

General Headquarters (GHQ) Air Force (formed in 1935) and the armies, corps, and divisions. While making reference to the centralized control of air assets, FM 1-5 stated that the GHQ could attach its bombardment and pursuit aviation assets to land formations for specific missions, expecting them to be returned to GHQ as soon as the requirement for those attachments ended.¹⁸ As America entered the Second World War, the centralized control of air power briefly realized by ‘Billy’ Mitchell in the closing months of the First World War was not yet realized.

When Allied forces landed on the Atlantic and Mediterranean coasts of North Africa in November 1942 (Operation TORCH) their doctrine and organization were based on national lines. US Army Air Forces (AAF), organized under the newly created Twelfth Air Force (12th AAF), comprised three components: XII Fighter Command and XII Bomber Command, both of which were controlled by a single air commander; and, XII Air Support Command, which was controlled the Army ground commander.¹⁹ The British Eastern Air Command, which directly supported the British ground forces, was controlled by the Royal Air Force (RAF).²⁰

Despite the initial successes of Operation TORCH, the decentralized command and control structure of air assets led to significant operational problems. German forces rapidly regained lost ground due in part to the failure of Allied air power to gain air superiority over Tunisia. This failure to gain air superiority provided the Germans with

¹⁸ Futrell, *Ideas, Concepts, Doctrine: . . .*, 95.

¹⁹ Stephen J. McNamara, Lt Col, *Air Power's Gordian Knot: Centralized versus Organic Control* (Maxwell AFB: Air University Press, August 1994), 12.

²⁰ David Syrett, “The Tunisian Campaign, 1942-43,” in *Case Studies in the Development of Close Air Support*, ed. Benjamin Franklin Cooling (Washington, D.C.: Office of Air Force History, 1990), 163.

free access to Tunisian ports, allowing them to reinforce their positions, and exposed the Allied ground forces to attack from the Luftwaffe.²¹ Further complicating air support to American ground forces was the addition of new army doctrine incorporated into FM 31-35, *Aviation in Support of Ground Forces*. FM 31-35 placed control of close air support (CAS) missions under the most senior ground commander in theatre. This essentially prevented subordinate ground commanders from directing air assets without first requesting air support through an air support commander to the theatre commander.²² In addition, since French forces were positioned between American and British forces, air support to the French was geographically split. As such, French requests for CAS missions, which were controlled by the adjacent American and British corps commanders, were regularly denied.²³

In response to these problems, Lieutenant General Dwight D. Eisenhower, the Commander-in-Chief, Allied Forces Northwest Africa, ordered the first of two reorganizations of the Allied command structure. In January 1943, the Allied Air Support Command (AASC) was created to centralize the command and control of all tactical air power in Northwest Africa.²⁴ Although this was an interim fix, it did little to solve the doctrinal, command, and control problems that were plaguing Allied air power.

²¹ McNamara, *Air Power's Gordian Knot*: . . . , 14.

²² Clayton K.S. Chun, *Aerospace Power in the Twenty-First Century: A Basic Primer* (Colorado Springs: Air University Press, July 2001), 154.

²³ McNamara, *Air Power's Gordian Knot*: . . . , 14.

²⁴ *Ibid*, 15.

Liaison at all levels of the command structure continued to be weak, CAS for American ground units remained ineffective, and the French were still denied air support.²⁵

It was not until the battle for the Kasserine Pass (14-24 February 1943) that the effective command and control of air power was finally realized.²⁶ This new command structure implemented on 18 February 1943 created the Mediterranean Air Command, placing Air Marshall Sir Arthur Tedder in control of all British and American air forces in Northwest Africa. Subordinate to him was General Carl A. Spaatz, commander of the Northwest African Air Force (NAAF). The NAAF consisted of four air forces: the Strategic Air Force (NASAF), commanded by Major General James H. Doolittle; the Tactical Air Force (NATAF), commanded by Air Vice Marshal Sir Arthur Coningham; the Coastal Air Force, and the Troop Carrier Command.²⁷ This new organization finally gave a single airman, Spaatz, continuous operational control of all Allied air forces in Northwest Africa.

