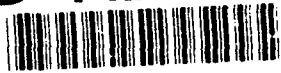


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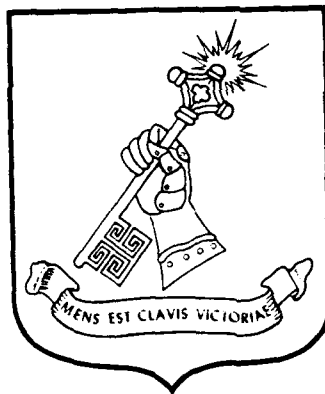
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**Can We Synchronize and Survive: A Look
At Heavy Brigade Command and Control**

**A Monograph
by**

**Major William G. Pierce
Corps of Engineers**

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

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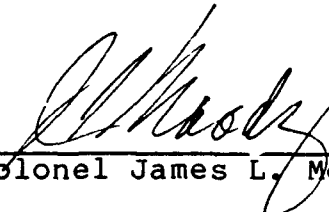
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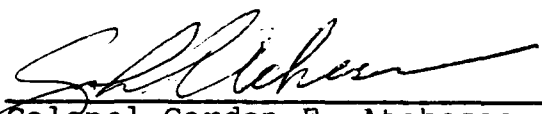
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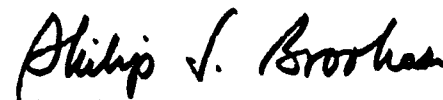
Approved by:


Colonel James L. Moody, MSBA

Monograph Director


Colonel Gordon F. Atcheson, MA

Director, School of
Advanced Military
Studies


Philip J. Brookes, Ph.D.

Director, Graduate
Degree Program



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ABSTRACT

CAN WE SYNCHRONIZE AND SURVIVE: A LOOK AT HEAVY BRIGADE COMMAND AND CONTROL by MAJ William G. Pierce, USA, 54 pages.

This monograph addresses a fundamental problem in establishing the heavy brigade command and control system. Can the facilities and organization be restructured or reorganized so that the command posts facilitate synchronization and survival? Actions that enhance survival such as frequent movement, dispersion and masking or eliminating radio transmissions are the same actions that hinder synchronization. To evaluate the facilities and organization of the command and control (C2) system, a process was adopted. This process is the command estimate process and is centered around the synchronization methodology that LTC Clyde Long developed in an MMAS in 1989.

The monograph first establishes the limitations for the study. A Soviet-type adversary in a mid- to high intensity environment is assumed. The current doctrine for brigade command and control is examined. The roles of the command posts appear to be well defined with the exception of the brigade TAC CP. Its role is not clear in the doctrine. Next, the Long model is described and the facility requirements to support the application of the model are determined. Soviet reconnaissance capabilities to locate and destroy a brigade command post are then examined. Based on the assumed threat, the brigade command posts were found to be incapable of providing continuous and efficient support to the commander while remaining covert. The command group is extremely vulnerable to destruction with no redundancy, the main CP is vulnerable to detection, and the organization does not facilitate execution of one mission while planning a future mission.

Finally, some solutions to the above problems are presented. There is no one ideal structure to support synchronization and survival given the current brigade HHC TO&E. The problem cannot be resolved satisfactorily with the current technology. Technology in the form of MSE and SINCGARS reduces the threat of detection, but the CPs are still vulnerable to a variety of threat acquisition means. Actions the brigade commander can take to minimize the risk are proposed. He should reevaluate operating doctrine of the command group, redefine the role of the TAC CP and the brigade S3, and reevaluate the positioning of the main CP.

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I. Introduction

Command and control (C2) has been subjected to a considerable amount of scrutiny in the recent past. Lieutenant General Leonard P. Wishart, Combined Arms Center Commanding General, addressed C2 in an article in Military Review where he referred to Operation Just Cause.

A synchronized combat assault simultaneously placed joint forces at dozens of different locations, totally fixed the enemy and kept casualties and collateral damage to a minimum. Realistic training prepared the units involved, while superb leadership at all echelons, decentralized command and control and superior C2 systems allowed the swift and decisive execution of this highly successful contingency operation.¹

Operation Just Cause was a success, partly because of excellent C2. The Army has also had its C2 failures. Fortunately, many of these failures occur at the National Training Center (NTC) where lives are not lost. One senior brigade trainer with twenty nine rotations had these observations:

Some units come to the NTC untrained. . . . They cannot properly move the main CP . . . or secure it. Some brigades have not clearly defined the roles of TAC CP, main and rear CPs or of key players such as the XO, S3 and S4. Some CPs lose or impede the flow of information or fail to analyze and pass information up and down the chain.²

This statement implies that some Army tactical units have not mastered C2. What exactly is command and control? Joint Publication 1-02 defines command and control as follows:

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 which are employed by a commander in planning, directing, coordinating, and controlling forces and operations in the accomplishment of the mission.³

Field Manual 100-5, Operations, does not give a definition of command and control, but describes in detail what the C2 system should do. The key to the section on C2 is the following statement, "Common to all operations -- close, deep and rear -- is the necessity for superior command and control."⁴

The above quotation from Field Manual 100-5 indicates that effective C2 is crucial to winning on the AirLand battlefield. In establishing an effective C2 structure, the commander is faced with a problem. Field Manual 101-5, Staff Organization and Operations, describes this problem. The commander must find a balance between a C2 system that is both effective and survivable. While general guidelines are given, neither the current nor the draft Field Manual 101-5 provide the commander with sufficient guidance to solve the problem.⁵

This monograph will answer the following question: Can the heavy brigade command and control facilities be restructured and the roles of each individual command post redefined so it can survive while using a specific synchronization methodology? The concepts of survivability and synchronization seem to be in opposition. Actions that support survivability of command posts tend to hinder the synchronization efforts of the staff. The answer to the above question should provide alternatives to the dilemma the brigade commander faces.

The brigade C2 system is comprised of three elements, the facilities, the process and the organization.⁶ In the research question the synchronization methodology is really the process in the

C2 system. This monograph will focus on the facilities and the organization.

Before continuing, it is necessary to define the terms survival and synchronization. Survivability operations are defined in Field Manual 101-5-1, Operational Terms and Symbols as "the development and construction of protective positions such as earth berms, dug-in positions, overhead protection and countersurveillance means to reduce the effectiveness of enemy weapon systems."⁷

The other important term in the research question is synchronization. Synchronization is one of the four tenets of AirLand Battle and is defined as:

the arrangement of battlefield activities in time, space and purpose to produce maximum relative combat power at the decisive point. Synchronization is both a process and a result. Commanders synchronize activities; they thereby produce synchronized operations.⁸

While the Army has adopted the above definition, two senior Army leaders have slightly different views on the meaning of synchronization. Brigadier General James M. Lyle, Commander of the Combined Arms Training Activity (CATA), stated "synchronization is used to describe the actions that must occur at critical times and places to achieve an intended outcome."⁹ General (R) Richard Cavazos in an interview with the Future Battle Lab stated, "synchronization means everything in its optimum time."¹⁰ Although the three definitions of synchronization are slightly different, the desired end result is the same - the effective use of all available assets. With the key terms in the research question defined, it is appropriate to look at how the study will be limited and the rationale for examining only brigade level C2.

