

20001026215

**Reviewing Command and Control for a
Heavy Brigade: Tweaking the Design of the
Forward Command Posts**

**A Monograph
by**

**Major Armor D. Brown
Armor**



**School of Advanced Military Studies
United States Army Command and General Staff College
Fort Leavenworth, Kansas**

First Term AY 92-93

Approved for Public Release; Distribution Is Unlimited

98 4 06 032

93-07155
 **65D8**

SCHOOL OF ADVANCED MILITARY STUDIES

MONOGRAPH APPROVAL

Major Armor D. Brown

Title of Monograph: Reviewing Command And Control For
A Heavy Brigade: Tweaking the
Design Of The Forward Command Posts

Approved by:

Patrick Donahue
LTC Patrick Donahue, MS

Monograph Director

James R. McDonough
COL James R. McDonough, MS

Director, School of
Advanced Military
Studies

Philip J. Brookes
Philip J. Brookes, Ph.D.

Director, Graduate
Degree Programs

Accession For	
NTIS GRA&I	☒
DTIC TAB	☐
Unannounced	☐
Justification	
By _____	
Distribution/ _____	
Availability Codes	
Dist	Avail and/or Special
A-1	

Accepted this 19th day of December 1992

DTIC QUALITY INSPECTED 4

ABSTRACT

REVIEWING COMMAND AND CONTROL FOR A HEAVY BRIGADE:
TWEAKING THE DESIGN OF THE FORWARD COMMAND POSTS by
MAJ Armor D. Brown, USA, 59 pages.

The forward command posts (tactical command post and command group) of the heavy brigade are not configured to enhance command and control for the brigade commander. Since the 1950's, the US Army has increased the number of command posts with equipment and personnel to match. Although these changes were made to help the brigade commander, they have detracted from the commander's ability to command and control his subordinate task forces.

Initially this monograph will review theory, and doctrine on command and control in general and then specifically for heavy brigades.

By using criteria derived from Field Manual 101-5, Staff Organizations and Operations an examination of two historical cases, one from World War II and the other from Desert Storm will show how the changes to forward command posts have not enhanced command and control for the brigade commander.

The monograph concludes that the forward command posts for a heavy brigade need to be reconfigured based on evidence. The U.S. Army needs to authorize the heavy brigade commanders armored fighting vehicles that have mobility and can defend themselves on the battlefield. Communications must be designed to be simple and redundant relying primarily on voice communications; computers are better left in the main and rear command posts.

The U.S. Army must reconfigure the forward command posts based on criteria taken from doctrinal manuals, after-action reports, and secondary sources. Continuing to exercise command and control in the current configuration may prevent heavy maneuver brigades from achieving a quick decisive victory that is the U.S. Army's primary focus as based on the coordinating draft of Field Manual 100-5, Operations.

Table of Contents

Page

I. Introduction.....	1
II. Theory.....	4
III. Doctrine.....	9
IV. Historical Analysis.....	18
V. Conclusions.....	38

Appendices:

A. Brigade Main Command Post.....	42
B. Brigade Rear Command Post.....	43
C. Brigade Tactical Command Post.....	44
D. Brigade Command Group.....	45
Endnotes.....	46
Bibliography.....	55

I. INTRODUCTION

The U.S. Army's coordinating draft of Field Manual 100-5, Operations states that the Army's primary mission focus will be to attain quick, decisive victory.¹ During the 100 hour ground war in Desert Storm, U.S. Army corps were the primary units employed in battle to achieve such a victory. Within these corps and divisions are heavy brigades, and these heavy brigades are the linkage between small unit engagements and battles at division and corps.² For corps to be successful, brigades must be successful.

The mission of the heavy brigade is to close with and destroy enemy forces using its mobility, firepower, and shock effect.³ The heavy brigade commander has the responsibility for synchronizing combat power within the brigade to conduct the deep, close, and rear fights.⁴

Like all commanders he is authorized a command and control system to accomplish his mission. Within the command and control system there are processes, organizations, and facilities.⁵ Command Posts are facilities that perform three functions: planning; controlling; and sustaining the battle.⁶

Commanders establish a command and control system to meet the unique needs of his command since the U.S.

Army views command style as a very personal thing.⁷

However in 1984, General Carl E. Vuono, commander of Combined Arms Command (CAC) at Fort Leavenworth, Kansas initiated the Standardized Command Post (SCP) program in response to a Command and Control System Program Review (C2SPR). The program review addressed the lack of standardization in command posts (CP)s by recommending that tactical maneuver CPs, corps through battalion should be standardized to increase effectiveness.⁸

In December 1989 after receiving an in-progress review of the SCP program General Vuono, who was then Army Chief of Staff, directed the Command and General Staff College (CGSC) to begin developing corps and heavy division CP standards. These standards were designed to be fully functional within current resources and within parameters of some basic development principles--primarily that CPs should provide more command and less control; that they should be smaller and more efficient; that they should be more mobile, survivable; and that maximum use of current and emerging technology should be applied.⁹

This monograph will determine whether the current brigade forward CPs designed under the SCP program need to be reconfigured in order to enhance command and control for the brigade commander.

Methodology

This monograph will initially review theory and doctrine on command and control. Finally an examination of two historical cases in comparison with four criteria from Field Manual 101-5, Staff Organizations and Operations will determine whether or not the forward CPs need to be reconfigured.

After discussing theory and doctrine on command and control, a description of the current brigade command and control elements will follow. This monograph will briefly describe all of the brigade command and control elements, but will concentrate on the tactical command post (TAC CP) and command group. Diagrams of brigade command and control facilities will be provided in appendices.

Evidence provided in this monograph will come from primary and secondary source documents. Primary source documents will consist of current and past doctrinal manuals and excerpts from military biographies and journals. Secondary source documents will consist of articles in military journals, published theses, monographs, and unpublished reports. Two historical cases one from World War II, and the other from Desert Storm, and will be compared with criteria

taken from Field Manual 101-5, Staff Organizations and Operations: survivability, mobility, functional responsibilities and authority, and communications.¹⁰

II. Theory

Discussions of military theory often begin with two great theorists Carl von Clausewitz and Barone Anton de Jomini. Both believed that success in battle was due to commanders who possessed military genius also known as coup d'oeil and located themselves at the decisive point to facilitate command. As Martin Van Creveld a modern theorist said:

The best system of command, to caricature Clausewitz's famous dictum on strategy, is always to have a genius in charge, first in general and then at the decisive point."¹¹

But Clausewitz also believed that the serious officer of average intelligence who had studied his trade and was located at the decisive point could overcome this lack of genius.¹² Clausewitz stated

so far our survey of the attributes that a great commander needs in war has been concerned with qualities in which mind and temperament work together . . . I mean the relationship between warfare and terrain."¹³

This can be explained as the tactically proficient commander who has the faculty for grasping the topography of any area that enables a man to find his

way about at any time.¹⁴ But just being able to navigate around the battlefield was not enough; commanders must also be technically proficient. Baron Antoine de Jomini, a theorist with a reputation for being prescriptive, believed that the commander must not only be at the decisive point; he also needed a command and control system to assist him in commanding his units. Jomini said, "have the communications to the front such as to make it easier to fall upon the enemy at a favorable moment than for him to approach the line of battle."¹⁵ Battle is not as simple today; current theorists have had to grapple with the impact technology has had on communications and weapons systems.

Martin Van Creveld defined command and control as a process that makes use of information in order to coordinate people and things toward accomplishment of missions. Command systems consist of organizations, procedures, and technical means; command itself is a process that goes on (or is supposed to go on) within the system.¹⁶ Van Creveld also states

the history of command in war consists of an endless quest for certainty, and can be understood as a race between demand for information and the ability of the command system to meet it."¹⁷

When confronted with a task, and having less information available than is needed, an organization may react in either of two ways.¹⁸ One is to increase its information-processing capacity, the other to design the organization, and indeed the task itself in such a way as to enable it to operate on the basis of less information.¹⁹

For example a U.S. armored division in World War II appears similar in composition to one today, with one glaring exception--the extraordinary increase in command and control (C2) resources, both human and machine.²⁰ Based on this evidence, the U.S. Army is increasing its information-processing capacity in an attempt to reduce uncertainty.

However as Van Creveld concluded

Taken as a whole, present-day military forces, for all the imposing array of electronic gadgetry at their disposal, give no evidence whatsoever of being one whit more capable of dealing with the information needed for the command process than were their predecessors a century or even a millenium ago."²¹

Based on these thoughts, one theme dominates. The commander must not only position himself near the decisive point. He must also be able to quickly think through tactical situations, and then rapidly communicate his decision so his units can react.²²

Besides the possession of a keen terrain sense, commanders at the tactical level must know their troops and equipment to employ them effectively on the battlefield.²³ The commander usually acquired these abilities through experience or by posting himself close to his subordinate leaders and troops.

