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Campaign Synergism: Operational Level Combat Power

A Monograph
by

Lieutenant Colonel Hugh F. T. Hoffman
Infantry

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School of Advanced Military Studies
United States Army Command and General Staff College
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Approved by:

Lieutenant Colonel James L. Moody, M.S. — Monograph Director

Colonel William H. Janes, M.A., M.M.A.S. — Director, School of Advanced Military Studies

Philip J. Brookes, Ph.D. — Director, Graduate Degree Programs

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ABSTRACT

CAMPAIGN SYNERGISM: OPERATIONAL LEVEL COMBAT POWER by LTC Hugh F.T. Hoffman III, USA, 51 pages.

Is the nature of winning at the operational level different than that of the tactical level? The author explores this question and determines that there is a fundamental difference that cannot be explained by the combat power model presented in FM 100-5 and further elaborated upon in Brigadier General Huba Wass de Czege's essay, "Understanding and Developing Combat Power." He concludes that there is another dynamic that overarches the combat power model at the operational level. The elements of combat power, while useful in explaining particular tactical phenomena in major operations and campaigns, do not account for the synergistic nature of many operational level actions. Often the sum of a whole campaign is greater than the sum of its individual battles or major operations. Accordingly, LTC Hoffman presents the outline of a model for Campaign Synergism, the operational level counterpart to combat power, that seeks to explain the synergistic nature of the operational level of war. In coming to his conclusions, the author examines FM 100-5 and the works of BG Wass de Czege, Mr. Jim Schneider, J.F.C. Fuller, and several other contemporary authorities on the operational level of war.

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INTRODUCTION

Is it possible to lose the majority of the battles or major operations in a campaign and still win the campaign? Is it possible to lose more campaigns than you win and still win a war?[1] What about the converse? Can an army win the majority of battles or major operations in a campaign and still lose the campaign? Can it win the majority of the campaigns of a war and still lose? If you answer "yes" to any of these questions, then perhaps you can share my quandary over the concept of combat power expressed in FM 100-5: Operations and further explained in Brigadier General Huba Wass de Czege's essay, "Understanding and Developing Combat Power."

My puzzlement concerns the relationship of achieving superior combat power against an enemy and winning at the operational level of war. At the tactical level, it seems that superior combat power invariably brings about tactical victory. General Wass de Czege's Relative Combat Model, in particular, is a most useful analytical tool for evaluating tactical actions and determining their outcomes. The generation of superior relative combat power at the decisive place and time in the battle directly translates to victory.

At the operational level, however, generating superior combat power at the decisive place and time and translating it into a campaign victory is less straightforward. First, victory is not measured solely in military outcomes. The military outcomes must support the attainment of both military and political strategic ends. Second, campaigns are drawn out in both time and space. This means that there is potential for multiple decisive points and that superior combat power must be sustained over far greater periods of time than at the tactical level. Operational level forces almost inevitably will reach a culminating point, either offensively or defensively, sometime during a campaign. Moreover, actions are taking place at other than the decisive place and time to ensure that the enemy cannot shift the relative combat power advantage to his side at the decisive place and time.

Finally, what one attempts to do to the enemy at the operational level in attaining victory is quite different from what one tries to do

at the tactical level. That is, the focus is different. The operational commander is not only concerned with physically destroying or defeating his enemy (like the tactical commander), but he is also concerned with setting the conditions for that physical defeat to be possible.[2] In fact, the latter concern, which is a *second order* concern, is the more important of the two.

The operational level commander is more akin to the chess player, who attempts to orchestrate all the pieces on the board holistically so that individual actions on the chessboard result not only in winning particular pieces but also in checkmating his opponent.[3] In a very real sense the operational commander is in a chess game with his opposite number. Hence, his main objective is to defeat his opponent's "game plan" and present him ultimately only with choices that lead to further tactical defeat and eventual "checkmate." His ultimate aim is to present the opposing operational commander with a set of alternatives, all of which evidently lead to defeat. This presentation of the enemy commander with a *fait accompli*, in turn, undermines his will to continue and should drive him to concede defeat. Consequently, operational level warfare is as much about defeating the enemy's plan as it is about causing the enemy's physical destruction. At the operational level, the former ideally leads to the latter.

With this in mind, one can begin to appreciate my misgivings about using the concept of combat power at the operational level other than in a very restricted way. Combat power ultimately is about *physical defeat* of the enemy, and that is only part of the problem at the operational level.[4] So, intuitively at least, the foregoing points suggest that U.S. doctrine needs an overarching concept at the operational level to do what the Relative Combat Power Model does at the tactical level.

Theories and models are only good as long as they explain adequately the phenomena they purport to explain. When they cannot explain or predict phenomena that they are designed to address, or they explain or predict phenomena incorrectly, then they need revamping or overhauling. It is my contention that the dynamics of combat power and the Relative Combat Model do not adequately address the dynamics of the application of force at the operational level. Accordingly, the

purposes of this monograph are twofold. First, it will show that the Relative Combat Power Model is a concept that has primary utility at the tactical level of war and only secondary utility at the operational level of war. Second, it will endeavor to determine what is required of a concept that serves the same purpose at the operational level of war as the Relative Combat Power Model does at the tactical level. The key concepts of operational design enumerated in FM 100-5, supplemented by key operational concepts in Jim Schneider's "The Theory of Operational Art" and J.F.C. Fuller's Foundations of the Science of War, will provide the framework to examine the combat power model and develop a model that supplants the combat power model at the operational level.