There are two limitations in this study. The first will be to focus the study on the mid- to high intensity battlefield. This worst case environment is characterized by "chaotic, intense and highly destructive battlefields."¹¹

The second limitation addresses the threat. In spite of the decreased tensions between the Soviet Union and the United States, this study will use a Soviet-style threat as the assumed adversary. This is reasonable because the armies of several nations around the world are Soviet trained and equipped.

There are four reasons for looking only at brigade C2. The first is the complexity of planning at the brigade level. Each of the seven battlefield operating systems (BOS) are represented at the brigade level. This is not necessarily true at the battalion level where military police, intelligence and electronic warfare (IEW) and Army aviation liaison officers (LNOs) are generally not found.¹² Synchronization at the brigade level involves more assets than at battalion and is more complex.

The second reason for analyzing the brigade is the size of the staff. Unlike at division, there is no separate and distinct position for future planning. This means that the same individuals who are helping the commander control the close battle must also plan the future battle.

Survivability is the third reason for the brigade focus. The closer a command post (CP) is to the forward line of own troops (FLOT), the greater risk it assumes. The exact locations of the brigade CPs are not given in Field Manual 71-3, Armored and Mechanized Infantry Brigade. However, the brigade tactical command post (TAC CP)

is well forward in the brigade area of operations. It should be near the lead task force in the attack and forward of the battalion rear boundary in the defense.¹³

Finally, and perhaps most importantly, the brigade has an important role in the AirLand Battle Future concept. The future battlefield will require smaller, more efficient fighting elements. The direction of this effort is to develop multi-functional, highly mobile combined arms brigade packages. The brigade will become the building block for divisions and corps in this concept.¹⁴

The purpose of restructuring or redefining the roles of the brigade CP facilities is to establish a C2 system that can synchronize and survive. To judge if the current and proposed structure is adequate, a set of criteria was adopted. The criteria were based on a Soviet model documented in Taktika which outlines the essential qualities of a C2 system.¹⁵ In order to perform their C2 role, command posts must provide for continuous C2, be efficient and covert.¹⁵ In addition, all restructuring or redefining of roles will be done within the current authorizations for the brigade HHC as outlined in the L series TO&L.

This monograph is organized into seven sections. After the Introduction, Section II will outline the current brigade C2 doctrine. Section III will describe the synchronization model used in this study. Section IV will look at the facilities required to support the adopted synchronization model. Requirements for both planning and execution will be considered. In this section, a non-hostile environment will be assumed. The focus of this section is to determine if the existing structure supports synchronization. Section

V will cover the vulnerabilities of the brigade CPs to a Soviet-type threat. Section VI will propose changes to the brigade C2 facilities and organization. Section VII will conclude the study with a summary of the answer to the original research question and address the doctrinal implications of the current and proposed C2 system.

II. Brigade Command and Control Doctrine

In order to detect and analyze deficiencies in the brigade command and control system, it is necessary to understand the existing doctrine. A review of the doctrine is provided here. The majority of the C2 doctrine for the heavy brigade is found in four documents. They are Field Manual 71-3, Armored and Mechanized Infantry Brigade, FC 71-6, Battalion and Brigade Command and Control, Field Manual 101-5, Command and Control for Commanders and Staff (draft), and ARTEP 71-3-MTP, Mission Training Plan of the Heavy Brigade Command Group and Staff. This section will describe the brigade C2 facilities and organization.

There are three permanent facilities in the brigade C2 structure. They are the TAC CP, the main CP, and the rear CP. All three CPs have primary functions that are different from the others. However, there is some overlap of functions to provide redundancy. There is another temporary facility that is used by the commander and selected members of his staff. This facility is called the command group.¹⁶

The command group normally consists of the brigade commander, the S3, the FSCoord and the ALO to assist the commander during "critical periods in the battle." The command group is a highly mobile facility that allows the brigade commander to "observe the battlefield, issue appropriate orders at critical times, and influence

the battle with his personal presence."¹⁷ While not adequately addressed in the brigade field manual, Field Manual 71-100, Division Operations, states the command group should have a vehicle with communications assets allowing the commander to talk with division, the TAC CP and the task forces. In addition, the brigade command group should have the same type of vehicle as the subordinate task forces.¹⁸

This implies that the command group must move around the battlefield in armored vehicles. Regardless of who is in the command group, the choice for the brigade commander is to have all of his staff with him in his combat vehicle (M113), or have his staff move near him in soft skinned vehicles.¹⁹ Neither situation is desirable. One shot could disable the commander and key staff officers of the brigade if they all travel together, yet there is little survivability for the staff officers if they do not travel in the combat vehicle. Field Circular 71-6, Battalion and Brigade Command and Control, recognized this deficiency and proposed two more combat vehicles for the brigade HHC, one each for the S3 and the ALO.²⁰ This recommendation was not adopted in the current L series TO&E.

The TAC CP is small, highly mobile, and emits a relatively faint electronic signature. The TAC CP is manned by representatives from the current operations section. The TAC CP conducts on-going close operations, and the staff is supposed to provide the commander with critical combat information and disseminate the commander's decisions to the main CP for implementation.²¹ Other than that, the role of the TAC CP is not clear.

The roles of the main CP are extremely diverse. The main CP plans future operations; executes planned deep attacks; and

coordinates combat, CS and CSS requirements and directives from the brigade commander. It conducts operations throughout the depth of the brigade sector. The main CP is the central location of the current operations, plans, intelligence, fire support and Army Airspace Command and Control (A2C2) sections.²²

The rear CP "sustains the current operations, forecasts future CSS requirements, conducts detailed CSS planning, and serves as the entry point for units entering the brigade rear area."²³ Other than keeping the current situation map posted, FC 71-6 neither states nor implies that the rear CP will become the alternate CP or will control either the close or deep battles at any time. For this reason, the remainder of the monograph will focus on the three forward CPs.

The other aspect of the C2 system is the organization. The brigade staff is functionally organized to help plan and conduct deep, close, and rear operations. There are six functional sections in the brigade command post.²⁴ The following chart depicts the makeup of each of these sections:

<u>Current Ops</u>	<u>Plans</u>	<u>Operations Support</u>
S3	S3	S1
S2, IEW	S2, IEW	S4
air support	air support	S5
fire support	fire support	surgeon
A2C2	A2C2	chaplain
engineer	engineer	public affairs
chemical	chemical	MPs
air defense	air defense	PSYOPS
<u>Intelligence</u>	<u>Fire Support</u>	<u>A2C2</u>
S2	FSO	aviation LNO
IEWSE	ALO	air defense
	FSE	
	S3 air	
	ALO	

The above chart suggests a considerable amount of overlap between sections. It is apparent that most of the staff officers wear at least two hats. What section a staff officer is a member of is determined by what he is doing at the moment. This ambiguous division of duties has a significant impact on the ability of the brigade to execute one mission, plan another, and sustain operations.