Finally Van Creveld warns that one should not forget that technical means used for communicating often cannot replicate the emotional tone of voice or the look on the face of the commander sending the communication.²⁴

General Foss a former commander of Training and Doctrine Command (TRADOC) describes how command, control, and communications systems affected a command philosophy that was initially built around three precepts, vision, freedom of action, and responsibility.²⁵ General Foss wrote

The commander must have a simple command system that roots itself in the idea of mission tactics. The commander who practices mission tactics and is at the decisive point will be able to exercise initiative, recognize opportunity and rapidly accomplish the mission."²⁶

General Foss warned that control was inversely proportional to command.²⁷ He said, "the rule should be to apply only those control measures essential to the operation."²⁸ Often the assignment of the

mission was the exercise of control in essence, and control measures supplied after that should contribute only to mission accomplishment.²⁹

Communications provide the link between command and control and enable commanders to lead from the front and directly influence the action. Communications systems are tools that facilitate command and control for the commander, but even the most sophisticated communications capabilities should not detain the commander from issuing orders face to face or at the very least by voice radio.³⁰

Command and control theory also includes the element of leadership.³¹ In a monograph by Major Don Gilbert he stated, "Leadership provided by the military commander brings direction, authority, and legality to the overall command and control process."³² By providing leadership as the dominant factor in command and control systems; an effective command and control theory can be formed.

Command and control theory provides the basis from which command and control doctrine, organization, and force structure is formulated.³³ The U.S. Army's command and control theory is built on the principle that the only purpose of the command and control system is to implement the commander's will in

pursuit of the unit's objective. The system must be reliable, secure, fast, and durable.³⁴

III. Doctrine

Doctrine is the link between theory and practice. Doctrine is defined as "providing fundamental principles for military forces to guide their actions in support of national objectives."³⁵ Before discussing the responsibilities of the brigade commander and his command and control system, it will be helpful to define command, control, and the combined terms of command and control as defined by Joint Pub 1-02, Department of Defense Dictionary of Military and Associated Terms:

Command is the authority that a commander in the military service lawfully exercises over subordinates by virtue of rank or assignment. Command includes the authority and responsibility for effectively using available resources and for planning the employment of, organizing, directing, coordinating, and controlling military forces for the accomplishment of assigned missions

Control is the authority that may be less than full command exercised by a commander over part of the activities of subordinate or other organizations

Command and control is the exercise of authority and direction by a properly designated commander over assigned forces in the accomplishment of the mission. Command and control functions are performed through an arrangement of personnel, equipment, communications, facilities, and procedures employed by a commander in planning, directing, coordinating, and controlling forces and operations in the accomplishment of the mission.³⁶

Field Manual 100-5, Operations dated 1986 is the capstone manual that explains how U.S. Army forces plan and conduct operational and tactical operations and is called AirLand Battle doctrine.³⁷ The field manual states that the command and control system that supports AirLand Battle must "facilitate freedom to operate, delegation of authority, and leadership from any critical point on the battlefield."³⁸

At the National Training Center (NTC), Fort Irwin, California brigade and battalions conduct electronically simulated battles against a well trained opposing force. Often the violent, rapid offensive battles average between 60 and 90 minutes.³⁹ To fight and win Field Manual 100-5, Operations says

The U.S. Army's tactical command and control system must permit tactical leaders to position themselves wherever the situation calls for without depriving them of the ability to respond to opportunities or changing circumstances."⁴⁰

The commander must be totally mobile and must not depend on a fixed site, CP, or specific vehicle to exercise his C2 responsibilities.⁴¹

Although it is inherent in our doctrine that the brigade simultaneously conducts the deep attack, close

and rear battles, the brigade's primary focus is to conduct close operations to defeat the enemy while protecting its own combat support, combat service support, and command and control facilities through effective rear operations.⁴² The brigade command and control system has the responsibility for synchronizing these operations. Describing the current heavy brigade command and control system that is configured according to doctrine and force structure will help determine whether or not the system enhances command and control for the brigade commander.

Providing leadership for the heavy brigade and his command and control system is the responsibility of the brigade commander. He analyzes and restates the mission, designs the concept of operations, organizes the forces, determines the main effort, transmits his and the higher commander's intent, and provides support to subordinate units.⁴³ To assist him in executing these tasks the brigade commander utilizes the process, organization, and facilities to exercise command.⁴⁴

Organization is how the headquarters sets up for operations, and how the commander has organized his staff to accomplish the mission.⁴⁵ The staff comprises the personal, coordinating and special staff.⁴⁶

The personal staff consists of the executive officer (XO) who performs a variety of tasks for the commander; primarily he supervises the staff as well as the main CP in the field.⁴⁷ The Command Sergeant Major is the primary advisor to the commander on matters concerning the enlisted soldiers of the brigade.⁴⁸ The coordinating staff consists of the Adjutant (S1), Intelligence officer (S2), Operations and Training officer (S3) and the Supply officer (S4).⁴⁹ The S1 is responsible to the brigade commander for the maintenance of unit strength, personnel, morale, discipline, and law and order. The S2 keeps the commander informed of the enemy situation and coordinates intelligence activities. The S3 is the commander's main assistant for matters pertaining to the organization, employment, and operations of the brigade and combat support elements. The S4 provides logistics information to the commander and functions as the brigade's logistics planner. Special staff officers assist the commander in professional, technical, and other functional areas.⁵⁰

The command and control process is one of planning, directing, coordinating, and controlling the battle, and it centers on the military decision making process.⁵¹ Since the tempo at brigade level is fast

paced, staff planning and estimate processes tend to be informal and are conducted orally or mentally.⁵² The majority of the work performed during the staff planning and estimate process is performed by a combination of the S2, S3 and his staff that is divided into functional organizations.⁵³ Although the components of each functional section are not fixed, staff specialists are represented in the following functional organizations: current operations section, plans section, operations support section, intelligence, fire support section and Army airspace command and control (A2C2) section.⁵⁴

Facilities include command posts (CP)s and supporting automation and communications systems. Command posts are established to assist the commander in command and control functions of combat operations.⁵⁵ They provide processing and transmission of information and orders necessary for effective command and control.⁵⁶

According to Field Manual 71-3 Armored and Mechanized Infantry Brigade, brigades are controlled from echeloned command and control facilities that consist of the following; the command group; the tactical command post (TAC CP); main command post (CP) and rear command post (CP).⁵⁷ Although command

groups are not designated as command posts, according to Field Manual 101-5, Staff Organization and Operations, dated May 1984, they may be formed, on a temporary basis, to serve as (or supplement) a command post.⁵⁸ According to Field Manual 71-3, Armored and Mechanized Infantry Brigade, the command group consists of the brigade commander and people he selects to assist him to command and control the battle during critical periods.⁵⁹ The TAC CP conducts ongoing close operations. It is well forward in the brigade area of operations to facilitate communications with subordinate commanders. Since the command group and TAC CP will be located well forward in the brigade area of operations they will be denoted as forward command posts.⁶⁰

The rear CP sustains current operations, forecasts future CSS requirements, conducts detailed CSS planning and serves as the entry point for units entering the brigade rear area.⁶¹

The main CP plans future operations; executes planned deep attacks and coordinates combat, CS, and CSS requirements and directives from the brigade commander.⁶²

Since the TAC CP was the only brigade CP designed to be limited in size, electronic signature, and

capable of rapid and frequent displacement, the concept of echelonment was developed for the other command posts.⁶³

Echeloned displacement is defined as the movement of a unit from one position to another without discontinuing performance of its primary function.⁶⁴ By echeloning heavy brigade headquarters into the TAC CP, main CP, and rear CP command and control will operate continuously.⁶⁵

The brigade commander uses these command posts to assist him in commanding and controlling the various units assigned, attached or organic. Tank and mechanized infantry battalions are attached by the division commander to brigades based on his estimate of the situation for a specific mission.⁶⁶ As a rule, each brigade can control two to five battalions and supporting CS and CSS assets.⁶⁷

While the heavy brigade has no fixed slice of combat support (CS) and combat service support (CSS) assets, it usually operates with a proportional share of the division's assets.⁶⁸

Normally, support is provided by a direct support field artillery battalion; an air defense artillery battery; an engineer company; a forward area signal platoon; a military police platoon; combat intelligence and electronic warfare elements; a tactical air control party; and a division support command forward support battalion.⁶⁹