THE RELATIVE COMBAT POWER MODEL

In U.S. Army doctrine, the dynamics of combat power are the critical determinants in deciding which opponent prevails in campaigns, major operations, battles and engagements.[5] Combat power, in other words, is about winning in combat. FM 100-5 defines combat power this way:

> Combat power is the ability to fight. It measures the effect created by combining maneuver, firepower, protection, and leadership in combat actions against an enemy in war.[6]

Brigadier General Huba Wass de Czege, one of the co-authors of the current version of FM 100-5 goes on to say in his essay, "Understanding and Developing Combat Power," that combat power only has meaning in a relational sense.[7] That is, it only makes sense to discuss a unit's combat power relative to that of its opponent. Moreover, combat power is an *effect*, both physical and moral, that an army's combat actions have on its enemy at a *decisive time and place on the battlefield.* The key here for both General Wass de Czege and the other authors of FM 100-5 is that superior relative combat power at the "point of decision" determines the outcome of engagements, battles, major operations, and campaigns.[8]

Clearly then, the authors of FM 100-5 believe that the concept of combat power is applicable both at the tactical and the operational level of war and that both levels are equally served by the same combat power model that is outlined in FM 100-5 and described in detail in General Wass de Czege's essay. Upon initial reflection the tendency is to agree with FM 100-5 and say that the model is adequate for both the tactical and operational levels of war. Further study of the operational level of war, however, leaves this author, at least, with lingering doubts about the efficacy of the Combat Power Model in serving both levels of war adequately. Before addressing my concerns, however, we would do well in reviewing the dynamics of combat power as expressed in FM 100-5 and General Wass de Czege's essay.

Both General Wass de Czege and FM 100-5 are very explicit in stating that, first, combat power is the ability to fight, and second, it measures the combined effect of maneuver, firepower, protection, and leadership on the enemy in hostile action. In turn, it also measures

the enemy's ability to impair our capability of bringing these four elements to bear on him by his employing his own maneuver, firepower, protection, and leadership to the best combined effect. General Wass de Czege, in particular, believes that a relative combat power model can be constructed to help the combat commander analyze and predict the outcome of battle. We predict the outcome of battle in his model by first measuring the effects our maneuver, firepower, protection, and leadership have on degrading the enemy's combat power and then by balancing that effect with the effect the enemy's elements of combat power have on degrading our combat power. Of the four elements of combat power, leadership is the most important. It acts as the multiplier in the model. The equation below represents the model schematically.

THE RELATIVE COMBAT POWER MODEL[9]

$L_f(F_f+M_f+P_f-D_e) - L_e(F_e+M_e+P_e-D_f)$ = The Outcome of the Battle

L_f= friendly leadership effect	L_e= enemy leadership effect
F_f= friendly firepower effect	F_e= enemy firepower effect
M_f= friendly maneuver effect	M_e= enemy maneuver effect
D_e= enemy degradation of friendly firepower, maneuver and protection effects	D_f= friendly degradation of enemy firepower, maneuver and protection effects

Figure 1

In short, the outcome of the battle is the difference between our combat power and that of our enemy.

General Wass de Czege is careful to point out that this model is not a precise mathematical tool Rather its primary function is to serve as an analytical framework for considering a wide range of combat variables and their impact on battle. Many of these variables are not measurable with any degree of certainty because they are qualitative in nature. Still, the analytic process is useful and can give us important and useful insights. As General Wass de Czege puts it, "[the relative combat model] is designed to assist the leader (or his staff officers) in asking the right questions about what to do to win."[10]

As mentioned earlier, General Wass de Czege and FM 100-5 indicate that the dynamics of combat power apply both at the operational and tactical levels of war.[11] In attempting to understand how this might be so, we need to look briefly at each of the elements individually and

see how they are supposed to apply to both levels of war. Maneuver is the first element of the model we will examine.

MANEUVER. FM 100-5 defines maneuver as "the movement of forces in relation to the enemy to secure or retain positional advantage."[12] Its primary function is to bring together the concentration of force at the decisive point in the battle or campaign to achieve physical and moral ascendancy over the enemy through surprise, shock action, and superior positioning. Successful maneuver involves engaging the enemy (or avoiding engaging him) in such a way that the effects of our own firepower is optimized while the enemy's is significantly diminished. The relative positional advantage that maneuver gives a force allows it to bring its firepower to bear in the most effective way against the enemy at the decisive place and time.[13] According to General Wass de Czege, maneuver has four major subcomponents: (1) unit mobility, (2) tactical and operational analysis, (3) management of resources, and (4) command, control, communications, and intelligence.[14]

FM 100-5 recognizes both tactical and operational level maneuver. Operational maneuver has as its purpose to position major forces before battle in the most advantageous place possible so that the chances for tactical success once the battle is joined are the greatest. It also is critical in exploiting tactical success, once attained, to achieve operational goals.[15]

Tactical maneuver, on the other hand, is primarily concerned with setting the terms of combat in a battle or engagement. It is the moving or positioning of combat power on the battlefield where it will do the most good at the critical junctures of the battle. Its object is to present the enemy with a continually changing foe whose actions make it difficult, if not impossible, to react quickly and effectively against.[16]

Maneuver, of course, is exceptionally difficult at either level of war without protection and firepower. Conversely, maneuver enhances both firepower and protection at both levels. That theirs is a symbiotic relationship should not be lost on the student of war. With this in mind, let's turn to a discussion of firepower.