The above section described the facilities and organization components of the brigade C2 system. The next section will describe the synchronization model that was adopted. While it could be argued that the process is more than just synchronization, the ultimate goal of the process is to develop and execute a plan that is fully synchronized. Thus, the following model, while not the whole process, is the centerpiece of it.

III. A Synchronization Model

In 1989, Major Clyde Long published an MMAS thesis that proposed a synchronization model. Although the word synchronization first appeared in and was defined in the 1982 version of Field Manual 100-5, how to synchronize operations was not addressed. Major Long contended that since synchronization is one of the tenets of Airland Battle, then "the process should be clearly defined in Army doctrine."²⁵ The objective of his study was to identify a synchronization planning model and a synchronization planning matrix. The planning methodology was focused on the task force level. However, Major Long stated that the principles involved are similar at other levels. This assertion is supported by a survey he conducted as part of his research on the applicability of his model to other levels of command (battalion through corps).²⁶

Major Long conducted an extensive literature search in the doctrinal manuals for a C2 planning methodology. His results are somewhat startling because of the contradictions and lack of definitions of the terms used in the manuals. His conclusions were:

- There is no synchronization model or process provided in any of the doctrinal manuals.
- There is no definition of battlefield activities in the doctrine and consequently no list of activities relevant to each level of command.
- Since the term battlefield activities is not defined, there is no consistent list of activities from one doctrinal publication to another. This leads to difficulty in arranging "battlefield activities" in time, space and purpose, because there is no agreement in the literature on what must be arranged.²⁷

Obviously, such confusion makes the process of synchronization extremely difficult. Without the common ground of a fixed set of battlefield activities, synchronization becomes a unit specific process instead of an Army accepted and approved methodology that is taught in the training base. While use of this model could be considered a cookbook solution, Long recognized this drawback. He admitted his model is "designed to cause the TF staff to work together during training and to learn the synchronization planning process. It is not specifically designed to be used as a field model because of the time involved. . . ." ²⁸ Thus, the model provides the framework for understanding synchronization as opposed to a recipe for battle.

While the above discussion provides the rationale for Lieutenant Colonel Long's model, it does not provide any insight as to why his model was adopted for this monograph. There are several reasons for using the Long model in any discussion of synchronization.

The first is that it is currently being taught to Command and General Staff College students in the Combined Arms Tactics Curriculum. The model is part of Student Text 100-9, The Command Estimate. The synchronization matrix appears in the Chapter 4, "Analysis of Courses of Action." At one point, it states "A synchronization matrix is another method to record the results of war gaming. This process allows the staff to synchronize a course of action across time and space in relation to the enemy's most likely course of action."²⁹ In Chapter 6, "Abbreviated Command Estimate," it states:

Since one course of action will ultimately become the basis for the command's mission oriented combat or fragmentary order, a synchronization matrix should be developed concurrent with the war gaming. The matrix helps organize combat power during planning, and, when completed, it becomes a means to visualize the time and spatial relationships among units and events to assist in synchronizing execution.³⁰

While Student Text 100-9 does not constitute doctrine, it is being taught to officers who will synchronize operations in battalions and brigades after graduation.

Field Manual 101-5, Staff Organization and Operations, is currently being rewritten with the new title Command and Control for Commanders and Staff. Student Text 100-9 will be included in the manual as Chapter 4, "The Command Estimate." Thus, when published, the Long model will become an integral part of AirLand Battle doctrine.

The final reason for selecting the Long model is its effectiveness in the field. While fairly new, the model has been used by units at the National Training Center. In a draft Center For Army Lessons Learned (CALL) pamphlet on the command and control process,

the essence of Student Text 100-9 and Long's synchronization model are used to describe how the planning process should work at the battalion and brigade level.³¹

LTC Long's first step was to define the terms battlefield activities, time, space and purpose. The battlefield activities he used are the seven battlefield operating systems (BOS) as outlined in Field Manual 100-5. Because both friendly and enemy units are constrained by time, Long felt that time should be the common denominator in the model. Space is "the terrain which is encompassed by the battlefield framework."³² Purpose was believed to be the most important word in the definition of synchronization because this is the desired end result.³³ Long considered the purpose either the mission or the commander's intent.

With the terms defined, Long constructed his model. The essence of his model is a matrix that shows the relationship of the battlefield operating systems to one another. (See page 43 for an example of the matrix). There are several key aspects of the model that are essential to the planning process.

According to Long, "the commander is the critical participant in the synchronization process because he must provide focus for the staff in the synchronization effort."³⁴ It is the commander who starts the process with his initial planning guidance and initial concept to the staff.

Both enemy and friendly activities are listed under a common time line in the matrix. Time is used as the basis for arrangement of all activities. Therefore, understanding time/distance relationships is an essential skill in using the model.

The one recurrent theme in Long's work is the constant reference to all of the staff elements working together and coordinating. He provides several examples of how the different staff sections must work with each other throughout the process. The implication here, and this is critical to the remainder of the monograph, is that the synchronization process proposed by Long requires the unit to essentially mass the staff at one location.

While the Long model is primarily a planning model, the results of the process are incorporated into the operation order. The decision points identified in the matrix become the basis for the decisions that the commander must make and the staff or subordinate units must execute during the battle.

IV. How the C2 Facilities Support Synchronization

The introduction described the three components of a C2 system: the process, the organization and the facilities. The centerpiece of the process was described in the last section. However, for the process to be effective, the application of that process must be supported by the organization and facilities. This section will examine how well the adopted synchronization process is supported by the current brigade C2 doctrine. Both planning and execution will be evaluated separately and then together. In this section the evaluation will be done without any regard for the threat. To be efficient, the C2 structure must, as a minimum, support the application of the model without the threat.

Several pages of Field Manual 71-3 are devoted to synchronization for both offensive and defensive missions. The information given describes how to arrange battlefield activities for a purpose. Time

and space are not addressed. This void on how to actually synchronize is described in several documents. They are Student Text 100-9, Field Manual 101-5 (draft) and several CALL Newsletters. While the detail is missing in the brigade doctrinal manual, it does address the criticality of involving the whole staff in the synchronization process.³⁵

Two different situations must be considered while examining the C2 process. They are the planning and execution of missions. This artificial separation is not found in the doctrinal literature, but is necessary. The actions of the staff and commander are different depending on which phase of the operation the unit is in. While synchronization for planning or execution is addressed in the available literature, synchronizing the execution of one mission while planning another at the same time is not.

The first case to be examined is the planning phase. In this situation no operations are being conducted and the total energy of the commander and staff are focused on the upcoming mission.