This concludes the discussion of U.S. Army doctrine and guidance for the composition and responsibilities for the heavy brigade command and control system. To determine whether or not the command posts within the heavy brigade are configured to enhance command and control, a set of criteria for the methodology must be defined. The four criteria that will be used to compare the command and control systems in the following historical examples and analysis are functional responsibility and authority; survivability; mobility; and communications.⁷⁰ Functional responsibility and authority entails grouping staff sections to promote efficiency and coordination. When command posts are echeloned, authority at each echelon must be delineated.⁷¹ Command Posts must be given instructions as to which CP is in control and at what period during the battle. For example while the command group and TAC CP are conducting close operations, the main CP is planning future operations and executing planned deep attacks while the rear CP sustains current operations and forecasts future CSS required.⁷² The command group consists of the brigade commander and people he selects to assist him in command and control the battle during

critical periods. The S3 locates at and supervises the TAC CP while the brigade executive officer supervises supervises the main CP, and the forward support battalion (FSB) commander and brigade S4 supervise the rear CP.⁷³

Survivability encompasses the measures taken to protect the command and control system, so it can operate continuously.⁷⁴ There are eight survivability factors: deception, hardening, dispersion, duplication, displacement, size reduction, signature reduction, and location out of enemy indirect fire range.⁷⁵ Survivability is also enhanced by echeloning CP elements on a functional basis and dispersing elements within CPs to degrade the possibility of detection.⁷⁶

Mobility is achieved by forming smaller and more mobile CPs that require less time to set up and displace.⁷⁷ Mobility is also enhanced by ensuring command posts are equipped with vehicles that can maintain the rapid, sustained pace of the heavy brigades tanks and Bradleys.

Communications is the means through which commanders exercise immediate positive control over their subordinates.⁷⁸ Communications with adjacent, subordinate, and higher headquarters is accomplished

through one or more of the following systems: frequency modulated voice (secure), amplitude modulated, multi-channel, radio teletypewriter, facsimile, and messenger. Continuous communications must be provided for at all times.⁷⁹

By using the preceding criteria, an analysis can be made of combat command posts during World War II and current brigade forward command posts to determine whether they enhanced command and control for the commander.

IV. Historical Analysis

First this historical analysis will survey the evolution of brigade command and control doctrine starting in the 1940s and continuing through each decade up to the present. Next the criteria will be used to examine two historical cases, one from World War II and the other from Desert Storm. Finally a determination will be made as to whether or not the changes to the current forward command posts have enhanced command and control for the brigade commander.

During the 1940s Field Service Regulation 100-5: Operations addressed command and control for various tactical units by authorizing a forward and rear command post. The forward echelon was to consist of the staff agencies immediately required by the commander

for assistance in tactical operations.⁸⁰ The rear echelon consisted of the remaining staff agencies which had administrative duties.⁸¹

Doctrine for the armored division and its subordinate combat commands was first contained in The Armored Command Field Manual FM 17-100-1-2 dated 1941. The field manual stated that the armored division was organized to provide flexibility by the formation of tactical teams.⁸² Under this organization, battalions as self-contained units were task organized under two combat command headquarters in accordance with the mission, the terrain, and the enemy situation.⁸³ Additional separate tank groups or battalions, armored or other infantry, artillery, engineer, tank destroyer, and antiaircraft artillery units were attached as available and as the situation dictated.⁸⁴ Combat commands were designated as command and control headquarters only; the armored division would continue to push the combat service support to the battalions to keep them self-contained.⁸⁵ The field manual stated that the armored division was organized to perform missions that required great mobility and firepower.⁸⁶

In 1942 Major General Jacob L. Devers as chief of the armored force reorganized the armored divisions

according to doctrine by eliminating the armored brigade headquarters and establishing combat commands A and B.⁸⁷

In January 1944, Field Manual 17-100, Armored Division and Combat Command, created another combat command designated as the reserve called the (CCR).⁸⁸ Under organization of the command headquarters, it stated that the command posts for combat commands were to be delineated as a forward and rear echelon and often with a separate command group. Although the combat commander designates the composition of the command group, the combat command artillery officer, or the commander of the direct-support artillery battalion or his liaison officer may be in his group.⁸⁹ The forward echelon (command post) of the combat command performs the same functions as the division command post. The forward echelon is the control center and must be located to facilitate command.⁹⁰ The rear echelon is composed of members of the staff whose immediate assistance is not required. The rear echelon became responsible for movement and protection of the combat command's combat service support.⁹¹

With the introduction and extended use of FM voice radios, Field Manual 17-100, Armored Division and

Combat Command emphasized that the command posts were control centers and facilitated communications. It also stated that control of combat elements would be maintained by keeping command posts forward.⁹²

Operations on the move were discussed for the first time in Field Manual 17-100, Armored Division and Combat Command. The field manual also stated that since the forward command post must displace frequently; the command post vehicle's interiors should be equipped with radios, map boards, interior lights and blackout equipment.⁹³ The rear echelon was not designed to function on the move and its displacement was accomplished by echeloning.⁹⁴

During the 1950s, Field Manual 17-100 The Armored Division and Combat Command reintroduced the term brigade; though, most of the manual still addressed units as combat commands.⁹⁵ Although the section under signal communications introduces multichannel radio relay, it still stresses that voice radio is the primary means of communication in order for the armored division to react with speed and decisiveness.⁹⁶ Under paragraph 13 entitled Command Post it states that the command post is the operations and communication center of the brigade.⁹⁷

The command group is also referred to as a command and control facility consisting of the commander and selected staff officers, signal means and a security detachment. The command group enables the commander to be away from the command post to gain personal knowledge and exert leadership and control during critical periods. Alternate command posts were not allowed since the limited size of the brigade headquarters precluded it. Battalion task force CPs would serve as alternates for the brigade.⁹⁸ Under paragraph 36 Combat Command Headquarters is an example of the composition of a combat command CP:

(1) The following is an example command post organization:

- Commanding Officer
- Executive Officer
- S3 section
- S2 section
- Supporting artillery unit commander
or artillery liaison officer
- Forward Air controller (if present)
- Engineer unit commander
- Surgeon
- Signal Officer
- Combat command headquarters company

(2) The following elements will normally operate in the vicinity of the combat command post:

- Combat command area support platoon, forward communications company
- Detachment, combat support flight, aviation company.⁹⁹

Although there was much reorganization of infantry divisions during the pentomic era in the late 1950s,

the combat command system in the armored divisions remained largely unchanged.¹⁰⁰

In the early 1960s the U.S. Army reorganized again; combat commands became brigades of which three were assigned to divisions.¹⁰¹ During this period there was a research paper written about variable techniques of command and control for combat command headquarters.¹⁰² The research paper was written to facilitate the analysis of performance of a combat command headquarters and, incidentally, the task-force elements thereof.¹⁰³ The working paper solicited feedback and received two letters; one from General Bruce Clarke then commander-in-chief of United States Army Europe; and the other from General Herbert Powell commander of Continental Army command. General Clarke's letter stated that there was no U.S. Army doctrinal text that dealt with the problem or techniques of command and control that a commander could turn to for guidance.¹⁰⁴ General Clarke believed that effective command and control was enhanced through leadership.¹⁰⁵

General Powell stated that he thought that the increasing volume of communications as well as the increasing number of command post installations was causing the U.S. Army to lose its hard-earned knowledge

of mobile warfare developed in Europe in World War II.¹⁰⁶

The research paper endorsed the idea of keeping command posts to a minimum of three: an admin-log grouping; a main tactical operations center, and an advance command group.¹⁰⁷ The research paper also reinforced the notions that voice radio would be the primary means of communication, and that commanders should be placed in armored combat vehicles. However, the research paper stressed that the principle of mobility over armor protection would continue to affect future command-type vehicles.¹⁰⁸

In November 1961, Field Manual 17-30, The Armored Division Brigade converted combat commands to brigades. With the change of terms so did the responsibilities; brigade headquarters now had to command combat support as well as combat units in training and operations. The brigade headquarters and headquarters company's organization was based on three significant requirements. First the headquarters must be 100% mobile; it must still rely primarily on radio for communication, and finally it must be equipped with organic armored vehicles for the brigade commander and staff.¹⁰⁹

During the 1970s, Field Manual 17-30, The Armored Brigade was revised. It reaffirmed that the only

organic unit in the brigade was the brigade headquarters and headquarters company while attachments to the brigade were made by higher headquarters to provide the brigade the means to accomplish assigned missions.¹¹⁰ Standard Operating Procedures (SOP)s were to be developed to permit attachment and detachment of combined arms task forces built around battalions.¹¹¹