Although it took several days for the new command structure to become effective, Allied air power eventually crushed the German army. By 21 February 1943, the Kasserine Pass was cleared of German forces and by the following day, they were in retreat.²⁸ Following the battle, Field Marshall Irwin Rommel wrote that his forces “were

²⁵ *Ibid.*, 15, and Syrett, “The Tunisian Campaign, 1942-43,” . . . 168.

²⁶ Shawn P. Rife, “Kasserine Pass and the Proper Application of Airpower,” *Joint Force Quarterly*, no. 20 (Autumn/Winter 1998/1999): 74. These changes were recommendations from the Casablanca conference on 14 January 1943 where President Franklin D. Roosevelt and Prime Minister Churchill agreed to create a combined Mediterranean command to improve coordination amongst the Allies. This new command structure crossed national lines and placed Eisenhower in command of the entire African theatre – see McNamara, *Air Power’s Gordian Knot*: . . . , 15.

²⁷ General William W. Momyer, *Airpower in Three Wars* (Washington, D.C.: US Government Printing Office, January 1978), 41.

²⁸ Chun, *Aerospace Power in the Twenty-First Century*: . . . , 156.

subjected to hammer-blow air attacks by the U.S. air force in the Feriana-Kasserine area, of weight and concentration hardly surpassed by those we had suffered at Alamein.”²⁹

Along with the new command structure and control arrangements, Coningham’s selection as the commander of the NATAF was critical to the Allies’ success.³⁰ Because of his experience fighting the Germans in Egypt and Libya in early 1942, he understood both the requirements for controlling the air and for supporting the army.³¹ The new command structure allowed Coningham to concentrate air power where and when it was required in order to exploit its flexibility. “He pushed air units into temporary base transfers to mass fighter air power, improved logistics, and centrally coordinated air campaign plans with General Doolittle’s NASAF.”³² The most effective demonstration of air power concentration came during support to the British Eighth Army’s breakout from the Mareth Line on 25 March 1943. After this battle, Field Marshall Albert Kesselring, Commander-in-Chief South of German forces, remarked that the concentrated use of Allied air power was decisive.³³

Notwithstanding the Allies success in North Africa, the reorganization of the command and control of air power did not sit well with everyone. The naval component commander, Admiral Sir Andrew Cunningham wanted to maintain control of a specified number of air assets in order to protect his fleet from German and Italian land-based

²⁹ Richard G. Davis, *Carl A. Spaatz and the Air War in Europe* (Washington, D.C.: Center for Air Force History, 1993), 183, quoted in Rife, “Kasserine Pass . . .”, 75.

³⁰ McNamara, *Air Power’s Gordian Knot: . . .*, 16.

³¹ Momyer, *Airpower in Three Wars*, 42.

³² McNamara, *Air Power’s Gordian Knot: . . .*, 18.

³³ *Ibid.*, 18.

aviation. Despite Cunningham's desires Tedder refused to parcel out his air power to the Navy in the same way that he refused to parcel it out to the Army.

He [Tedder] said that because of conflicting demands for his airpower, he had to employ it from task to task as the nature and intensity of the threat required. He needed to gain air superiority; support the army; defend Alexandria, Cairo, and the desert bases; interdict the land and sea lines of communication that supported Rommel; and protect the fleet, particularly from air attacks.

The only way Tedder could support the Army and the Navy in accordance with Eisenhower's guidance (controlling the air and stopping the German advance) was to have centralized control of air power.³⁴

The Americans drew many lessons from the battlefields on North Africa. The most significant and controversial was the importance of the centralized control of air power. Because doctrine treated air power like flying artillery with every ground commander wanting his own share of a very scarce resource, air power was neither correctly prioritized nor effectively utilized.³⁵ Following the defeat of the Axis in North Africa on 13 May 1943, Eisenhower wrote that the early Allied failures were due to “. . . the initial decision of not unifying our air forces under a single command.” When that error was finally remedied by Tedder and Spaatz, they “accomplished a practical perfection in the co-ordinated employment of the air forces of the two nations.”³⁶

Because of the lessons learned, the US AAF published FM 100-20, *Command and*

³⁴ Momyer, *Airpower in Three Wars*, 41, 44. The reason Tedder, not Spaatz, dealt with Cunningham is because Cunningham was dual-hatted as both the naval component commander and the Commander-in-Chief Mediterranean, a position that made him a counterpart to Tedder and a superior to Spaatz.