The initial question to answer is where the planning is done in the brigade. Field Manual 71-3 provides the answer. "The main CP plans future operations . . ."³⁶ This statement is reinforced in ARTEP 71-3-MTP. Locations for accomplishing all tasks are provided in the manual. All of the tasks associated with integrating or coordinating the planning effort are listed under the S3 section and all are done at either the main or the TAC CP.³⁷ However, only the main CP is large enough to support the planning process. Under the current TO&E the main CP is composed of four M577 command vehicles

connected together with tent extensions erected to provide the required working space for the brigade staff.³⁸

The planning process, which ultimately results in the synchronization of the plan, is described in Student Text 100-9. There are several steps in this process. They are: mission received, information to the commander and staff, mission analysis, commander's guidance, course of action development, wargaming, preparation of orders, orders approval and briefing, supervision and execution of the order. In addition to the description in Student Text 100-9, the C2 process is described in great detail in a CALL Newsletter on Battalion and Brigade Battle Staff Lessons Learned (draft). The CALL Newsletter contains more specifics relevant to the brigade based on observations from the brigade trainers at the National Training Center (NTC).³⁹

Each part of the command estimate will be examined separately. Obviously, the time available will determine how much time can be spent on each step. However, CALL's findings show that commanders and staffs shorten the C2 process by leaving out steps instead of abbreviating them. This is due to lack of detail in the doctrine on how to use the C2 process when little time is available.⁴⁰

The first step in the process is receipt of a mission from higher headquarters or the determination by the commander that a change in mission will occur based on the situation. This step usually starts with a warning order from the higher headquarters. The staff meets with the commander to receive the mission. The commander provides all the information he has concerning the intent of the higher commanders. This step requires a facility large enough for the

entire staff. It obviously may be done outdoors, but in inclement weather or at night, a facility that is covered is required.

The next step is the exchange of information between the commander and staff. The purpose of this step is to ensure that the commander and staff are aware of the current friendly and enemy situations. As in the mission receipt, a facility large enough to accommodate the whole staff is required. As part of this step, the S2 starts the IPB process. Major James Zanol, in a Master's Thesis, determined from a survey he conducted that the whole staff must contribute to all IPB products for effective synchronization.⁴¹

Mission analysis continues to involve the entire staff. A CALL document described this step. "The XO divides the order among the staff and has them determine the specified and implied missions and critical tasks."⁴² The restated mission is then determined and the first of many warning orders is disseminated. Based on this requirement, some type of communications to subordinate headquarters is needed. The warning order is sent not only to the subordinate units, but to all of the "slice" elements in the brigade.

When the commander approves the restated mission, he provides the staff with guidance to focus their efforts in the staff estimate phase.⁴³ If there is little planning time, the commander's guidance may include a sketch of a general concept of operations he wants the staff to develop. A staff back brief to the commander is also essential to the process.⁴⁴ The requirements for the sketch and the back briefs argue again for the whole staff to be assembled in one location.

The course of action development is the first time in the process that the entire staff is not required to be present in one location. This is the responsibility of the brigade S3.

The wargaming step brings the whole staff back together. This is "the step most neglected by battalion and brigade battle staffs."⁴⁵ Several sources indicate this deficiency may be the most significant problem in the entire synchronization process. This suspicion has been further confirmed by an NTC brigade trainer.⁴⁶ The key player in the wargaming is the commander. He must lead the staff in the wargaming effort.⁴⁷ This is where the Long model has great utility.

The wargaming provides the basis for the operations plan or order. During this step, the staff could theoretically work at separate locations. However, the record of the wargaming (the synchronization matrix) is the document that provides the basis for the order, so it seems reasonable to expect the staff to remain in one location to simplify coordination. Since the S3 is responsible for the production of the order, he must ensure that the body and all annexes are consistent with the commanders intent. Thus, to facilitate corrections, if needed, the staff should remain in the same location during this step.

The orders brief should be given at a vantage point over the battlefield or at the main CP.⁴⁸ Field Manual 100-5 states, "Whenever possible, subordinate leaders should receive their orders face to face from their commanders on the ground chosen for the operation."⁴⁹ The area should be large enough to accommodate 15 - 30 people.⁵⁰ This obviously requires a large area. If it is not possible to give the order on the ground, it should be done in one of the brigade CPs. Of

the three brigade CP facilities, only the main CP has enough room for an orders brief.

The orders brief is followed by a rehearsal. A CALL Lessons Learned described the importance of rehearsals. "If the plan is not rehearsed . . . name the first phase line, CHAOS."⁵¹ A CATA observation concludes, "rehearsals provide substance to the bare bones of written or oral orders and provide the foundation upon which effective synchronization is based."⁵² Several other sources to include Taktika support the need for a rehearsal.⁵³ The point is that if a sand table or walk through rehearsal is conducted at night or in inclement weather, then the only existing facility that can support the rehearsal is the main CP.

The brigade main CP is the only facility that supports the entire planning process. Throughout the planning, the commander and his staff must be present at one location to produce a plan that is fully synchronized. The next section will examine the requirements for execution of the plan.

The first area to look at during execution is the role and location of the commander. Field Manual 101-5, Command and Control for Commanders and Staff (Coordinating Draft) states:

The C2 system which supports the execution of AirLand Battle doctrine must facilitate freedom to operate, delegation of authority and leadership from any critical point on the battlefield.⁵⁴

The doctrinal statement implies there is no one facility that the commander operates from in the execution of the plan. The field manual goes on to ask the question, "Who is better able than the commander, on the ground, forward at the decisive point, to recognize

and seize the opportunity?"⁵⁵ General (R) Cavazos stated in an interview with the Future Battle Lab:

The commander does not stay in the command post. He must be able to see the battlefield. To do this he has to get information the best way he can - first hand observation and . . . listening to subordinate command nets.⁵⁶

While most sources agree that the commander should be forward, this opinion is not unanimous. Field Manual 71-3 states the brigade commander normally fights the battle from the TAC CP. A qualification does, however, support his personal presence forward at critical points such as battle handover from security forces or commitment of the reserves.⁵⁷

During planning, the commander "must identify decisions which must be made during the battle and assign responsibility for making them."⁵⁸ Some of the decisions are made for the commander because he will not be in a position to personally make them. In this situation decisions to commit resources or execute parts of the plan will be delegated to subordinate commanders or staff officers in either the main or TAC CP. An example of this could be a task force commander defending along an avenue of approach in an economy of force role. He may be delegated the authority to use artillery delivered scatterable mines when he determines that the force he is fighting is much greater than anticipated.

Long's synchronization model specifies that the main CP monitors reports from higher and adjacent units, and receives and disseminates information as it is received.⁵⁹ One observation from the NTC stipulates that the main CP assists the commander by monitoring execution of the synchronization matrix.⁶⁰ As the battle unfolds, the

main CP ensures that the critical decisions are made at the right time, by the right people. To do this effectively, the main CP must be stationary. However, it must also be stationary during several other times.

The main CP must be stationary during the reconnaissance/counterreconnaissance battle prior to the operation, and at LD time or during the final assault on the objective during the offense. On the defense, it must be stationary at the defend no later than time or upon sighting the enemy.⁶¹ The total time the brigade main CP must be in a fixed position during either planning or execution of the battle leaves few opportunities to actually move it from one location to another without significantly disrupting operations.

In short, the current structure of the brigade CPs appears to facilitate the execution of the plan. The commander has the option of operating well forward in his vehicle, working out of the TAC CP or out of the main CP where the majority of the staff is located. Thus, with planning and execution as discrete events, the structure and organization of the brigade C2 system is both efficient and supports continuous operations.