The armored brigade command posts now comprised the brigade command post; the brigade command group; the alternate command post; and the brigade trains.¹¹² The brigade command post was the principal command installation of the brigade and used organic vehicles. It was highly mobile for operations on the move, relied on radio communication, and was equipped to operate on a 24-hour basis. The command group allowed the commander to operate away from the command post and often utilized a command and control aircraft. The field manual also emphasized the reliance on displacement in order to keep the brigade command and control system functioning. The alternate command post was usually a designated battalion task force in sequence.¹¹³

The brigade trains comprised the subordinate battalion combat service support; elements of the division support command; elements of the aviation section and the S4 headquarters element.¹¹⁴

During the 1980s, FM 71-3 Armored and Mechanized Brigade Operations reinforced the concept of changing combat commands to brigades.¹¹⁵ This field manual attempted to reduce the number of command posts by combining the command group with the TAC CP. Under the section Command Posts it states that "the brigade normally establishes a main and a tactical command post."¹¹⁶ The field manual goes on to say that the TAC CP is sometimes called a command group and consists of not more than one or two command post vehicles preferably, radio-equipped armored personnel carriers. It is manned by the S3, S2, United States Air Force (USAF) air liaison officer, the brigade fire support officer, and the necessary NCOs, drivers, and communication personnel.¹¹⁷ The tactical command post must be mobile to allow the brigade commander to command on the move. It operates near brigade forward elements, and its normal mode of communication is FM secure.¹¹⁸

Major organizational changes to the U.S. Army commonly called "Division '86" began shortly after the distribution of Field Manual 100-5, Operations, dated

1982 which shifted the U.S. Army to an offense-oriented military operational and tactical doctrine.¹¹⁹

However there were no major organizational changes to the brigade's command and control organization which remained the same as the 1970s. During this period, Field Circular 71-6 Battalion and Brigade Command and Control dated 1985 stated that the present TOE (tables of organization and equipment) for a brigade headquarters was not adequate to operate in a tactical environment.¹²⁰ However, the field circular was depending on future changes to the TOE to correct this deficiency.

This brings the discussion of doctrine on heavy brigade command and control up to the present. The first historical example will look at the command posts of the 4th Armored Division combat commands, specifically Combat Command A (CCA) led by Colonel Bruce Clark.¹²¹

The 4th Armored Division and its subordinate combat commands demonstrated rapid, effective command and control during World War II. Major General Wood who commanded the 4th Armored Division provided leadership that stressed mission type orders and fast paced actions.¹²² He inspired and reinforced this type of leadership and command in Colonel Clarke who commanded

CCA, Brigadier General Dager who commanded CCB, and Colonel Louis Storck who commanded CCR.¹²³

The 4th Armored Division first saw combat as the spearhead for the breakout operation at St. Lo, France on July 28th, 1944. After a successful breakout the 4th Armored Division pursued the Germans until it seized the town of Avranches, France. On July 31st, the 4th Armored Division then became the spearhead for General George Patton's Third Army.¹²⁴

At 0500 hours on August 1st, Colonel Clarke received orders from Major General Wood and Major General Troy Middleton the VIII Corps Commander to move on Rennes, France immediately. Clarke asked what he was to do when he arrived at Rennes, but Middleton told him he would see him before he got there since Rennes was 60 kilometers ahead and behind German lines. It was inconceivable to other officers that Clarke would cover 60 to 70 kilometers in six or seven hours.¹²⁵

Clarke divided his combat command into three task forces and a headquarters group, and ordered them to make an all out drive on two parallel roads, fighting only on the roadway, punching through to Rennes. The speed of movement by the task forces was so rapid that pockets of German units were taken prisoner before they could sound an alarm. By 1200 hours that same

day, Clarke sent a message back to division that he was closing on Rennes. He was then told to bypass Rennes and go to Lorient.¹²⁵

Clarke achieved these results by personal leadership and command from the front. During attack situations, Clarke had developed two leadership styles that worked well.¹²⁷ While Lieutenant Colonel Hal Pattison, executive officer, manned the command post and looked to the rear, Clarke stayed out of the command post, formed a command group and looked to the front. Clarke led from the front by using three modes of transportation, an L-4 (Light plane), a jeep, and a specially stripped down tank with a wooden dummy gun which decreased the weight by five-tons and thereby increased the mobility.¹²⁸ At all times he was able to communicate face to face or by FM radio.

By examining this historical case with our criteria, a determination can be made as to what may have enhanced command and control for the combat command commander. The functional responsibility and authority were taken care of by Colonel Clarke and Lieutenant Colonel Pattison. As stated before while Lieutenant Colonel Pattison was in the command post looking at the rear, Colonel Clarke was out in his command group looking to the front. ¹²⁹ Colonel

Clarke conducted the close operations ensuring mission accomplishment of the forward units and combat command. Lieutenant Colonel Pattison received reports, communicated with division, and planned future operations at the command post.

Survivability was increased due to the small organization of the combat command CP and the command group. The command group consisted of Colonel Clarke in his modified tank, plane or jeep. The compact size of combat command CPs and command groups as well as their frequent displacement behind forward combat units greatly enhanced survivability.

Communication was strengthened by Colonel Clarke's close proximity to his forward units, and by the use of FM radio. The U.S. Army had invested much time and effort into the development of FM and AM radios, and these radios allowed the commander to maintain voice communication.¹³⁰

Mobility was definitely enhanced by the actions of Colonel Clarke. Since Clarke often operated from his fighting vehicle or jeep, he was able to move at the same pace as his unit's fighting vehicles and to conduct operations on the move. By examining the criteria it is apparent that the combat command post

and command group met or exceeded the requirements of the commander for commanding and controlling his subordinate units.

The most recent example of how a heavy brigade command and control was conducted during combat comes from the 2d Brigade, 1st Cavalry Division during Desert Storm.¹³¹ Colonel Randolph House the brigade commander wrote in Military Review that his brigade had to revamp its command and control facilities as well as its movement formations shortly after arriving in Saudi Arabia in October 1991. The reason was that the U.S. Army's current doctrine and force structure were developed primarily for a European scenario.¹³² For example in the European scenario, U.S. Army units planned on expanding the range and redundancy of their command and control systems by using host nation facilities and resources like the telephone and telegraph system. However these systems were not as highly developed or available in Saudi Arabia.

In preparing for combat operations in the desert, the brigade decided to conduct tactical movement in a brigade wedge and rehearsed it during a brigade command field exercise (CFX) during Desert Shield.¹³³ Although the maneuver units performed well during the

CFX, the commander realized that his command posts were still not configured to function over the long distances and during fast moving operations in the desert.¹³⁴

The main CP and TAC CP had been outfitted according to the SCP program and were equipped with the Single--Channel Ground and Airborne Radio System (SINCGARS), maneuver control system (MCS) and mobile subscriber equipment (MSE). These CPs were configured in accordance with standard CP guidelines published by Fort Leavenworth, Kansas.¹³⁵

While the changes made to the brigade main and rear CPs were only in terms of displacement procedures, the TAC CP had to be reconfigured. For example under the SCP program the right side of the TAC CP's M577 command post vehicle had a large map board mounted on the right side while the left side had a bank of four SINCGAR radios and the MCS computer. After loading up a large amount of food, water, personnel equipment, camouflage nets and other supplies for desert offensive operations there was not room for the usual supply of luxury (sic) items such as tables, chairs, briefing boards and external mapboards. Moreover it was nearly impossible for personnel to sit inside and conduct operations on the move. However, the command group in two M113A3

armored personnel carriers was able to function without reconfiguration.¹³⁶

During Desert Storm the brigade used the brigade wedge with great success. Often the brigade was able to conduct movements hundreds of kilometers traveling at a sustained rate of 15 to 20 kilometers per hour.¹³⁷ Once after moving over 300 kilometers, the brigade was able to deploy directly behind another division that was engaged with the Republican Guard's Medinah division. Spot reports of activity to the brigade's front were pouring into CPs at all levels. Units were immediately informed and control was maintained by a completely intact command and control system.¹³⁸ By examining this case with our criteria, a determination of the brigade's success in command and control can be established.

Functional responsibility and authority was not enhanced due to the configuration of the forward command posts. The command group consisted of the brigade commander, his fire support coordinator (FSCoord), and Air Force liaison officer who operated forward in two M113A3s. While the command group was deployed forward of the TAC CP; it commanded and controlled the close operations while the TAC CP merely followed the command group and did nothing more than

feed the command group information from the brigade and division Operations & Intelligence (O&I) nets.¹³⁹ In this situation the TAC CP was merely a relay station. It might have been more effective to delegate this mission to the forward area signal platoon. Besides acting as a relay station is not the primary mission of the TAC CP. The TAC CP is supposed to conduct close operations.