³⁵ Rife, “Kasserine Pass . . .”, 77.

³⁶ Dwight D. Eisenhower, “Eisenhower's Dispatch on the North African Campaign, 1942-43,” in *Smith, W.B. Collection of WW2 Documents* (Box 16, Eisenhower Library): 52, quoted in Vincent Orange, *Tedder: Quietly in Command* (London: Frank Cass Publishers, 2004), 217.

Employment of Air Power, on 21 July 1943. This manual finally established that “land power and air power are co-equal and interdependent forces; neither is an auxiliary of the other.” It further added:

The inherent flexibility of air power, is its greatest asset. This flexibility makes it possible to employ the whole weight of the available air power against selected areas in turn; such concentrated use of the air striking force is a battle winning factor of the first importance. *Control of available air power must be centralized and command must be exercised through the air force commander if this inherent flexibility and ability to deliver a decisive blow are to be fully exploited.* Therefore, the command of air and ground forces in a theater of operations will be vested in the superior commander charged with the actual conduct of operations in the theater, who will exercise command of air forces through the air force commander and command of ground forces through the ground force commander. The superior commander will not attach army air forces to units of the ground forces under his command except when such ground force units are operating independently or are isolated by distance or lack of communication.³⁷ (*emphasis added*)

FM 100-20 finally codified in doctrine the concept of centralized control that was sought by ‘Billy’ Mitchell in 1918 and continues to this day to be an essential component of the principle tenet of air power:

Centralized control . . . should be accomplished by an airman . . . who maintains a broad theater perspective in prioritizing the use of limited air . . . assets to attain established objectives in any contingency across the range of operations. Centralized control maximizes the flexibility and effectiveness of air . . . power;³⁸

Decentralized Execution – Operation ROLLING THUNDER

Although the doctrinal evolution of centralized control dates back to 1943, decentralized execution did not become formalized as a doctrinal tenet until almost thirty

³⁷ War Department, Field Manual 100-20, *Command and Employment of Air Power* (Washington, D.C.: US Government Printing Office, 21 July 1943), 1-2.

³⁸ United States, Department of the Air Force, AFDD 1, 28.

years later. Furthermore, unlike the origins of centralized control, there is a relative vacuum of doctrinal discussion and research related to the genesis of the second half of air power's principle tenet. The most detailed discussion concerning decentralized execution can be found in the 1992 version of Air Force Manual (AFM) 1-1, Volume II, *Basic Aerospace Doctrine of the United States Air Force*. This manual attributes the origin of decentralized execution to the 1971 version of AFM 1-1, where it was codified in doctrine as a response to the experiences of the Vietnam War, specifically Operation ROLLING THUNDER.³⁹

US President Lyndon Johnson ordered Operation ROLLING THUNDER (March 1965–October 1968) because he reasoned “. . . that if air strikes could destroy enemy supplies and impede the flow of men and weapons coming South, our [US] actions would help save American and South Vietnamese lives.”⁴⁰ Throughout this operation, Johnson maintained tight control over the air campaign. In order to satisfy his political objectives, Johnson's controlled target selection (including alternate targets), attack methods (including the weapon and delivery platform), and even sortie rates.⁴¹ Additional political restrictions further prohibited US aircraft from attacking North Vietnamese

³⁹ United States, Department of the Air Force, Air Force Manual (AFM) 1-1, vol. II, *Basic Aerospace Doctrine of the United States Air Force* (Washington, D.C.: U.S. Government Printing Office, March 1992), 114.

⁴⁰ Lyndon Baines Johnson, *The Vantage Point* (New York: Holt, Rhinehart & Winston, 1971), 132, quoted in Mark Clodfelter, *The Limits of Air Power: The American Bombing of North Vietnam* (New York: The Free Press, 1989), 60.