A situation requiring the brigade to plan one operation while executing another is quite another matter. A CALL newsletter claims that there will be no breaks in battle for CPs in a future war.⁶² Planning, coordinating, and controlling the battle will always be occurring. The question of how the main CP can control one battle and plan another at the same time is noticeably absent from the current doctrine. The key player in the planning (the commander) has a different role during execution of the battle and is not available to

lead the staff through the command estimate process. The responsibility for the simultaneous planning and execution of operations belongs to the S3 section.⁶³ However, the individuals intended to do both functions are not specified. The same staff members who synchronized the current plan and are monitoring the close fight cannot plan the next mission. Here the doctrine fails to provide the answer for a task it has given the brigade staff.

At the NTC, task force missions are given to units one at a time. A change of mission only comes at the end of the previous mission.⁶⁴ At the brigade level, the headquarters is planning the next mission while the task force is planning the previous mission. Theoretically, the brigade is working with two different missions at the same time, but neither the battalion nor brigade are involved in actual fighting. One brigade trainer indicated that on only one occasion (during his twenty four rotations as a brigade trainer) was the brigade given the next mission during a battle. The new order was not acted upon until the battle was over.⁶⁵

To summarize the key points, it appears that the brigade facilities and structure are efficient and can provide continuous C2 for planning or execution of a mission in a non-hostile environment. In the more likely event when the staff must plan and execute at the same time, the structure supports neither efficient nor continuous operations.

V. Brigade Command Post Survivability

The previous section examined the ability of the brigade C2 facilities and organization to support the synchronization process. That analysis was based on the best conditions possible; a

non-hostile environment. Obviously, if the structure does not support synchronization without concern for survivability, then when a threat is introduced, the ability to support effective C2 decreases. This section will review Soviet reconnaissance doctrine and capabilities. This will be followed by the vulnerabilities and capabilities of the command group, TAC CP and the main CP.

The U. S. Army has traditionally recognized the problem of command post survivability. In Field Manual 101-5, Staff Organization and Operations, the distance from the FLOT, dispersion, deception, hardening and frequent displacement can be used to increase survivability of a CP. Typically, a combination of the above methods is needed.⁶⁶ The following quote from Taktika gets to the heart of the problem:

In modern combined-arms combat, the vulnerability of command and control posts and resources to nuclear and high precision weapons, to the enemy's sabotage and reconnaissance groups is higher and radio equipment must operate in the presence of constant jamming. Moreover, the enemy's use of nuclear and high precision weapons can result in large losses of personnel in command and control organs, disruption of communications and incapacitation of subunit and unit command and control posts.⁶⁷

It is important to understand why the brigade CP facilities are vulnerable. Command posts and their associated communication systems are high priority targets. They present radio, thermal, acoustic, visual, and moving target signatures that "are relatively easy to detect even by an unsophisticated enemy."⁶⁸ A Soviet-styled attack would be anything but unsophisticated. The first area to examine is the Soviet's ground reconnaissance capability.

General V. G. Reznichenko, in Taktika states that "tactical reconnaissance is the most important form of combat support."⁶⁹ One

reason is because of the Soviet Army's reliance on battle drills at the regimental level and below.⁷⁰ To ensure unity of effort in their reconnaissance operations the chief of intelligence at the tactical level is also the chief of reconnaissance troops.⁷¹

There are extensive ground reconnaissance assets at each level of command in the Soviet Army. Included in this list of assets are 100 teams from the front SPETSNAZ brigade. At the army level are special operations companies. Each division has a reconnaissance battalion and the maneuver regiments have a reconnaissance company.⁷² This is not an all-inclusive list, but does indicate the extent of the Soviet's ground reconnaissance capabilities.

In describing the Soviet reconnaissance effort, it is essential to determine where detection of command posts falls in the list of reconnaissance priorities. Current literature suggests that the priorities for all types of reconnaissance assets are nuclear weapon delivery means, high precision weapon systems, and then C2 facilities.⁷³

The emphasis on destruction of C2 facilities carries over into forces not associated with reconnaissance. Taktika states:

A commander organizing an offensive must correctly calculate the time, clearly plan the battle and ensure prompt annihilation of the enemy's fire weapons, . . . and disorganize the enemy's troop and weapon command and control.⁷⁴

In addition to their ground reconnaissance organizations, the Soviets also use radioelectronic combat or REC to locate CPs. The Soviets define REC as "the totality of action taken by troops for the primary purpose of disorganization of enemy C2."⁷⁵ Their ground-based radio intercept and direction finding (DF) capabilities can DF a VHF

transmitter location after only 25 seconds on the air.⁷⁶ The same process requires ten minutes according to another source.⁷⁷ Regardless of the actual time, there appears to be agreement that it is only a matter of minutes before a CP using 12 Series VHF radios can be detected. These DF and intercept assets usually follow the lead regiments in an attack and can range up to 40 kilometers across the FLOT.⁷⁸ While the Soviets DF and intercept capabilities are cause for concern, technological breakthroughs in United States communications equipment have recently neutralized this aspect of REC.

The new communications equipment currently being fielded will significantly reduce the Soviet's capability to locate CPs based only on the electronic signature. Mobile Subscriber Equipment (MSE) will allow divisions to talk to their brigades with almost no signature, and at the tactical level, Single Channel Ground and Airborne Radio System (SINCGARS) renders Soviet direction finding assets virtually obsolete. Testing of MSE and SINCGARS to determine their vulnerability to Soviet direction finding and jamming is ongoing. Although the results are classified, unclassified literature indicates that these new systems are significant improvements over the old PCM and VHF radios now available to most units.⁷⁹

While the new communications equipment facilitates covert CP operations, the Soviets possess other REC assets that can detect CPs. These non-communication REC assets include the SLAR carried by the Foxbat and other fixed wing manned and unmanned aerial platforms with night vision capability.⁸⁰

In spite of advances in Soviet REC technology, any information obtained by REC, by itself, is seldom accurate enough for artillery or

other weapons targeting.⁸¹ Because of the Soviet's concern for enemy deception measures, another form of reconnaissance is generally used to verify the location of potential targets. Ground based reconnaissance is normally the final check.⁸²

As the Soviet capabilities in REC have improved, their philosophy on intelligence obtained from REC has also changed. The Soviets now favor the physical destruction as opposed to the interference aspect of REC when attacking enemy radioelectronic resources. This means that if detected, the Soviets will dedicate assets to destroy, as opposed to just jam, the command post.⁸³ With this background on the Soviet reconnaissance assets, it is now appropriate to look at the brigade CP facilities and their vulnerability to this reconnaissance effort.

The first area to look at is the command group. As previously stated, this group operates well forward. Field Manual 101-5 describes the Army's understanding of the vulnerability of the commander when it states: "The command group must have the requisite mobility, protection and communication means appropriate to the level of command."⁸⁴ This means the commander should not stand out on the battlefield. This is a problem for the current heavy brigade on two counts.

The first is that the commander is authorized an M113 personnel carrier by the current TO&E. This is even true for the brigades that have battalions equipped with M2/M3 IFVs and M1A1 tanks. While the M113 was appropriate for the old TO&E, it now puts the commander in a situation where he is easy to identify. From the enemy perspective,

an M113 forward with M2s and M1A1s will be a high priority target for engagement.