Survivability of the TAC CP and command group was enhanced since both were constantly moving and because of their location within the brigade wedge. The TAC CPs was directly behind the lead task force in the brigade wedge while the command group was forward of the TAC CP.¹⁴⁰ This location allowed the forward CPs to use the heavy brigade's tanks and Bradleys as a shield for protection.

In terms of mobility the major deficiency was with the TAC CP. The brigade planned on moving at an average rate of 15 kilometers per hour in the wedge; however, the only vehicles in the brigade that could not maintain that pace were the M577 command post vehicles of the TAC CP.¹⁴¹ The command group used M113A3s and had no difficulty maintaining the pace.¹⁴²

Even with the improvements in communications technology such as mobile subscriber equipment (MSE) and the maneuver control system (MCS) operators still relied on FM radio specifically SINCGARS since it operates at greater ranges than most FM radios. The other systems have great difficulty functioning on the move.¹⁴³ For example the MSE system operates on a stationary node concept which precludes the system from operating while nodes are displacing, and the same goes for MCS.¹⁴⁴ Communications during movement still relied on voice radio exactly as Colonel Clark did during World War II. Although maintaining radio communications during operations on the move was difficult, the SINCGARS radio boosted the operating distance and allowed the command posts more freedom of movement.¹⁴⁵ Based on the criteria it is evident that the currently configured forward CPs do not enhance command and control for the brigade commander.

As stated earlier, Field Circular 71-6 Battalion and Brigade Command and Control stated that the present TOE (tables of organization and equipment) for a brigade headquarters was not adequate to operate in a tactical environment.¹⁴⁶

In 1985 Major General Frederic Brown who was commander of the U.S. Army Armor Center at Fort Knox,

Kentucky said

We in close combat heavy forces have a problem: command and control of our heavy maneuver forces has not progressed in step with changes in our doctrine, and the new generation of faster more lethal weapons systems we plan to employ in making that doctrine work.¹⁴⁷

He also said that lessons from the National Training Center (NTC) support the requirement for improved command and control, and one way of improving command and control was by installing command and control enhancements on the M113, M577, M60A3, M1 and M2.¹⁴⁸

The combat training centers (CTC) have provided lessons learned on brigade command and control. In terms of functional responsibility and authority one of the major problems is that brigades have not clearly defined the roles of the TAC, main and rear CPs.¹⁴⁹ Another major problem is echeloning assets. Because units maneuver in small training areas at home station, they often go to the NTC with equipment not configured for two echelons of command and control.¹⁵⁰ Brigades have difficulty establishing and maintaining communications over the extended distances that are presented to them at the NTC. Training should focus on the use of FM retrans teams in supporting the brigade net.¹⁵¹ The CPs should also be organized to consolidate major functions and to shorten

communication paths. There also needs to be a single information pool to which people can refer to if they need basic situation in a hurry.¹⁵² If the TAC CP is to be a command and control site, then the S3 is the individual who must operate from there to make it function as a CP instead of as a radio relay site.¹⁵³ Units rarely go beyond planning the initial locations of the commander, S3, and CPs on the battlefield. In terms of survivability the observers stated that the most effective command groups utilized three vehicles (usually M113s), one for the brigade commander, fire support coordinator, and the air liaison officer.¹⁵⁴ By echeloning command and control assets, brigades are able to maintain smaller command posts and reduce the signature of vehicles, equipment and signal communications in order to enhance survivability.

In terms of mobility, units often come to NTC with no plan for tracking the battle while the CPs are on the move. They need to practice doing this.¹⁵⁵ Although brigades learn that the TAC operations (S3) M577 command post vehicle has to be configured to facilitate operations on the move, this is often forgotten once units return to home station. The CPs have been redesigned under the SCP program, and the diagrams display the CPs in a static position.

Brigades are reluctant to change the configuration in order to make the CPs function.¹⁵⁶ This lesson was reinforced again in Desert Storm and consequently the Army's focus for command and control systems is to develop systems that operate on the move.¹⁵⁷

The final point of discussion is related to communications criteria. Although there have been many advances in communications technology, brigades are still relying on FM radio. One NTC observation was that it is apparent that users (brigade staff members) of communication's devices such as the AN/VRC 97s (MSE) and the AN/UGC-7 (Facsimile) do not fully understand the operations and capabilities of equipment.¹⁵⁸

V. Conclusion

Based on the review of theory and doctrine from World War II to the present and the historical examples, the U.S. Army does need to reconfigure forward command posts in order to enhance command and control for the brigade commander.

From World War II up to the present the U.S. Army espoused the principle of effective command and control by having commanders operate from small austere command posts that were located at the decisive point. In armored divisions and combat commands often the command group consisted of the unit's fighting vehicle. The

combat commander used this vehicle and the FM radio to conduct operations on the move.

The (SCP) program started the development of corps and heavy division CP standards that were fully functional within current resources.¹⁵⁹

Unfortunately these standardized configurations have caused problems. For example current command post vehicles M577s have been redesigned in order to make maximum use of the MCS and communications systems mounted in the vehicle.¹⁶⁰ Placing improved technology in these old vehicles will only serve to limit the technological advances potential and known capabilities.¹⁶¹

Doctrine on heavy brigade operations has stated that the commander should be forward, close to his subordinate units in order to apply leadership where needed. The doctrine has stressed that command and control must function on the move. Armored division and combat command commanders understood this and developed command and control systems to meet this need. However as technology improved communications systems, they began to increase in size and weight, so command posts were modified to house them.

The current configuration of forward command posts does not fully meet the criteria of functional

responsibility and authority, survivability, mobility and communications. Functional responsibility and authority problems can be solved merely by having the commander define the functions and responsibilities of each CP. Once this has been decided then the command and control systems must be echeloned accordingly.

Survivability can be enhanced by putting the brigade commander and his command group in armored fighting vehicles such as the Bradley fighting vehicle. Not only will the increased armor protect the command group, the weapon's systems will allow the command group to defend itself.

In terms of mobility the command post vehicles must not only have mobility for displacing, they must be able to maintain a sustained rate of march. Once again the Bradley or tank can fulfill this mission as well as allow for operations on the move.

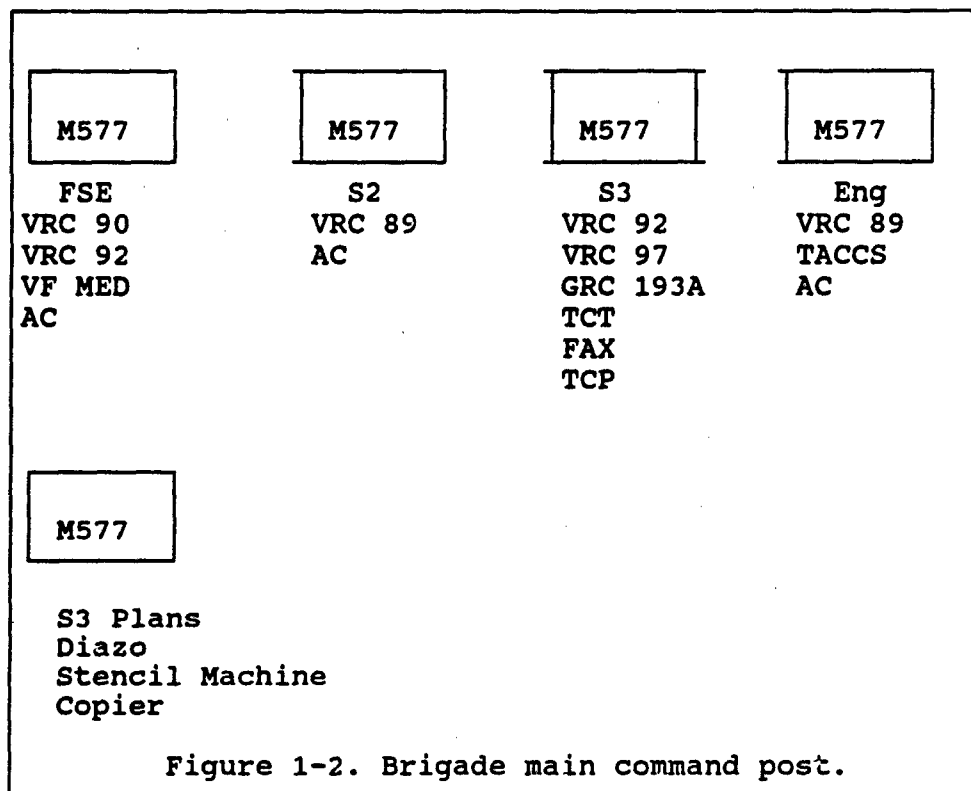
Although technology has improved the capability of communication equipment, the increase in speed and availability of information may only increase uncertainty and anxiety in commander's and staffs. Commanders are now expecting to gain a 90% or better picture of the battlefield in order to make decisions. Waiting for this complete picture can cause more delays and indecision on the part of the commander and staff.