⁴¹ Mark Clodfelter, *The Limits of Air Power: The American Bombing of North Vietnam* (New York: The Free Press, 1989), 118. Johnson's political objectives included: “avoiding Soviet and Chinese intervention, preserving the Great Society, securing a favorable [sic] American image overseas, and maintaining the support of Western allies.”

surface-to-air missile sites unless these sites directly threatened American aircraft.⁴²

According to AFM 1-1, Johnson's actions were "centralized control run amok" with the President controlling all strategic, most operational, and many tactical decisions.

Consequently, the result was an air campaign that was unresponsive to local conditions, lacking both operational and tactical flexibility.⁴³

The political interference during Operation ROLLING THUNDER is considered centralized execution because many of the decisions, those that would normally be made at the tactical level, were in fact made at the strategic level. Based on the experiences of Vietnam, the concept of decentralized execution continues to be embodied in doctrine. The current version of AFDD 1 states that decentralized execution is required in order to achieve:

. . . effective span of control and to foster disciplined initiative, situational responsiveness, and tactical flexibility. It allows subordinates to exploit opportunities in rapidly changing, fluid situations.⁴⁴

Although the tight controls established by Johnson effectively handicapped American airmen, the current version of AFDD 1 actually acknowledges that some operations have utilized varying degrees of centralized execution and accepts that there may occasionally be justifiable reasons for its application. However, the doctrine cautions that centralized execution should not become a model for the future employment of air power.⁴⁵

⁴² Benjamin S. Lambeth, *The Transformation of American Air Power* (Ithica: Cornell University Press, 2000), 18.

⁴³ United States, Department of the Air Force, AFM 1-1, vol. II, . . . , 114.

⁴⁴ United States, Department of the Air Force, AFDD 1, 28.

⁴⁵ *Ibid*, 30.

Having established the doctrinal origins and the intent of both centralized control and decentralized execution, this paper will now define air power's principle tenet within the framework of existing doctrine and contemporary command and control research.

DEFINING AIR POWER'S PRINCIPLE TENET

Discussion concerning air C² can be confusing because each of us has our own perceptions of what C² actually is—some think in terms of technology, others focus on the human or organizational perspective, and finally some view it in the context of strategies or vulnerabilities.⁴⁶ Although this is not surprising, the scope and complexity of air C² and the lack of analytical study concerning the subject tends to exacerbate the problem.⁴⁷ With respect to air power's principle tenet, the problem is further compounded by the fact that doctrine either contains imprecise definitions for the terms centralized control and decentralized execution or, as in most cases, has completely omitted them. In fact, the only doctrinal definitions of terms can be found in AFDD 1 and Joint Publication (JP) 3-30, *Command and Control for Joint Air Operations*.⁴⁸ Although these and other doctrine documents devote considerable discussion to the terms centralized control and decentralized execution, these discussions generally involve explanations about what the

⁴⁶ Thomas P. Coakley, *Command and Control for War and Peace* (Washington, D.C.: National Defense University Press, 1991), 5. The reader should note that C² is distinct from the concepts of 'command' and 'control' referred to in this paper and is not discussed.

⁴⁷ English, "Rethinking 'Centralized Command and Decentralized Execution'", 79.

⁴⁸ United States, Department of the Air Force, AFDD 1, 28, 95, 97; United States, Department of Defense, Joint Publication (JP) 3-30, *Command and Control for Joint Air Operations* (Washington, D.C.: June 2003), I-3, GL-4, GL-5. Of note, these definitions are consistent with those found in United States, Department of the Air Force, AFDD 1-2, *Air Force Glossary* (Washington, D.C.: August 2004) and United States, Department of Defense, JP 1-02, *Department of Defense Dictionary of Military and Associated Terms* (Washington, D.C.: April 2001 as amended through November 2004).

concepts try to achieve vice what they actually mean.⁴⁹ Furthermore, the concept of centralized execution referred to in AFDD 1 is neither defined nor discussed in any other doctrine publications. Therefore, in order to establish a common reference for analyzing the historical and doctrinal intent of air power's principle tenet, the associated terms must be clearly defined.