The next problem is the type of vehicles available for the remainder of the command group. The choice is for the S3, FSCCOORD, and ALO to use their own wheeled vehicles or ride with the commander in the M113. Neither choice appears to be a satisfactory solution.

The wheeled vehicles afford little protection. However, the option of having the whole command group in one armored vehicle does not seem prudent from a staff survivability standpoint. In addition, with three key members of the staff in the same vehicle, the corresponding communications equipment must also be there for the staff to assist the commander in the fight. This means more antennas. This solution only adds to the recognition problem. Soviet reconnaissance troops look specifically for antennas, either on vehicles or in static positions, as indicators of CPs or command vehicles.⁸⁵

The above dilemma on how to move the staff officers in the command group is only a problem if the command group is at risk when forward. History suggests, and experiences at the NTC confirm that commanders are at risk when they are forward. In FY 87, 27 percent of the commander's vehicles were hit by direct or indirect fire during the force-on-force engagements.⁸⁶ Although the vehicles were the task force commander's vehicles, a similar statistic could be expected for brigade commanders who are forward.

The criticality of the loss of the commander and staff officers with him could be tied to the timing of the loss. Reznichenko described the situation well when he stated, "even a short term

Interruption (in C2) introduces disorganization into troop operations. This leads to unjustified losses."⁸⁷ This disorganization would be especially acute if the loss happened early in the battle, but that is when it seems to happen a large percentage of the time at the NTC. Forty seven percent of the task force commander losses occurred within one hour of the first direct fire engagement.⁸⁸

If the command group is destroyed in a single vehicle, there is no one to assume command immediately. In fact, it could be several minutes before anyone even knows that the commander's vehicle has been hit. This lack of command continuity, no matter how short, could result in disaster. Taktika explains that brief disruptions of C2 at critical moments of the battle were one of the causes of unsuccessful outcomes in past battles.⁸⁹

The solution to the command continuity problem is provided by Taktika:

every commander must designate unofficial replacements for himself, foresee a certain reserve of communication resources (this appears to be a backup vehicle if the command group track has a maintenance problem) and be ready to assume leadership whenever the senior commander is incapacitated.⁹⁰

The above quote seems to be a prudent course of action. However, under the current heavy brigade structure, there is no one in a position to take command of the battle. An argument could be made for the brigade executive officer to assume command of the force. He is familiar with the plan, and the battalion commanders would be free to fight their battles. However, there could be a considerable amount of time before he knows that the brigade commander is out of action and would not be in a position to make critical decisions based on the situation on the ground. Therefore, because of its vulnerability and

lack of redundancy, the command group does not fulfill the requirement for continuous C2.

Moving back from the FLOT, the TAC CP is the next brigade C2 facility. Based on its small size, ability to move frequently, and distance from the FLOT, it will be extremely difficult to locate with REC and reconnaissance assets.⁹¹ Thus, while it seems that the TAC CP is extremely survivable its function on the battlefield is another matter.

The role of the TAC CP was described in Section II. There is one problem with the TAC CP as currently outlined in the doctrine. It does not have the manning to operate continuously. The TAC CP is manned by nine personnel.⁹² In a monograph Major Daniel J. Gilbert determined that nine soldiers are an insufficient number to conduct continuous operations after a period of three days.⁹³

On the plus side, the TAC CP provides capabilities to the brigade commander that he does not have in his armored vehicle. The TAC CP has the tactical computer terminal (TCT) element of the Maneuver Control System (MCS) and a facsimile capability as part of MSE. This capability provides the commander the means to send and receive hard copy messages and graphics. Thus, the TAC CP has the requisite communications equipment to disseminate decisions by the brigade commander while remaining relatively safe due to its size and signature.

The TAC CP can support the brigade commander, but it does not have the staffing for continuous or efficient operations. At the NTC the brigade TAC CP rarely does anything during the battle, and during

planning, the TAC CP relocates to the vicinity of the main CP. It usually serves as the sleeping quarters for the brigade commander.⁹⁴

The next C2 facility to examine is the brigade main CP. This is a relatively large facility when compared to the TAC CP. The main CP consists of five M577 command tracks and in excess of fourteen vehicles for the staff officers. LTG John Woodmansee, in his interview with the Future Battle Lab, commented that command posts can not be down for a considerable period (duration not given) and can not have a large signature.⁹⁵ Mobile Subscriber Equipment (MSE) and SINCGARS help eliminate the ELINT signature of the main CP. The problems of visual, thermal, acoustic, and moving target signatures, however, remain. There are approximately fifty personnel (to include most of the staff officers) in a 200 by 200 meter square.⁹⁶ Once detected by any means, the main CP will be easy to destroy. One method to increase the CP survivability is to dig it in.

While the concept appears sound, digging in a command post will not provide sufficient protection to maintain continuous C2 support for the brigade. Using the norms from Field Manual 100-2-1, the Soviets plan to fire 200 rounds per hectare to neutralize a command post that is dug in.⁹⁷ Assuming a uniform distribution of rounds in the target area (200 X 200 meter area), that equates to one round in every 50 square meter area. A M577 with the extension erected covers approximately 26 square meters. Using this area the probability of a direct hit from a 122 or 130 mm artillery round on one M577 is 26/50 or 52 percent and digging in a vehicle does not protect it from a direct hit. If the M577s are placed close together, the probability of a direct hit on one of them goes up significantly.

From the above analysis, the ability to protect the main CP from indirect fire once it is detected is very small. The obvious solution is to keep it from being detected in the first place. There are two methods to help prevent detection of the main CP. They are frequent movement and dispersion.

Frequent movement is a possible solution. Reconnaissance units will be used to confirm the collection of other intelligence acquisition means. The time lag between detection by REC and confirmation by ground reconnaissance argues for moving the main CP as often as possible. However, as previously stated, the main CP must be stationary throughout the planning process and at critical times during the battle leaving few opportunities to move it.

Dispersion appears to be the key to survival. Admittedly, ground reconnaissance forces are still a threat to command posts. Once detected, they may attempt to destroy the CP or call for other means such as field artillery or air assets. But in spite of the Soviet recon priorities listed above, at the division level, their primary mission is to check routes and bypass enemy after pinpointing their location.⁹⁸ At the regimental level, recon patrols are the "eyes and ears" of the commander. Their purpose is to provide information about the enemy location, composition and formations.⁹⁹ Thus, if the command posts are not positioned near likely avenues of approach or near combat forces, there is a good chance that recon elements will never detect the command posts.

The current size and configuration of the main CP make it extremely vulnerable to detection by visual and thermal means. The

Soviets would be hard pressed to find a facility forward of the brigade rear that has as many vehicles in a similar area.