FIREPOWER. Firepower is the primary destructive force in combat. Its purpose is to destroy, disrupt, neutralize, or suppress enemy

forces and thereby nullify their ability and desire to fight. It can be directed against committed or uncommitted forces. Moreover, it makes possible and exploits maneuver.[17] General Wass de Czege claims that firepower is a function of five variables: (1) volume of fire, (2) lethality of fire, (3) accuracy of fire, (4) the ability to acquire targets, and (5) flexibility of employment.[18]

Tactical fires are directed primarily against enemy forces committed inside the Corps Fire Support Coordination Line (FSCL). They facilitate tactical maneuver. Operational fires are directed against major troop concentrations and key command and control facilities. They destroy, disrupt, delay, or neutralize enemy follow-on-forces typically located beyond the FSCL, and they degrade or destroy enemy air, air defense, and artillery capabilities. Finally, they disrupt or deny the sustainment of enemy forces in the main battle area by attacking major supply or transportation nodes.[19]

PROTECTION. FM 100-5 defines protection as "the conservation of the fighting potential of a force so that it can be applied at the decisive time and place."[20] Commanders are charged with shielding the force both on the battlefield and on the way to and from it. There are two forms of protection. One is concerned with degrading the enemy's ability to use his firepower and maneuver to identify and destroy our own soldiers and systems. Units protect themselves through security, dispersal, cover, camouflage, air defense, deception, mobility, and suppression of enemy weapons. The main difference between the tactical and operational levels in this regard is largely one of scale.[21] General Wass de Czege groups the variables mentioned above into three categories: (1) concealment, (2) exposure limitation, and (3) damage limitation.[22]

The second form of protection revolves around the actions taken to sustain soldier health and morale. Elemental in protecting soldiers' health and morale is ensuring that the enemy is unable to damage or destroy essential equipment and supplies. Tactical commanders are primarily concerned with developing unit cohesion and esprit through ensuring that their soldiers' basic physiological and psychological needs are met. They are particularly involved with minimizing, to the extent possible, their soldiers' needless exposure to conditions that

weaken them. Unit maintenance of equipment and husbanding of supplies also fall under their responsibility.[23]

Operational commanders, on the other hand, are more systems oriented. That is, they ensure that good medical evacuation and hospital systems are in place to take care of that force. They institute policies and procedures that prevent disease. They take measures to protect stockpiles of supplies and to ensure their rapid and correct distribution to those units that most need them. Moreover, they establish priorities in times of shortages. Finally, they establish maintenance systems that ensure the rapid evacuation, repair, and/or replacement of critical equipment and weapons systems.[24]

LEADERSHIP. Leadership is the linchpin of the model. Strong leaders give guidance and direction to their units and motivate their soldiers to execute orders that are inherently dangerous and distasteful. They ensure that the other three elements of the model are properly balanced for the conditions their units face. In this respect clear, relatively simple, and effective operations plans are essential for the proper employment of firepower, maneuver, and protection.[25]

Tactical commanders have the fundamental responsibility of getting soldiers to perform their assigned battle tasks under stressful and hazardous conditions.[26] The difference between good and poor leadership at this level can have a tremendous impact on unit combat power. General Wass de Czege considers it so important that it is a combat multiplier in his model. Tactical leadership is primarily oriented toward the effective execution of combat missions. The importance of competent and effective junior leaders in this regard cannot be overstated.

Neither FM 100-5 nor General Wass de Czege address operational level leadership explicitly. Nevertheless, operational leadership is more removed from the battlefield than tactical leadership. Its focus is on imparting a vision of how the campaign should be fought and what its end state should be, that is, the commander's intent and concept of the operation.[27] The operational commander is concerned with the long term direction of the organization and its achieving its assigned operational goals. Hence, his leadership focuses on the inculcation of

his will and intent in his major subordinate commanders. Ideally this process, in turn, ensures that his will and intent are promulgated throughout the army.

This relatively cursory review of the dynamics of combat power is sufficient for a basic understanding of how the authors of U.S. doctrine see the elements of combat power interacting, their role in the determination of the outcomes of tactical and operational level combat actions, and their differences at the tactical and operational levels. With this fundamental groundwork completed, we can begin to explore my essential concerns about the role of the combat power model in our doctrine.

SOME CONCERNS ABOUT THE RELATIVE COMBAT POWER MODEL. Earlier I stated that I have some lingering doubts about the efficacy of the Relative Combat Power Model in serving both the tactical and operational levels of war adequately. My doubts stem from the essential differences between the tactical and operational levels of war. The two levels of war differ in several fundamental and profound ways. First, there is a political element in the operational level of war that plays at best only a small role in the tactical level of war. It is not just that the operational aims of a campaign must serve the pursuit of the political goals of the war. There is also a moral impact that the political will of the government and its citizens have on the army in the prosecution of its operational goals.

A second and equally important difference is the sheer vastness and magnitude of the time and space involved in campaigns and major operations. It is difficult to come to grips with exactly what is a "point of decision" in a campaign or a major operation. Is it an engagement area, a particular battlefield, a series of battlefields over a period of time, or the theater of operations itself? Moreover, is the "point of decision" a place or a point in time? Or both? With the need to strike the enemy simultaneously throughout the width, depth, and heighth of the battle area to achieve a complementary effect, is it even meaningful to talk of a "point of decision" at the operational level of war?

A third vital difference is what "winning" means at the two different levels of war. Winning and losing at the tactical level is

far more tangible and readily quantifiable than at the operational level. When a unit wins a tactical battle, its enemy quits.[28] The tactical commander can observe the enemy withdraw from the battle area. In the defense, he has driven him off. In the offense, he has overrun the enemy's position. The enemy is either dead, incapacitated, surrendering, or withdrawing-- usually a combination of all four.