Centralized Control

Control is a very common term within the military lexicon; however, it is rarely defined in official publications. The only definitions that could be found are in JP 1-02, *Department of Defense Dictionary of Military and Associated Terms*, and AFDD 2-8, *Command and Control*. JP 1-02 defines control as “[a]uthority that may be less than full command exercised by a commander over part of the activities of subordinate or other organizations,” while AFDD 2-8 states that “[c]ontrol is the process by which commanders plan and guide operations.”⁵⁰ It is interesting to note that the former definition speaks of control as “authority” while the latter refers to it as a “process.” This could very well explain some of the confusion when airmen attempt to discuss the concept of centralized control.

In an attempt to clarify the discrepancy between the two definitions, this paper refers to Dr. Ross Pigeau and Carol McCann, leading researchers in the field of command

⁴⁹ See United States, Department of the Air Force, AFDD 2, *Organization and Employment of Aerospace Power* (Washington, D.C.: February 2000); United States, Department of the Air Force, AFDD 2-8, *Command and Control* (Washington, D.C.: February 2001); Ministry of Defence, Directorate of Air Staff, *British Air Power Doctrine* (AP 3000), 3rd ed. (Norwich: Her Majesty's Stationary Office, 1999); and, although rescinded, *Out of the Sun: Aerospace Doctrine for the Canadian Forces* (Winnipeg: Craig Kelman & Associates Ltd., n.d.). Of note, Royal Australian Air Force doctrine makes no reference to the concept of centralized control and decentralized execution. See Royal Australian Air Force, *Fundamental of Australian Aerospace Power* (AAP 1000) 4th ed. (Fairbairn: Aerospace Centre, 2002).

⁵⁰ United States, Department of Defense, JP 1-02, 119; and, United States, Department of the Air Force, AFDD 2-8, 3.

and control.⁵¹ They define control as “those structures and processes devised by command to enable it and to manage risk,” where the structures and processes include “organizational structures, SOPs, ROEs, military rules and regulations, sensor and weapon systems, equipment, doctrine, training programs, etc.”⁵² This definition supports the one from AFDD 2-8, referring to control as a “process” rather than a degree of “authority.” Therefore, if we apply the Pigeau and McCann definition to the one from AFDD 2-8, control can be defined (for the purposes of this paper) as those structures and processes devised by command to enable it and to directly influence operations in order to ensure mission success.

Progressing to centralized control, AFDD 1 defines the term as “[t]he planning, direction, prioritization, allocation, synchronization, integration, and deconfliction of air and space capabilities to achieve the objectives of the joint force commander.”⁵³ This definition suitably outlines the some of the processes involved in the control of air operations and what they are required to achieve; however, it does nothing to place the processes within the context of centralization. Turning to JP 3-30, it states that “[c]entralized control is placing within one commander the responsibility and authority for planning, directing, and coordinating a military operation or group/category of operations.”⁵⁴ Although JP 3-30 addresses the issue of centralization, as well as the

⁵¹ Allan English, “Contemporary Issues in Command and Control,” in *Intelligence, Surveillance and Reconnaissance*, ed. by Dennis Margueratt and Allan English, 97-102 (2001), 98.

⁵² Ross Pigeau and Carol McCann, “Re-conceptualizing Command and Control,” *Canadian Military Journal* 3, no. 1 (Spring 2002): 56.

⁵³ United States, Department of the Air Force, AFDD 1, 28.

⁵⁴ United States, Department of Defense, JP 3-30, I-3.

processes, the joint definition refers to “authority” just as it does for the definition of control. Additionally, neither of these definitions accounts for the ‘structures’ referred to by Pigeau and McCann in their explanation of control. Therefore, using the definition of control established for the purposes of this paper, centralized control is defined as consolidating within a single commander those structures and processes devised by command to enable it and to directly influence operations in order to ensure mission success.