As Gilbert points out, the brigade main CP can not defend itself well against a ground attack.¹⁰⁰ The demands of continuous operations coupled with the austere manning levels at the main CP make security efforts difficult. Brigade main CP defenses at the NTC usually consist of several observation posts around the CP and a reaction force consisting of off duty shift personnel. Occasionally, a combat unit (usually a squad) is taken from a task force to guard the main CP. However, this dedicated security force is short-lived. The brigade commander usually sends the unit forward to its parent unit because of the training missed while guarding the main CP.¹⁰¹

In spite of the improvement in communication means with MSE and SINGARS, there are still several areas that remain as significant vulnerabilities for the brigade main CP. The main CP, as described in section II and IV, is a facility that can support C2 efforts continuously and efficiently during either planning or execution, but is neither continuous nor efficient when it has to do both. In addition, the main CP does not support covert C2. It would be easy to detect by several Soviet reconnaissance assets and then destroyed. This would significantly degrade the brigade's ability to synchronize combat power. Section VI will address how the CP structure can be altered to meet the requirements for synchronization and at the same time, increase the likelihood of the brigade CPs surviving.

VI. Analysis

The previous evidence suggests that the brigade C2 structure as described in doctrine cannot satisfy the criteria of continuous,

efficient, and covert C2. This section will look at possible solutions to the problem. Unfortunately, the solutions cannot solve all of the problems equally well. Not only are the requirements to synchronize and survive in opposition, but they are totally incompatible with each other. It appears that the Army has made significant progress in improving synchronization at the brigade level. This is based on the recent and draft publications in the Combined Arms Center and CALL concerning the command estimate process. It is also true that the communications equipment being fielded will significantly improve the survivability of the command post. However, there still are several deficiencies in the structure. Each facility will be addressed in turn.

The command group was found to be efficient, but is extremely vulnerable. This vulnerability, if exploited, would leave the brigade without a leader forward on the battlefield. This violates the criterion of continuity. Experiences from the NTC suggest that the commander must have a wingman to ensure continuity of command if his vehicle gets hit or breaks down.¹⁰²

The brigade FSCoord, in a separate armored vehicle (M113), could serve as the commander's wingman. However, the fire support synchronization suffers significantly if the FSCoord is not in the same vehicle with the brigade commander. Using the FSCoord as the wingman would help solve the continuity problem, but would result in a decrease in efficiency.¹⁰³

CALL has not addressed the problem of commander survivability at the brigade level. Some insight toward a solution is provided by the task force lessons learned. At the task force level, if the S3 (who

does have an armored vehicle) is not near the commander, the commander must position himself near a team commander. The solution to the brigade problem seems similar to the one at task force level. The brigade commander must position himself near one of the task force commanders. This would logically be in the zone of the main attack in the offense or in the most threatened sector in the defense. The task force commander would be in a position to take over the brigade fight immediately. However, he must fully understand the brigade commander's intent and have some form of the brigade's decision support template with him. This will enable him to make the critical and timely decisions. There is a problem with this solution. It may be asking too much of the task force commander of the main attack on offense or the main effort on defense to fight the brigade battle while he turns his battalion battle over to his S3 or XO.

An attractive alternative is to use the commander of the reserve as the brigade commander's wingman. He would be in a position to understand the current situation when his unit is committed and he is not actively engaged in the close fight.

Special emphasis on assumption of command could easily be worked into the rehearsals at the brigade level. All of the task force commanders would be at the rehearsal and the one who was designated to take command would rehearse not only the specifics of his unit's plan, but also the brigade plan.

The TAC CPs doctrinal role is unclear and at the NTC its capabilities are frequently ignored. Its use as a home base for the command group appears to be a waste of capability. There are three functions the TAC CP can perform to improve the brigade's C2. They

are relaying information between the main CP and the command group, providing the net control station for the brigade while the main CP is relocating, and providing a working area for the command group.

When the commander is forward, contact with the main CP may be difficult. The MSE system is designed to allow command posts to set up in low ground. This does not create a problem for communications with division or other brigade headquarters. However, for communication with the task forces and combat support elements, VHF radio is used and low areas hinder VHF communication. Although the commander has both SINCGARS and MSE in his vehicle, the range of the MSE and line of sight requirements for SINCGARS may prevent communication with the main. In this situation the commander is able to relay instructions or receive information through the TAC CP.

Regardless of the effect relocating has on the planning or execution of the brigade plan, the brigade main CP must be moved to minimize detection efforts. Gilbert used his experience when he specified once a day as a minimum.¹⁰⁴ When the main moves, there must be some facility that can maintain constant communication with higher headquarters and the subordinate units. The TAC CP serves this function. This helps to maintain continuous C2 during movement of the main CP.

The TAC CP provides an excellent working area for the command group when not forward. This is primarily because of the previously described communications assets at the TAC. These assets facilitate efficient operations. The commander can provide sketches, graphics, and guidance to the staff at the main without having to make the trip.¹⁰⁵ Thus while the role of the TAC CP is not well defined in

doctrine, this facility does have tremendous utility in the brigade C2 scheme.

The main CP suffers two primary problems. It is not a covert C2 facility anytime and is not capable of continuous or efficient operations when the brigade must plan one operation and execute another at the same time. The emphasis is on coordination and synchronization at the expense of covertness appears to be the correct direction according to the Soviet view of C2. Taktika concludes "coordination is the most important prerequisite of success in modern combat."¹⁰⁶ Yet, the penalty for detection of a command post is extremely high. The structure of the brigade main CP facility shows little regard for covertness. This structure problem is exacerbated by the way brigade CPs train at the NTC.

LTG E. S. Leland, former commander of the NTC and 1st Armored Division, believed in devising courses of action to counter the enemy's most likely course of action, and the most dangerous course of action.¹⁰⁷ This is not done by brigade headquarters at the NTC. All of the brigade main CPs at the NTC set up similar to what is suggested by the standard command post initiative with all M577s in one location. Occasionally, the main is detected by electronic intelligence from a threat airborne platform (EC 130) but no other airborne reconnaissance assets similar to those available to Soviet commanders are used. This lack of threat reconnaissance capability would seem to give units a false sense of security. Even if the acquisition assets that the Soviets possess are not available to the NTC, the controllers could still simulate the acquisition and then conduct attacks on the CPs. The problem, according to Major Doug

Dillard from CAC Threats, is that CP survivability is not stressed because the blue units do not want it evaluated.¹⁰⁸ If CP survivability is not on a training unit's Mission Essential Task List (METL) then it will not be stressed.

The function of the main CP during execution is to forward information to the commander from higher and adjacent units.¹⁰⁹ The main CP also synchronizes the battle by monitoring the execution of the synchronization matrix.¹¹⁰ To minimize the amount of time that the main CP M577s are together, dispersion during planning or execution or both must be considered.

One dispersion option during planning is to construct a facility using tents to do the coordination and orders briefings away from the TOC. While this solves one problem, it creates another. This solution ignores the dynamic nature of the planning process. Continuous situational updates are essential throughout planning. Separating the staff from their communications means would result in a plan based on old information. While it is possible to remote the radios from the vehicles, the TCT and the fax are still not readily available at this ad hoc planning facility. The end result is a facility almost as big as the main CP with a degraded communications capability.

Another dispersion option is to mass the staff in one location for the planning process and disperse them during the execution of the plan. The MSE system allows vehicles to disperse from the main switchboard up to 400 meters for data transmission and two and one half miles for voice transmissions.¹¹¹ This results in significant dispersion capability without loss of the MSE communication. While

the individual vehicles would still be visible to infrared or thermal reconnaissance means, their dispersion would make them difficult to identify as a command post. If one cell is detected and attacked, it would not cripple the whole command post structure.