Since winning at the operational level is necessarily tied to the strategic political ends a nation seeks in prosecuting a war, *pure military victory* in a series of battles and major operations may not translate to victory in a campaign because it may not further the ends of a nation's strategy. The converse may be true as well. One or more lost battles or major operations may serve the operational and strategic aims as well as winning.[29] I will have more to say about this later.

While the three major differences I have identified above suggest that the role of combat power in the operational level of war may differ from its role in the realm of tactics, we can eliminate at least two possible suggested differences at the outset. One might be tempted to say that combat power at the operational level is either one of two alternatives. One might first suggest that combat power in a major operation or campaign is relevant only in the cumulative sense. That is, the army that generates more aggregate combat power than its opponent in a theater of operations over the course of a major operation or campaign will win the campaign. To see that this interpretation of combat power is fundamentally wrongheaded, we need only consider the following simple example.

Imagine a campaign composed of five battles, B_1 through B_5. Furthermore, assume that each side's relative combat power during the campaign can be represented numerically as follows:

Battle	Army A	Army B
B_1	1	3
B_2	1	2
B_3	1	3
B_4	1	1
B_5	7	3
Total	11	12

Figure 2

Suppose also that B_5 was a decisive battle that caused the complete

collapse of Army B in this war. Should the example above seem far-fetched, the reader might consider that Figure 2 is a plausible way to portray how the 1973 Arab-Israeli War proceeded. Certainly the Israelis began the war by losing several major battles and ended it with at least one huge success. In fact, they were so successful against the Egyptian Third Army that they were poised to drive on Cairo when the cease fire was called at the urging of the Soviet Union and the United States in October 1973.[30]

If we examine Figure 2, we see that while Army B generated greater aggregate combat power over the course of the campaign than Army A, it still lost the campaign. This example strongly suggests that while superior cumulative relative combat power may in fact be instrumental in winning a campaign, it is not sufficient for winning the campaign.

In response to this example a second position might be taken. That position is that the concept of relative combat power at the operational level is not useful in an aggregate sense but instead is meaningful if we think of it as an average of the combat power an army generates over the course of a major operation or campaign.[31] If we return to Figure 2, however, we can see that this suggestion is no more helpful than the first. Army B's average combat power over the course of the campaign is greater than that of Army A. Army B has generated an average combat power of 2.4 while Army A's average is 2.2. Yet Army A has won the campaign.

The thrust of these two examples should be clear. They suggest that combat power may not be helpful as a cumulative or average concept, at least at the operational level. What instead seems to be the case is that the concept of combat power may be more useful in explaining the outcomes of major operations and campaigns in terms of key or decisive battles. Battles, however, take place in the realm of tactics. Hence, it seems that the concept of combat power may be more useful as a tactical concept than as an operational one.

This discussion would be the end of the matter if the authors of FM 100-5 referred to combat power only in a tactical context. Unfortunately, however, they are strangely ambiguous in their discussion of the subject. On the one hand, they repeatedly refer to it as the determinant of the outcomes of major operations and

campaigns. The discussion of combat power in Chapter 2 of FM 100-5 is replete with references to how the elements of combat power (maneuver, firepower, protection, and leadership) apply at both the tactical and operational level. As I have shown, they define both operational maneuver and operational level firepower.[32] Moreover, they delineate between the protective measures tactical commanders take and those operational commanders take.[33]

On the other hand, they speak of combat power being applied at "the decisive time and place."[34] This phraseology connotes action taking place at a specific locale and at a particular, relatively brief period in time. Since engagements and battles are more likely to be localized in both time and space than major operations and campaigns, the authors appear to be referring to the tactical realm alone. The following quotation from FM 100-5 illustrates quite nicely the ambiguity to which I refer:

> At both the operational and tactical level, the generation of combat power requires the conversion of the potential of forces, resources, and tactical opportunity into actual capability through violent and coordinated action concentrated at the decisive time and place. Superior combat power is generated through a commander's skillfull combination of the elements of maneuver, firepower, protection, and leadership in a sound plan flexibly but forcefully executed.[35]

It seems, then, that our doctrine suffers from a fundamental confusion that is more than a matter of mere semantics. We want a model that is good for both the tactical and operational levels of war but define it in terms that seem to limit its applicability to the tactical realm. Yet we have seen that a definition of combat power that measures cumulative or average combat power across a theater of operations in a campaign is inadequate because it cannot account for some campaigns that are won or lost in a single decisive battle.[36]

However, even if a cumulative or average model could satisfactorily explain the outcomes of all campaigns, it would still be a tactical concept because an army's combat power at the operational level would be nothing other than the sum of all its subunits' combat power at the tactical level. Hence, the authors of FM 100-5 seem to be correct at least in recognizing that generating superior combat power at the decisive time and place is the essential precept in a combat power model. But if this is what combat power is, then another dynamic

must be working at the operational level.

Earlier I suggested that it might be possible for an army to win campaigns in which it lost the majority of the battles and, conversely, for an army to lose campaigns in which it won the majority of the battles. The logical follow-on question to this suggestion is to ask what makes decisive battles "decisive" at the operational level. It is in answering this question that we can discover the operational level dynamic that is the counterpart to combat power. To answer this question, though, we first must come to grips with what constitutes winning at the operational level. In understanding what it takes to win at the operational level, we must review and mutually agree on some fundamental concepts. Let's turn our attention to that discussion and begin our search for the operational level counterpart of combat power.