With respect to current practice, centralized control of air power means that the structures and processes must be directly accessible to a single commander who is directly responsible for mission success—the Joint Force Air Component Commander (JFACC). Examples of current structures and processes that enable the JFACC to directly influence air operations are the Joint Air Operations Center (JAOC) and the Air Tasking Order (ATO), respectively, where the ATO cycle is comprised of the processes of assessment, planning, and execution of air operations.⁵⁵ From this definition of centralized control, one could claim that all air power is currently centrally controlled and cannot be decentrally controlled until the current structures and processes of the JAOC and ATO, respectively, are refined or replaced.

From the definition of centralized control it is also important to note that it makes specific reference to the word *command*, which Pigeau and McCann define as “the creative expression of human will necessary to accomplish the mission.”⁵⁶ This

⁵⁵ United States, Department of the Air Force, AFDD 2, 72.

⁵⁶ Pigeau and McCann, “Re-conceptualizing Command and Control,” . . . , 56. This definition of command is supported by JP 1-02, which defines command as “[a]n order given by a commander; that is, the will of the commander expressed for the purpose of bringing about a particular action.” – see United States, Department of Defense, JP 1-02, 100.

demonstrates that the two actions of control and command are inextricable, which further helps explain why airmen have occasionally used the terms interchangeably when referring to air power's principle tenet. Thus, in order to clarify the differences between control and command, Pigeau and McCann further add:

. . . controlling involves monitoring, carrying out and adjusting processes that have already been developed. Commanding involves creating new structures and processes (i.e., plans, SOPs, etc.), establishing the conditions for initiating and terminating action, and making unanticipated changes to plans.⁵⁷

Having established what is meant by the concept of centralized control and its inseparable link to the activity of command, the other half of air power's principle tenet, decentralized execution, will now be examined.

Decentralized Execution

Unlike control and command, the term *execution* is not defined in any official publications. Referring to *The Canadian Oxford Dictionary*, execution is defined as “the act or an instance of carrying out or performing something,” where that ‘something’ is the mission as directed in the Air Tasking Order.⁵⁸ Based on this basic definition, it is not unreasonable to accept that all air operations are conducted via decentralized execution because the physical assets for carrying out the mission are usually not co-located with the commander.⁵⁹ This interpretation of decentralized execution, based on the basic dictionary definition of execution, leads one to believe that decentralization is

⁵⁷ *Ibid.*, 56.

⁵⁸ Katherine Barber, *The Canadian Oxford Dictionary* (New York: Oxford University Press, 1998), 486.

⁵⁹ English, “Rethinking ‘Centralized Command and Decentralized Execution’”, 72.

synonymous with physical distribution. However, this does not accurately reflect what the concept of decentralized execution of air power is really trying to convey.

According to AFDD 1, “[d]ecentralized execution . . . is the delegation of execution authority to responsible and capable lower-level commanders . . .”⁶⁰ From this definition it is critical to point out that decentralized execution refers to ‘execution authority’ and not ‘execution,’ which further adds to the confusion when airmen attempt to debate the subject. Moreover, this definition fails to explain what ‘delegation of execution authority’ actually means. An American doctrine development specialist, in an attempt to clarify the concept, defines ‘delegation of execution authority’ as: “superior commanders [can] authorize subordinate commanders to issue orders to accomplish an assigned task.”⁶¹ However, this explanation does little to clarify the matter because this paper has already referred to execution as a process inherent with centralized control.

Referring back to the research of Pigeau and McCann, the delegation of execution authority can be considered a decision making process and; therefore, an act that cannot be viewed in isolation from controlling or commanding (this supports this paper’s previous claim that execution is a process).⁶² To explain this theory, they offer a simplified scenario:

. . . firing a rifle requires the initial command act of deciding when to pull the trigger Continued firing at the same target then involves the controlling acts of monitoring hits and adjusting aim accordingly. However, if the person firing the weapon is instead told by another

⁶⁰ United States, Department of the Air Force, AFDD 1, 28. This definition is supported by JP 3-30, which defines decentralized execution as “[d]elegation of execution authority to subordinate commanders.” See United States, Department of Defense, JP 3-30, I-3.

⁶¹ Woody W. Parramore, “Defining Decentralized Execution in Order to Recognize Centralized Execution,” *Air and Space Power Journal* XVIII, no. 3 (Fall 2004), 25.