While the above option is attractive, there are some problems with it. The first is all of the staff members must keep abreast of the current situation. This includes their own BOS and the friendly and enemy situation. When the main CP is together, it is relatively easy to update the staff through frequent briefings by the current operations staff. The information for these briefings is gathered from the brigade or division command nets or through the use of an electronic "directed telescope" when the brigade eavesdrops on the battalion nets. With a dispersed CP dissemination of information is no longer simple. Frequent calls from the current operations officer could keep the rest of the staff informed. In practice, however, it is unrealistic to expect the current operations shift officer to make frequent calls to the CP cells to disseminate or gather information. The second method for the staff to keep up with the situation is to monitor the brigade command and operations/intelligence nets. This is not an ideal situation either because of the limited number of radios available to each staff section.

While operations with a dispersed CP are possible, the brigade will pay a significant penalty in synchronization. Observations from the NTC confirm this notion. The staff at the brigade main CP must coordinate face to face not only in planning, but in the execution or the result will be a "completely unsynchronized" plan.¹¹²

The lack of middle ground where the brigade main CP is survivable and at the same time in a position to synchronize represents a significant C2 deficiency. An unsynchronized plan will guarantee mission failure at the NTC and commanders are unwilling to forfeit complete synchronization for the sake of security. There are some steps the main CP can take to enhance its survivability. Most of these are obvious but are still worth repeating. They are:

- Place the CP where it is shielded by a terrain feature. While SINCGARS communication may not be able to communicate with the command group, MSE allows for communications from very low points on the battlefield. The commander may not always be in range but judicious placement of the TAC CP acting as a relay could solve this problem. Such shielding would further degrade the acquisition capabilities of standoff reconnaissance aircraft.

- Keep the main CP out of medium artillery range. While this exacerbates the communications problem, once detected, the main would not survive an artillery attack no matter how well dug in it was.

There is no good solution to the problem of simultaneous planning and execution without a significant change in the TO&E, but the brigade can help itself. If the mission is received during a battle, it will normally come through MSE verbally, through the fax, or the TCT. While not available in the commander's M113, the fax and TCT are in the TAC CP. Once received, the staff can begin mission analysis at the main and send the division order and its mission analysis to the TAC CP for approval by the commander during a lull in the battle. Although most of the staff at the main are fighting the battle, there is one staff officer who has the experience and

capability to begin the planning process without detracting from the current battle. This is the brigade S3. There is no place or need for him in the command group. Without an armored vehicle, he cannot operate forward and synchronization during the battle takes place at the main under the direction of the brigade XO. The brigade S3 is in an ideal position to start the planning process from either the main CP or the TAC CP. His section is responsible for planning and orders development, and he is more experienced than any of his subordinates.

This section examined how the three forward brigade C2 facilities can better support efficient, continuous and covert C2. None of the three facilities are ideally suited to synchronize and survive, and some degradation in efficiency must be accepted to ensure C2 survivability.

VII. Conclusions and Doctrinal Implications

This monograph has examined the problem of survivability versus synchronization for a heavy brigade C2 system. This problem is recognized in the Army's doctrinal literature. However, no solutions to the dilemma are provided. Units at the National Training Center have difficulty with the command estimate process. The result has been several publications devoted primarily to tactical synchronization without regard for survivability. As a result of this emphasis on synchronization, brigade staffs have done a better job of planning using the command estimate process in the recent past.¹¹³

The roles and capabilities of three of the brigade CP facilities were described. The brigade facilities and organization, in general, support continuous and efficient C2. Exceptions are noted below. However, the achievement of efficiency is offset by an extremely

vulnerable structure. The brigade main CP, the central planning location is not a covert facility. Actions to improve its survivability will decrease its efficiency. Some solutions are presented to alleviate this problem.

The commander must have a wingman to ensure command continuity when he is forward with the command group. Staff officers who move forward in soft-skinned wheeled vehicles will not survive. The commander must position himself near a leader who can take command of the battle immediately if the commander's vehicle is hit by fire or breaks down.

The TAC CP does not have a well defined role in doctrine and in practice is not used during battles at the NTC. Although the TAC CP does not have a big staff, it is a covert facility that has a tremendous communications capability that can support the brigade C2 effort. It should be used as a relay between the command group and the main CP, as the NCS when the main moves, and as a home base and planning facility for the command group.

There are several problems associated with the main CP. It does not support efficient or continuous planning, and is not a covert facility. To reduce the main CP's vulnerability, it should be positioned so that it is masked by a terrain feature, and is out of medium artillery range. The main must be stationary for extended periods of time during planning and execution but must move whenever it can. In spite of advances in communications technology, the brigade main can not operate as a dispersed CP without a significant loss in efficiency.

The S3 should be designated the brigade planner. His role is not well defined in doctrine and without an armored vehicle, his utility forward during a battle is doubtful. He has the experience to start planning for the next battle while the remainder of the staff fight the current battle. This forward looking approach would increase the agility of the brigade.

There are several doctrinal implications derived from this study. The brigade CP must have a separate planning cell. While this would result in increased spaces in the TO&E, the new communication equipment could conceivably eliminate the need for some LNOs which would provide more personnel spaces.

The brigade needs at least one more armored vehicle for the command group. This vehicle would be used to ensure command continuity for the brigade without tying the brigade commander to his subordinates.

If each staff officer had additional radios to monitor their nets and the brigade nets, then operations as a dispersed CP, while resulting in decreased efficiency, will significantly improve survivability of the CP.

The proposed solutions to the synchronize or survive dilemma are not drastic changes. They should result in a marked improvement in the ability of the brigade staff to support the commander in fighting the battle. One impediment to continued improvement in CP survivability appears to be how units perceive the threat capabilities to detect and destroy CPs at the NTC. Units will train to the NTC standard. While the answer to the question "How vulnerable are the brigade facilities to detection by a Soviet-type threat?" can not be

answered definitively, there are indications that the units training at our premiere combat training center are getting a false picture of Soviet equipped forces reconnaissance capabilities. This could result in disaster for the units in Saudi Arabia if war breaks out.

The Long Synchronization Matrix

	E-4	E-BOVE	E-1	E-2	E-3	E-4	E-5	E-6	E-7	E-8
TIME	000001	000100	05	06	07	08	09	10	11	12
I	E C									
	D O									
B	A									
T	RAI (NAMED AREA OF INTEREST)									
E	TAI (TARGET AREA OF INTEREST)									
L	COLLECTION ASSET									
	PIR/ID									
M	SEC									
A										
S	R									
E	B									
V	A									
V										
E	RES									
E										
	DEEP									
	FEAR									
F	(DS)									
I										
E	(E)									
E										
	MORTARS									
E	MOB									
E										
O	CM									
E										
	SUR									
A										
D	STINGER									
A										
	VULCAN									
C	RAI									
S	FUEL									
S	ARM									
	FIX									
	TRANSPORT									
	MOVE									
C	CMO CP									
A										
C	MAIS CP									
	TAC CP									
	DECISION									
	POINTS									

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