OPERATIONAL LEVEL VICTORY

THE DYNAMICS OF THE MODERN BATTLEFIELD. To understand what it means to win at the operational level, we first must explore what the dynamics are of the environment in which the operational artist must work. Since Napoleon's time, the nature of the battle arena has changed radically. Not only is it far larger, but it is far more lethal. In addition, the tempo of events have greatly increased, and a third dimension, the air, has been added.[37]

The vastly increased range, lethality, and accuracy of modern weapons have forced modern armies to disperse in order to survive. Weapons can strike not only to the full depths of the tactical echelon, but they can fully range the operational and strategic depths as well. Their increased lethality makes it dangerous, even fatal, for a commander to mass his forces too early before or too long during a major operation. Not only can nuclear weapons destroy these forces, but so can highly destructive conventional munitions.[38]

The speed and agility of mechanized and air transportable forces has also served to make the battle arena a more hazardous place because fires from mobile platforms can now be massed very rapidly, in some cases almost immediately. Moreover, forces can generate fires from greater distances allowing those forces to remain relatively dispersed.

The point of this discussion is that commanders no longer necessarily maneuver and concentrate forces as much as they maneuver and concentrate the *fire effects* of the weapons systems in those forces. Even when they do mass forces, they must bring them together from widely dispersed positions rapidly and then disperse them again once the desired effect has been achieved. Clearly this massing of fire effects requires a sophisticated yet reliable cybernetic system for it to be effective. In the modern age, destroying an enemy's essential command, control, communications, and intelligence (C^3I) nodes can be as damaging as physically defeating the forces those nodes control.

The foregoing discussion is critically important for what follows in this essay. It is now the exception rather than the rule for combat power to be massed in the sense it was almost 200 years ago. Commanders now must mask any concentration of forces to keep it from

being destroyed before it is brought to bear, both offensively and defensively. This fact makes the defender's task immensely more difficult. He is further hamstrung if he has a large theater of operations, limited forces, and operates under any political constraints that inhibit the optimal employment of his military forces. At the very minimum, the defender has started by conceding the initiative to his enemy.

THE THREE DOMAINS OF WAR. War consists of three domains which are inextricably intertwined in a seamless whole. While they can be identified separately, they both act on and are acted upon by the other domains. These three domains are the physical, moral, and cybernetic. The physical domain comprises the forces, weapons, and their physical effects on the battlefield. The moral domain consists of the intangibles in units that manifest themselves in the will of the commander and his army, unit cohesiveness and esprit, and both unit and individual courage in the face of daunting circumstances. Finally, the cybernetic domain is concerned fundamentally with the functions we currently call C^3I. It includes how an army makes decisions, communicates those decisions, and then ensures that those decisions are understood and executed correctly.

Jim Schneider presents a useful analogy that helps clarify how the three domains interrelate. He compares the interrelationship to a sock full of marbles. The marbles represent the mass of the force effects in the physical domain while the interwoven threads in the sock itself represent forces in the cybernetic domain. The acceleration of the sock of marbles as it is propelled toward its target represents the impact will has on the force effects generated. Together the sock full of marbles is a fairly potent weapon when it is considered as an integrated whole. Its effectiveness, though, can be reduced in one of three ways. The first is to reduce the number of marbles-- the physical force-- in the sock and thus reduce its force when it is swung at something. The second way to degrade or destroy it is to tear or cut the interwoven threads-- the cybernetic forces-- that hold the sock together. When a unit's leaders can no longer make effective decisions or disseminate them, it has the same effect as the fabric of the sock disintegrating. The sock can no longer bind the physical force together as a unitary whole, and the sock is rendered impotent as a weapon. The

third and final way is to find a way to decelerate the speed of the sock of marbles-- that is, sap the will of the soldiers and the commander of that force so the sock comes to a rest. Thus, the key to defeating an enemy is to destroy or neutralize his capabilities in one or more of the domains. Ideally, the good commander uses all three domains to get at his opponent.[39]

This analogy is helpful in that it clearly points out the interrelationship of the three domains of war and shows that all three have an essential role in the promulgation of destructive force. Our tendency as soldiers is often to focus primarily on the physical domain of war at the near exclusion of the other two. As Schneider's analogy suggests, to do so is to ignore important supplementary or alternative pathways to victory. J.F.C. Fuller makes the same point in a slightly different way:

> Mental force does not win a war; moral force does not win a war; physical force does not win a war; but what does win a war is the highest combination of these three forces acting as one force.[40]

DEFEATING THE WILL OF THE ENEMY COMMANDER. At the operational level, defeating the will of the opposing commander assumes primary importance. It is at this level that the commander himself contributes significantly to the "moral and cybernetic fabric of the sock of marbles," for it is he, first and foremost, who puts the enemy's forces in position to fight the tactical battle. LTC Clayton Newell puts it this way:

> The operational commander does not fight battles. Rather, he maneuvers the forces under his control to have them in position so the tactical commanders can fight the battles which will contribute to the success of the campaign.[41]

It is the operational level commander's concept of the operation that places the tactical forces at the decisive place and time. He then positions them advantageously. Hence, it is defeating the enemy commander's plan, or concept, that ultimately undermines his will to continue the fight. This is not to say that the operational level commander is unconcerned about destroying the enemy's forces. Quite the contrary. However, his interest in destroying them is a second order one. He positions the forces under his command so that his tactical commanders can destroy or defeat the enemy.[42]

Thus, at the operational level the commander is working on two

levels to defeat the enemy, the tactical and the operational. Moreover, he is trying to defeat the enemy in as many of the domains as possible. It is at the operational level, however, where the commander begins to put the major portion of his effort into disrupting, destroying or neutralizing the enemy's C^3I capabilities and undermining his will by defeating his plan.

So far we have begun to get an insight into the operational commander's task. The next consideration the commander must take into account is the linkage between the strategic aims of the war and the desired operational end state. Let's turn our attention to that linkage now.