Voice radio is still the primary mode of communication and should remain primary since MSE and MCS do not function very well on the move.

Forward CPs should be redesigned in order to meet the criteria discussed and to enhance command and control for the brigade commander. TAC CPs which historically have not been deployed or trained have become nothing more than radio relay or retrans stations. If the command group continues to operate forward during critical operations which are close operations, then the personnel and equipment in the TACCP are merely a redundancy that the brigade does not need. The personnel in the TAC CP can be better utilized in the main CP. Since TAC CPs are usually used as radio relays, give this function to the forward area signal platoon.

The U.S. Army should expend its effort to reconfigure the command group. By concentrating on the command group several advantages occur. Instead of placing the S3 in the TAC CP, he can be with the commander in his vehicle.¹⁶² If the command group is placed in Bradleys then survivability, mobility, and communications systems will be designed for operations on the move. After all operations on the move will enhance command and control for the heavy brigade commander.

Appendix A: Brigade main command post



LEGEND: (For appendices A-D)

Personnel

Digital Subscriber Voice Terminal (DSVT): TSEC/KY-68

Digital Nonsecure Voice Terminal (DNVT): TA-1035/u

Radio Remote: C-11561/U

Tactical Computer Terminal (TCT): AN/UYQ-30

Tactical Computer Processor (TCT): AN/UYQ-43 (1)

Analysis Console (AC)

Tactical Army Computer System (TACCS)

VRC-92--SINCGARS FM Radio (2-net, long range)

VRC-89--SINCGARS FM Radio (2-net, 1 short rng, 1 lg rng)

VRC-90--SINCGARS FM Radio (single net, long range)

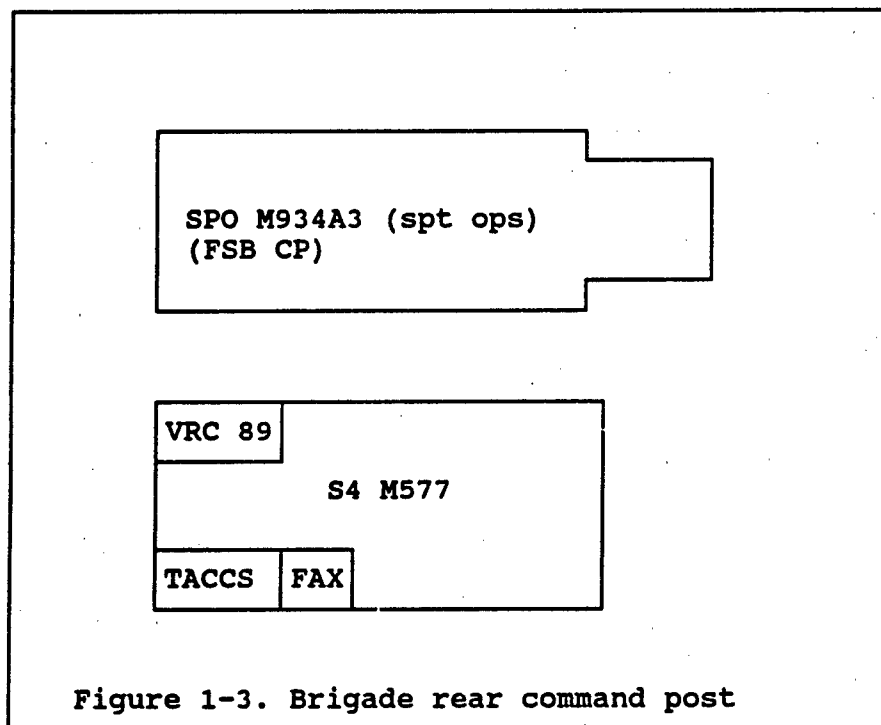
VRC-97--Mobile Subscriber Radio Terminal (MSRT)

GRC-193A--AM Radio

Facsimile (FAX) Machine

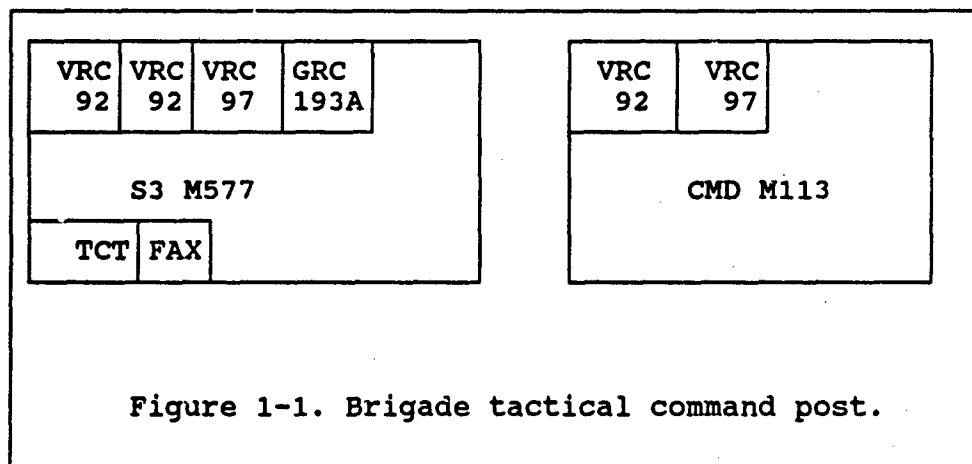
¹⁶³United States Army Armor School, Field Manual 71-123, Tactics and Techniques for Combined Arms Heavy Forces: Armored Brigade, Battalion Task Force, and Company Team (Fort Knox, KY: June 1991), 1-6.

Appendix B: Brigade rear command post



164 Ibid.

Appendix C: Brigade tactical command post



¹⁶⁵Ibid., 1-5.

Appendix D: Brigade command group

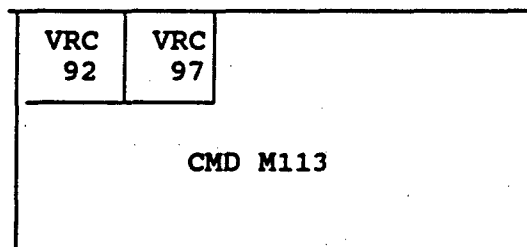


Figure 1-4. Brigade command group.

ENDNOTES:

¹Department of the Army, Field Manual 100-5, Operations (Washington, DC: August 1992), 1.

²Ibid., 10.

³Department of the Army, Field Manual 71-3, Armored and Mechanized Infantry Brigade (Washington, DC: May 1988.), 1-1.

⁴Ibid., 1-2.

⁵Department of the Army, Field Manual 101-5, Staff Operations and Organizations (Washington, DC: May 1984). 8-4.

⁶Ibid., 2-23.

⁷Department of the Army, Field Circular 71-6 Battalion and Brigade Command and Control (Fort Benning, GA and Fort Knox, KY: March 1985), 1-1.

⁸Kenneth A. McDevitt, "Why Standardize Command Posts?," Military Review, July 1990: 57.

⁹Ibid.

¹⁰FM 101-5, Staff Organizations and Operations, 8-1 to 8-2.

¹¹Martin Van Creveld, Command in War, (Massachusetts, Harvard University Press, 1985), 268.

¹²Carl von Clausewitz, On War (Princeton, N.J.: Princeton University Press, 1976), 100 & 102.

¹³Ibid., pg 109.

¹⁴Ibid.

¹⁵Antoine Henri de Jomini, The Art of War., Trans. Capt. G.H. Mendell and Lieut. W.P. Craighill, 2d ed. (Connecticut: Greenwood Press.), 165.

¹⁶Van Creveld, Command in War, 263.

¹⁷Ibid., 264-265.

¹⁸Ibid., 269.

¹⁹Ibid.

²⁰Daniel P. Bolger, "Command or Control", Military Review, (July 1990), 71.

²¹Van Creveld, Command in War, 265.

²²FM 100-5, Operations, dated 1986., 22.

²³Donald D. Chipman, "Clausewitz and the Concept of Command Leadership," Military Review, (August 1987). pg 34.

²⁴Van Creveld, Command in War, 262-263.