⁶² Pigeau and McCann, “Re-conceptualizing Command and Control,” . . . , 56.

individual when explicitly to shoot and when explicitly to stop shooting, then the acts of commanding and controlling are divided between two people. The individual giving the instructions is commanding and the one firing is controlling.

But we [Pigeau and McCann] must emphasize that simply ordering a person to carry out some action is not necessarily an act of command. If an order is transmitted, without change or embellishment, from a superior to a subordinate . . . , no creativity is involved. Controlling, not commanding, is happening.⁶³

Within this example one can easily draw parallels with current C² and air power employment practices. The ‘act of deciding to pull the trigger’ is exactly what happens at the tactical level in air operations when a pilot pushes the pickle button to release ordnance. Therefore, according to Pigeau and McCann, a pilot is performing a command function when the decision is made for weapon’s release; however, the pilot was undoubtedly performing control functions while positioning the aircraft for the attack. Take this scenario one step further and we find that if the pilot is ordered to commence (or abort) an attack by a higher command authority (i.e. the JAOC), the pilot is now controlling and the higher authority is commanding. This latter example is very common practice in today’s battlespace and is indicative of some current air power employment practices (i.e. time sensitive targeting and close air support missions).

This simple example demonstrates that the act of execution traditionally referred to in doctrine is really a form of either controlling or commanding depending on the circumstances. One conclusion that can be drawn from this is that the operator is always performing some sort of a controlling function. Consequently, the doctrinal concept of decentralized execution should actually refer to decentralized control. However, this

⁶³ *Ibid.*, 56.

paper previously claimed that ‘all air power is currently centrally controlled’ because there are numerous control processes that are also centralized (rules of engagement, ATO, Special Instructions to aircrew, Airspace Control Order, etc.). Therefore, given contemporary C² research, the doctrinal concept of decentralized execution should actually be replaced by the concept of ‘adaptive control.’

CONCLUSION

This paper began by reviewing the historical and doctrinal origins of air power’s principle tenet. The concept of centralized control found its roots in the deserts of North Africa during the Second World War. When Eisenhower reorganized Allied forces in February 1943, he effectively created a unified command structure that resulted in centralized command. In achieving unity of command, a fundamental principle of war, the Allies were able to employ air power in the most effective and efficient manner possible. In reality, it was ultimately the desire to achieve unity of effort that motivated airmen like Mitchell in the quest for the centralized control of air power.

Almost thirty years later, American experiences in the skies over North Vietnam prompted airmen to codify the doctrinal concept of decentralized execution. The tight controls maintained by President Johnson included decisions that would normally be considered tactical in nature. This resulted in air campaign that lacked initiative, responsiveness, and flexibility. Out of this was born a doctrinal concept that would allow tactical commanders the opportunity to exploit rapidly changing situations on the battlefield.

The second part of this paper dealt with defining air power’s principle tenet within the framework of current doctrine and contemporary C² research. This exercise

highlighted the fact the doctrine documents devote considerable discussion to the concepts of centralized command and decentralized control; however, the documents generally lack suitable definitions that adequately explain the terms. Consequently, this paper defined centralized control as consolidating within a single commander those structures and processes devised by command to enable it and to directly influence operations in order to ensure mission success. This definition helps explain how unity of effort was achieved over the battlefields of North Africa in 1943. Centralized control was comprised of a centralized command structure and a centralized allocation process that made unity of effort possible. This definition also demonstrated that the concepts of control and command are inter-related, explaining why airmen often interchange the two terms when discussing air power's principle tenet.

Finally, in attempting to define decentralized execution, this paper concluded that the concept was a process used by command and, therefore, was actually a control mechanism. A simple example offered by Pigeau and McCann demonstrated that control could be either centralized or decentralized depending on the actual circumstances. As such, a better model for air power's principle tenet may actually be 'centralized command and adaptive control.'

Given that decentralized execution is an inadequate phrase for describing the air C² philosophy ascribed to in this paper, air power's principle tenet no longer reflects 'the specific current understanding of the nature of air power' and, as such, should no longer be considered a key tenet of air power.

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