STRATEGIC, OPERATIONAL, AND TACTICAL LINKAGE. The operational level of war is primarily concerned with the linking of tactical actions together to achieve the strategic goals of the war. Major operations and campaigns give direction and purpose to tactical action by translating strategic military and political goals into major operations or campaigns that can be accomplished with the means or resources the armed forces have available. The operational end state must be a successful step toward the strategic goal. In addition, the operational end state must be achievable given the constraints and restrictions placed upon the operational commander's forces.[43] These constraints and restrictions may be either military or political in nature. Time and space, as well, can act as either constraints or restrictions.

We can see that at the operational level the optimal *military solution* may not be a viable option because of strategic constraints or restrictions placed upon it. Therefore, it is important for the operational commander to understand clearly the operational end state he must achieve in support of the strategic goals of the war and weigh the risks of achieving that end state given the resources available to him. Operational level victory, then, is tied directly to the achievement of the operational ends sought, which in turn helps achieve the strategic goals of the war. Accordingly, campaigns planned with no consideration to their role in the overall strategy have no frame of reference for victory. Arguably, operational level commanders who engage in such campaigns merely practice tactics on a very grand scale. Moreover, they probably involve themselves in attritional warfare of

the very worst sort.[44]

Tactical victory, on the other hand, is directly tied to the destruction of the enemy on the battlefield or his being forced to withdraw *from* it *on our terms.* General Glenn K. Otis, former CINCUSAREUR, makes the point more succinctly. He says that tactical victory is "making the enemy quit while you remain alive."[45]

Based on the preceding discussion, it seems evident that operational victory in a campaign is not merely the aggregate of all the tactical victories that one wins in a campaign. If that were so, there would be no need for the operational level of war. While operational level victory generally is unachievable without at least a few tactical victories (usually many are needed), there seems also to be an additional element necessary for achieving operational victory that is not needed at the tactical level.

WINNING AT THE OPERATIONAL LEVEL. Earlier I likened the operational commander to a chess player. This analogy, posited by MG (Ret) Edward Atkeson, compares the operational commander's structuring of a theater of operations to the way a chess player uses his pieces on the board.[46] Each chess piece is positioned by the chess player to achieve the best effect in the overall game.[47] It is not the sum of the contests between individual chess pieces that win the game but how the chess player uses *all the pieces in combination* throughout the game. Each individual move only has significance when viewed from the overall perspective of the game plan. Individual moves are set up by other moves on the board and in turn set up subsequent moves. The winning or losing of a piece only has significance in terms of the goal of the whole game. Accordingly, losing a piece (a battle) or pieces may be key in setting up overall victory. Thus, the "decisive battle" in a chess game, the checkmating and taking of the opponent's king, is the result of much more than the combat power exerted at the point of decision.

General Atkeson's analogy suggests that combat power plays a lesser part in achieving operational victory than it does in tactical victory. What counts at the operational level is the *combined effect* of all the actions taken in a theater of war. Preceding, simultaneous, and subsequent battles and major operations combine *in toto* to make conditions advantageous to fight the key battle in the campaign at the

decisive place and time. Moreover, the actions that set up the decisive battle occur over the entire course of a campaign throughout the breadth, depth, and heighth of the theater of operations.

General Glenn Otis would agree with this description of what the operational level commander is charged to do. He says, "The primary purpose of the operational level is to gain positional advantage over the enemy."[48] Thus, if battles and major operations are designed to win campaigns, and campaigns must result in operational end states that support the overarching strategic goals of the war, then these goals are attained through a series of operational level moves that put tactical forces on the battlefield in a position of relative superiority against enemy forces. Once in position, tactical forces can bring their superior relative combat power to bear, ideally at the decisive time and place.

The importance of understanding the preceding points cannot be overstated. The discussion is critical because the operational level commander, to a very large degree, decides where strategic and operational resources go. Once these resources are committed, there may be no turning back. That is, there just may not be enough time to correct the error, or the enemy may make it impossible to reverse our commitment of these critical resources through his own operational moves.[49]

J.F.C. Fuller would agree with Generals Otis and Atkeson as well. He believes that the duties of the operational artist (whom he refers to as the "grand tactician") are to "take over the forces as they are distributed and arrange them according to the resistance they are likely to meet. This arrangement constitutes the plan of war, or campaign."[50] While Fuller states that the general objects of war are (1) to conquer and destroy the enemy's armed forces, (2) to seize the material sources of the enemy's ability to wage war, and (3) to foster favorable public opinion, he believes that the object of the grand tactician, or operational artist, is the destruction of the enemy's plan. The accomplishment of this end, Fuller believes, serves to erode so completely the opposing commander's will to win, that he must sue for peace through surrender.[51] He believes he has no other reasonable choices. Like Clausewitz, Fuller sees the commander as the moral linchpin of his army. Ultimately the inertia of the campaign rests on

the operational level commander's shoulders, and the commander cannot overcome that inertia if he sees that all future moves he can make lead only to defeat or destruction-- that is, if his will is broken. Fuller sums up this line of thought in a most instructive passage from The Foundations of the Science of War:

> The decisive point [in grand tactics/ operational art] is not the body of the hostile army just as politically the decisive point is not the body of the hostile nation....Politically the decisive point is the will of the hostile nation, and grand tactically it is the will of the enemy's commander. To paralyse this will we must attack his plan which expresses his will-- his reasoned decisions. Frequently to do so we must attack his troops, but not always; for he can be attacked in the rear by the will of his own people and his own politicians, also he can be outmaneuvered and surprised. The grand tactician does not think of physical destruction but mental destruction, and when the mind of the enemy's commander can only be attacked through the bodies of his men, then from grand tactics we descend to minor tactics, which, though related, is a different expression of force.[52]

Two important points manifest themselves in this passage. First, Fuller is careful to ensure that the reader understands that attacking the enemy commander's plan usually cannot be accomplished without battle and its attendant bloodshed. However, an enemy whose will can only be broken through attrition or physical destruction of his army is one who has forced us from the operational to the tactical level of war. At this point the achievement of superior combat power becomes preeminent again.