²⁵John W. Foss, "Command", Military Review, (May 1990). pg 3.

²⁶Ibid., pg. 3 to 4.

²⁷Ibid., 5.

²⁸Ibid., 4.

²⁹Ibid.

³⁰Ibid., 5.

³¹Daniel L. Gilbert, "Heavy Brigade C2: Is The Current System Too Complex?" SAMS Monograph, Ft. Leavenworth, Ks., 21 November 1988, 3.

³²Ibid.

³³Ibid., pg.3.

³⁴FM 100-5, Operations, dated May 1986, 22.

³⁵U.S. Joint Publication 1-02, Department of Defense Dictionary of Military and Associated Terms (Washington, DC: December 1989), pg 118.

³⁶The Joint Chiefs of Staff, Joint Publication 1-02, Department of Defense Dictionary of Military and Associated Terms. (Washington DC: December 1984), 77.

³⁷Field Manual 100-5, Operations, 1986, i.

³⁸Ibid., 21.

³⁹Tom Chychota, "Tactical Commander's Development Course," Fort Leavenworth, KS. 26 Oct. 1992.

⁴⁰Field Manual 100-5, Operations, 1986, 22.

⁴¹Ibid.

⁴²Field Manual 71-3, Armored and Mechanized Infantry Brigades, 1-3.

⁴³Ibid.

⁴⁴Ibid., 2-2.

⁴⁵Field Manual 101-5, Staff Organization and Operations, 1-1.

⁴⁶Ibid., 1-1 to 1-2.

⁴⁷FM 71-3, Armored and Mechanized Infantry Brigade, 2-6.

⁴⁸Ibid.

⁴⁹Ibid.

⁵⁰Ibid.

⁵¹Ibid., 2-2.

⁵²Ibid.

⁵³Ibid., 2-7.

⁵⁴Ibid., pgs 2-7 to 2-8.

⁵⁵Ibid., pg 8-4.

⁵⁶Field Manual 101-5, Staff Organizations and Operations, 1-2.

⁵⁷Field Manual 71-3, Armored and Mechanized Infantry Brigades, pg 2-5.

⁵⁸Field Manual 101-5, Staff Organizations and Operations, 8-4.

⁵⁹Field Manual 71-3, Armored and Mechanized

Infantry Brigades, 2-5.

⁶⁰Ibid.

⁶¹Ibid.

⁶²Ibid.

⁶³Field Manual 101-5, Staff Organizations and Operations, 8-5.

⁶⁴Joint Publication 1-02, Department of Defense Dictionary of Military and Associated Terms, 123.

⁶⁵Field Manual 101-5, Staff Organizations and Operations, 8-1.

⁶⁶Field Manual, Armored and Mechanized Infantry Brigades, 1-5.

⁶⁷Ibid.

⁶⁸Ibid.

⁶⁹Ibid., 1-7.

⁷⁰Field Manual 101-5, Staff Organizations and Operations, 8-2 to 8-3.

⁷¹Ibid., 8-1 to 8-2.

⁷²Ibid., 2-5.

⁷³Field Manual 71-3, Armored and Mechanized Infantry Brigade, 2-5 to 2-2.

⁷⁴Field Manual 101-5, Command and Control for Commanders and Staff (Coordinating Draft), 5-2.

⁷⁵Field Manual 101-5, Staff Organizations and Operations, 8-2.

⁷⁶Ibid.

⁷⁷Ibid.

⁷⁸Field Manual 101-5, Command and Control for Commanders and Staff (Coordinating Draft), 1-14.

⁷⁹Field Manual 101-5, Staff Organizations and Operations, 8-2.

⁸⁰Department of the Army, Field Service Regulations, Operations (Washington DC: 22 May 1941), 33.

⁸¹Ibid.

⁸²Department of the Army, Field Manual 17-100-1-2, Armored Command Field Manual, (Washington DC: 1941), 2.

⁸³Ibid.

⁸⁴Ibid.

⁸⁵Department of the Army, Field Manual 71-100, Division Operations, (Washington DC: June 1990), 1-2.

⁸⁶Ibid.

⁸⁷Jonathan M. House, Toward Combined Arms Warfare: A Survey of 20th-Century Tactics, Doctrine, and Organization, (Washington DC, U.S. Government Printing Office, 1984), 108.

⁸⁸Department of the Army, Field Manual 17-100, Armored Division and Combat Command (Washington DC: 15 January 1944), 41.

⁸⁹Ibid.

⁹⁰Ibid.

⁹¹Ibid., 40.

⁹²Ibid.

⁹³Ibid., 48.

⁹⁴Ibid.

⁹⁵Department of the Army, Field Manual 17-100, The Armored Division and Combat Command (Washington DC: May 1958), 21.

⁹⁶Ibid., 20.

⁹⁷Ibid., 21.

⁹⁸Ibid., 23.

⁹⁹Ibid., pg 31.

¹⁰⁰Department of the Army, Field Manual 71-3, Armored and Mechanized Brigade Operations. (Washington, DC: July 1980), 1-1 to 1-2.

¹⁰¹Ibid.

¹⁰²Wes Yale, "Variable Techniques of Command and Control Headquarters Combat Command," Stanford Research Paper, (September 1960), 1.

¹⁰³Ibid.

¹⁰⁴Bruce Clarke, Letter in response to Stanford Research Working Paper, Headquarters U.S. Army Europe, 1961.

¹⁰⁵Ibid.

¹⁰⁶Herbert B. Powell, Letter in response to Stanford Research Working paper, Fort Monroe, VA., 13 March 1961.

¹⁰⁷Wes Yale, "Variable Techniques of Command and Control Headquarters Combat Command," Stanford Research Paper, (September 1960), 1.

¹⁰⁸Ibid., 2 and 17.

¹⁰⁹Department of the Army, Field Manual 17-30, The Armored Division Brigade (Washington, DC: November 1961). pg 3 to 4.

¹¹⁰Department of the Army, Field Manual 17-30, The Armored Brigade, (Washington, DC: September 1969), 1-2.

¹¹¹Ibid.

¹¹²Ibid., 2-4 to 2-6.

¹¹³Ibid.

¹¹⁴Ibid., 2-6.

115 Department of the Army, Field Manual 71-3, Armored and Mechanized Brigade Operations, (Washington, DC: July 1980), 7-2.

116 Ibid.

117 Ibid.

118 Ibid.

119 John L. Romjue, "From Active Defense to AirLand Battle: The Development of Army Doctrine 1973-1982," Tradoc Historical Monograph series, (Fort Monroe, VA: Historical Office, U.S. Army Training and Doctrine Command, 1984), 67.

120 Department of the Army, Field Circular 71-6, Battalion and Brigade Command and Control, (Ft. Benning, GA and Ft. Knox, KY, March 1985), 3-2.

121 William D. Ellis and Thomas J. Cunningham, Clarke of St. Vith, The Sergeants' General (Cleveland, OH.: Dillon/Liederbach, 1974), 21.

122 Hanson W. Baldwin, Tiger Jack, (Fort Collins, CO: The Old Army Press, 1979), 159.

123 Kenneth Koyen, The Fourth Armored Division (Munich, Germany: Herder-Druck, 1946), 259.

124 Ibid.

125 Ibid., 22.

126 Ibid.

127 Ibid., 32.

128 Ibid., 32 and 65.

129 Ibid., 32.

130 House, "Toward Combined Arms Warfare", 121.

131 Randolph W. House and Gregory L. Johnson, "C2 in a Heavy Brigade Movement to Contact," Military Review, (November 1991), 11.

132 Ibid., 11.

133 Ibid., 11.

134 Ibid.

135 Ibid.

136 Ibid., 15.

137 Ibid., 19.

138 Ibid.

139 Ibid., 16.

140 Ibid., 19.

141 Ibid., 12.

142 Ibid.

143 Fred E. Dierksmeier, "The Impact of MSE," Military Review, (August 1987). pg. 44.

144 Michael Hagerman, "MSE and the AirLand Battle", Military Review, (July 1990), 34.

145 House and Johnson, "C2 in a Heavy Brigade Movement to Contact," 14.

146 Department of the Army, Field Circular 71-6, Battalion and Brigade Command and Control, (Ft. Benning, GA and Ft. Knox, KY, March 1985), 3-2.

147 Frederic Brown, "The Commanders need for positive control," Armor, (September/October 1985), 4.

148 Ibid.

149 Brigade Trainers, "Brigade Operations" Lessons Learned, Fort Irwin, CA, 3.

150 Battalion and Brigade Battle Staff Lessons Learned, Center for Army Lessons Learned, Combined Arms Training Activity, (Ft. Leavenworth, KS: 2d Quarter 1992).

151 Ibid.

152 Ibid.

- 153 Ibid., 38.
- 154 Ibid., 37.
- 155 Ibid.
- 156 McDevitt, "Why Standardized Command Posts," 57.
- 157 James L. Binder, "Command, Control and Communications," The Army Green Book, (October 1992). 280.
- 158 Battalion and Brigade Battle Staff Lessons Learned, Center for Army Lessons Learned, Combined Arms Training Activity, (Ft. Leavenworth, KS: 1st Quarter 1992).
- 159 Ibid.
- 160 Ibid., . pg 56.
- 161 Jack Burkett, "Command and Control the Key to Winning," Military Review, (July 1990), 65.
- 162 Richard P. Geier, "Battalion Command and Control", Armor 94, no.2 (September-October 1985), 9.

BIBLIOGRAPHY:

Manuals

- U.S. Army. ST 17-17, Combined Arms Heavy Battalion/Task Force SOP. Fort Knox, KY: U.S. Army Armor Center, May 1990.
- U.S. Army. FM 17-30, The Armored Division Brigade. Washington, DC: Department of the Army, November 1961.
- U.S. Army. FM 17-30, The Armored Division Brigade. Washington, DC: Department of the Army, September 1969.
- U.S. Army. FM 17-100, Armored Division and Combat Command. Washington, DC: Department of the Army, 15 January 1944.
- U.S. Army. FM 17-100-1-2, Armored Command Field Manual, The Armored Division. Washington, DC: Department of the Army, 1941.
- U.S. Army. FM 34-130, Intelligence Preparation Of The Battlefield. Washington, DC: Department of the Army, May 1989.
- U.S. Army. FM 71-3, Armor & Mechanized Infantry Brigade. Washington, DC: HQ Department of the Army, May 1988.
- U.S. Army. FM 71-3, Armored and Mechanized Brigade Operations. Washington, DC: HQ Department of the Army, July 1980.
- U.S. Army. Army Training and Evaluation Program 71-3-MTP, Mission Training Plan for the Heavy Brigade Command Group and Staff. Washington, DC: HQ Department of the Army, October 1988.
- U.S. Army. FC 71-6, Battalion and Brigade Command and Control. Fort Benning, GA: U.S. Infantry Center and Fort Knox, KY, U.S. Army Armor Center, March 1985.
- U.S. Army. FM 71-123, Tactics and Techniques for Combined Arms Heavy Forces: Armored Brigade, Battalion/Task Force, and Company Team. Fort Knox, KY: U.S. Army Armor Center and School, June 1991.

U.S. Army. FM 71-100-1, Armor and Mechanized Division Operations Tactics and Techniques. Washington, DC: HQ Department of the Army, May 1991.

U.S. Army. FM 100-5, Operations. Washington, DC: HQ Department of the Army, May 1986.

U.S. Army. Field Service Regulations 100-5, Operations. Washington, DC: HQ Department of the Army, May 194

U.S. Army. FM 101-5, Staff Organizations and Operations. Washington, DC: HQ Department of the Army, May 1984.

Joint Publication 1-02, Department of Defense Dictionary of Military and Associated Terms. Washington DC: The Joints Chiefs of Staff, December 1984.

Combined Arms Training Activity 88-1, Lessons Learned. Fort Leavenworth, KS: Combined Arms Training Activity, January 1988.

Tactical Standing Operating Procedures (TSOP), Armor and Mechanized Division Coordinating Draft. Fort Leavenworth, KS: Command and General Staff College, June 1991.

Books

Baldwin, Hanson, W, Tiger Jack., Fort Collins, Colorado: The Old Army Press. 1979.

Jomini, Antoine Henri de, The Art of War., Trans. Capt. G.H. Mendell and Lieut. W.P. Craighill, 2d ed. Connecticut: Greenwood Press.

Van Creveld, Martin, Command in War., Cambridge, Massachusetts, and London, England: Harvard University Press, 1985.

Von Clausewitz, Carl., On War., Ed and Trans by Michael Howard and Peter Paret., Princeton, New Jersey: Princeton University Press, 1984.

Articles

Binder, James L. "Command, Control and Communications C3," The Army Green Book Volume 42, No. 10 (October 1992): 280-281.

- Bolger, Daniel P. "Command or Control," Military Review Volume 70, No.2 (July 1990): 69-79.
- Boulter, Douglas R. "Defending the TOC," Armor Volume 92, No. 2 (March-April 1983): 37-39.
- Burba, Edwin H. "Distinctions between Brigade and Battalion Command," Infantry Volume 77, Number 3 (May-June 1987): 2-3.
- Burkett, Jack. "Command and Control: The Key to Winning," Military Review Volume 70, No. 7 (July 1990): 60-68.
- Chipman, Donald D. "Clausewitz and the Concept of Command Leadership," Military Review Volume 67, No. 8 (August 1987): 28-39.
- Dirksmeier, Fred. "The Impact of MSE," Military Review Volume 67, No. 8 (August 1987): 40-47.
- Dubik, James M. "Decentralized Command: Translating Theory into Practice," Military Review Volume 72, No. 6, (June 1992): 26-38.
- Geier, Richard. "Battalion Command and Control," Armor Volume 94, No. 2 (September-October 1985): 9-15.
- Hagerman, Michael. "MSE and the AirLand Battle," Military Review Volume 69, No. 7 (July 1989): 31-40.
- House, Randolph W. and Johnson, Gregory L. "C2 in a Heavy Brigade Movement to Contact," Military Review Volume 71, No. 11 (November 1991): 10-19.
- Kerkemeyer, Frank A. "Auftragstaktik," Infantry Volume 77, Number 6 (November-December 1987): 28.
- Kindsvatter, Peter S. "VII Corps in the Gulf War: Deployment and Preparation for Desert Storm," Military Review Volume 72, No. 1 (January 1992): 2-16.
- Kindsvatter, Peter S. "VII Corps in the Gulf War: Post-Cease Fire Operations," Military Review Volume 72, No. 6, (June 1992): 2-19.
- McDevitt, Kenneth A. "Why Standardize Command Posts?," Military Review Volume 70, No. 7 (July 1990): 54-59.

Newell, Clayton. "Fog and Friction: Challenges to Command and Control," Military Review Volume 67, No. 8 (August 1987): 18-26.

Rozman, Thomas R. "Reserve Components' Tactical C2," Military Review Volume 71, No. 10 (October 1991): 25-34.

Scott, Richard M. and Campbell Jr., Julian M. and Wallace, John R. "Command Post Survivability," Military Review Volume 62, No. 9 (September 1982): 12-28.

Silva, Jack. "Improving CP Survivability," Infantry Volume 77, No. 6 (November-December 1987): 23-27.

Williamson, Joel E. "Command and Control," Infantry Volume 76, No. 3 (May-June 1986): 25-29.

Unpublished Dissertations, Theses, and Papers

Brigade Trainers., "Brigade Operations", Lessons Learned, Brigade Operations Group, Ft. Irwin, CA.

Battalion and Brigade Battle Staff Lessons Learned, Center for Army Lessons Learned, Combined Arms Training Activity, Ft. Leavenworth, KS.

Falleson, Jon J. and Quinkert, Kathleen., "Workspace Design Handbook for Standardized Command Posts," Research Product 90-29, U.S. Army Research Institute for the Behavioral and Social Sciences, September 1990.

Gilbert, Daniel., "Heavy Brigade C2: Is The Current System Too Complex?", SAMS Monograph, Ft. Leavenworth, KS., 21 November 1988.

Gregson, W.C., "Command Posts-Living in the "V" Ring?," Individual Study Project, Naval War College, 1987.

House, Jonathan M., "Toward Combined Arms Warfare: A Survey of 20th-Century Tactics, Doctrine, and Organization." Research Survey No. 2, United States Command and General Staff College, Ft. Leavenworth, KS., 1984.

Romjue, John L., "From Active Defense to AirLand Battle; The Development of Army Doctrine 1973-1982." Tradoc Historical Monograph Series, United States Army Training and Doctrine Command, Ft. Monroe, VA, 1984.

Sajo, James R. "The Command Post: A Comparison of Tactical Command Post Doctrine of the U.S. and Soviet Armies," Master of Science in Systems Technology Thesis, Naval Postgraduate School. 1985.

Yale, Wes, "Variable Techniques of Command and Control Headquarters Combat Command", SRI Working Paper. 1960.

Interviews

Chychota, Thomas. Interview with author. Fort Leavenworth, KS. 26 October 1992.