The second point is that the operational level commander can be undermined by political, economic, and psychological/moral issues on the home front. This is because these elements of national power all play a role in the overall strategy of the war. The employment of military power is only one facet of the national strategy, and the operational level commander must ensure that his campaign plan coheres with the employment of the other elements of national power.[53] A campaign that is beyond a nation's economic means or which puts the national will in jeopardy, for example, is as unacceptable as one that leads directly to pure military defeat. Moreover, political, economic, and moral issues may work independently against the military campaign plan. Hence, the commander must keep attuned to the impact his actions have on these other national elements and how, in turn, his actions are affected by them. Fuller suggests very strongly that a campaign plan can be defeated by other than purely military means.

Also interesting in this analysis is the suggestion that an operational level commander's recognition of defeat is forward-looking rather than backward-looking.[54] For the commander, a failure of will results from taking counsel of his fears about future events. That is, he sees his range of military alternatives that could affect a positive outcome in the campaign as rapidly diminishing-- diminishing faster than he can react effectively. He views the situation as one where his maneuver options are being reduced quickly to only a few...and either they all impact catastrophically on his army or the cost of achieving even marginal success is so high that the operational end state is no longer a worthwhile, or even feasible, goal. Conceding defeat is the least costly of the alternatives available.[55]

Noteworthy here is that the concession of defeat is based upon a belief about a future state of affairs. This belief may or may not accurately reflect reality. Thus, it is completely possible at the operational level to concede defeat when in fact one has not been physically defeated at all. Clearly then, it is theoretically possible, at least to lose a campaign in the mind of the commander.[56]

Also worth considering in this light is the commander who believes he has "checkmated" his opponent. If the opposing commander does not recognize that his plan has been defeated, or that in reality he has potent options that he can execute, then the friendly commander may well run the risk of becoming dislocated by an unforeseen maneuver on the enemy's part and having the tables turned on him in short order. As Clausewitz said, "the enemy can frustrate everything through a successful battle."[57]

The example above points out that the converse of defeating the enemy's plan is the protection of your own. In attempting to deal the decisive blow against the enemy, the operational commander must be careful to ensure that he is not vulnerable to a devastating counterblow. The operational corollary of striking the enemy at the decisive place and time is guarding against a similar move by the enemy. As enemies generally have the unpleasant tendency to be uncooperative, the commander must think like a chess player and consider his options several moves in advance. In doing so, he must explore the various possible reactions the enemy could make against those moves. The better the commander, the farther out he can project

his moves and the enemy's countermoves. This process, in turn, alerts him both to the additional measures he needs to take to accomplish his own operational aims and those measures he needs to take to protect his plan. Again, the operational level commander must "play the whole board" and not merely focus on one aspect of the war, however decisive or critical in the scheme of things it may seem to be.

THE CENTER OF GRAVITY AND DECISIVE POINTS IN MODERN WARFARE. With that said, playing the whole board has just one focus, the collapse of the enemy's will and his ability to fight. To defeat the enemy's plan, the operational level commander must neutralize or destroy those forces and their actions that are most critical to the success of that plan. Certain elements of the armed forces or their capabilities play a preeminent role in the enemy's plan, and their destruction, or neutralization undermines the enemy's entire campaign plan. As Jim Schneider puts it, the "destruction of these forces, while they may not break his will, destroy his ability to act."[58] It is later, after the enemy commander recognizes his inability to act, that his failure of will follows.

This brings us to the notion of the center of gravity of the enemy's armed forces. FM 100-5 has this to say about the subject:

> The center of gravity of an armed force refers to those sources of strength or balance. It is that characteristic, capability or locality from which the force derives its freedom of action, physical strength, or will to fight. Clausewitz defined it as "the hub of all power and movement, on which everything depends." Its attack is-- or should be-- the focus of all operations.[59]

At the strategic level, one must understand the enemy's aim and know what his means of accomplishing that aim are to identify correctly his strategic center of gravity. It follows, then, that if operational ends are derivatives of the strategic goal(s) of a war, we must come to grips with how the enemy's major operation or campaign meshes with his overall strategic aims to understand what his center of gravity for that campaign will be. Our first step in formulating our own campaign plan is to identify the enemy's operational level center of gravity.[60]

For Clausewitz, the center of gravity was where the forces of the army were most densely concentrated.[61] Given the range of the weapons of the time and the size of armies, this made eminent sense. The *fire effects* of the weapons of that time were collocated, for all intents

and purposes, in the same general location as their firers. A commander could not hope to inflict decisive defeat on his enemy without physically massing his forces in one general locale (usually one battlefield) against an inferior enemy force. Thus, the center of gravity, or *Schwerpunkt*, was where the greatest bulk of the army was massed for the main effort.[62] It was the army's greatest strength.

Today, there is far less a need to concentrate forces in the way that was necessary in Clausewitz' time. As I mentioned earlier, modern armies can now range their fires to the full operational depth of a theater. The effects of fires, the essential destructive force, can be massed without necessarily collocating the weapons systems that produce them. "Fire density," as Jim Schneider calls it, is more important than density of the forces that produce them.[63] In fact, creating a high density of forces at the operational level may make them a lucrative target if they remain concentrated too long and are ranged by weapons of mass destruction.

We are thus faced with a seeming paradox. A modern center of gravity is by its very nature dispersed. It is marked more by the location of the effects of its combined destructive force than the location of the units that produce that force. What unifies that force is the concept of the operation and a sophisticated, capable cybernetic system to give them coherence.[64] Even when maneuver units must be concentrated, they do so only temporarily. In fact, it is in the commander's best interest to deceive the enemy as to when and how he will mass his forces to attain the desired force effect. A good commander will initially present a picture of relatively homogeneous strength or one that convinces his opposite that he will concentrate his effort somewhere else than he really intends.

Further complicating the issue is that fire effects in modern war must be employed throughout the depth and breadth of the theater of operations to prevent the enemy from bringing his combined destructive force together. Ideally, systems and units all contribute in different ways to a unity of effort in the campaign. Units and systems perform differing functions in differing locations based upon the perceived necessity of their being positioned there. For example, maneuver, air, artillery, air defense, and electronic warfare assets will be distributed throughout the battlefield. Their distribution, however,

contributes to a unified, combined arms plan. The functions they perform should be interactive and synergistic.

As we can readily see, the nature of a modern army's center of gravity is significantly different than its nineteenth century counterpart. Concentration does not necessarily mean collocation of fighting units. Instead, it means battlefield synchronization at the tactical level and campaign or major operations synchronization (or something similar) at the operational level. Each element of the overall force must make its contribution to the plan in the proper place and at the proper time. Each must be sequenced and positioned for optimum effect in the integrated plan for the entire theater. The key is that force is applied according to the optimal contribution it can make to the whole. Timing and positioning are critical in this process. Most importantly, none of the foregoing is possible without a high quality, redundant C^3I system and a well-synchronized and orchestrated plan.

At this juncture two points should be becoming readily apparent to the reader. First, identifying and targeting a modern army's center of gravity is extremely difficult and getting more difficult as technology continues to improve weapons, C^3I systems, logistical infrastructure, and vehicular mobility. While the densest concentration of combat power in an army is still where the center of gravity is found, it is increasingly difficult to distinguish between the concentration of that force and that which makes the concentration possible. The difference is subtle, but important. The latter is a means to get to the former.

Second, given the fact that different elements in the combined arms force make essential contributions at differing places and times in the campaign, it is entirely possible for an operational center of gravity to change over the course of a war. Colonel Lawrence Izzo in his article, "The Center of Gravity is Not an Achilles Heel," agrees with this position. He believes that the center of gravity of an enemy is that part of his armed forces "which is most vital to him in the accomplishment of his operational aims."[65] For him the important question to ask is, "What could win it for the enemy?"[66] If the answer to that question changes over the course of a campaign, then the enemy's center of gravity changes as well. Certainly the discussion heretofore has suggested very strongly that operational art does not

just make it possible for the answer to change, it makes it virtually a necessity. This is especially true in modern joint operations where the projection of air, land and sea power during separate phases could each in turn win (or lose) the campaign.

If the key to defeating the enemy operational level commander's plan is to destroy, or neutralize his center of gravity, then the next question to be asked is how to disarticulate, shatter, or destroy it while maintaining our own force as a cohesive whole.[67] Jim Schneider, Basil Liddell Hart, and J.F.C. Fuller all state that we can go about this project directly or indirectly. They also agree that the indirect method is the more preferable of the two methods. Jim Schneider makes this point succinctly in the following passage:

> The essence of operational art is the avoidance of...head-on collisions [between centers of gravity]. The operational artist seeks to maneuver dispersed. He swarms to create a center of gravity faster than his opponent (agility). He creates this concentration of combat power at a decisive point and time (synchronization). After the blow is delivered he quickly disperses in preparation for the next encounter. His forces continue the maneuver of swarm-fight-disperse sequentially and simultaneously throughout the *depth* of the theater of the operations.[68]

The suggestion here is that directly attacking the enemy's center of gravity is too costly. The risk of defeat for such a plan is too great in modern war. If we ought not attack the enemy's center of gravity "head-on," how should we go about defeating it?

The common sense answer is to search for some key vulnerability of the enemy that we can strike and exploit.[69] Inherent in striking such a key vulnerability is the task of avoiding the enemy's strength. Moreover, we should pick an objective that will provide our forces with a significant advantage over the enemy. Taking and keeping that objective should be key in threatening the enemy's center of gravity, and hence in disrupting or defeating his intended plan.

Jomini called such objectives "decisive points."[70] While he had something in mind like a particular piece of geography or the flank of the enemy's line- that is, a place- I think we could safely include more abstract objectives like capabilities, unit dispositions, morale, or army interrelationships under this category. For instance, preemptively destroying an enemy's air force on the ground just before a war starts would be in the realm of striking a capability that was a decisive point. An example of an interrelationship that could serve as

a decisive point might be a multi-national coalition that is beginning to suffer from poor unity of command.

The key point here is that the concept of what a decisive point is has changed in modern battle just like the concept of center of gravity. There has been a parallel paradigm shift that complements that of the center of gravity, and it has been due to the changing nature of armies and their weapons. The upshot is that at the operational level our campaign plan must orchestrate multiple activities to ensure that a strike at a decisive point is successful. It is no longer simply a matter of piling all the combat power a commander can muster on a single vulnerable point and then piling on, although that is part of it. Other combat power must be used elsewhere to supplement and complement the action at the decisive point. The percentage of an operational level commander's total combat power in a theater that he has to devote to these supplementary and complementary actions may be greater than that he devotes to the decisive point.

In summary, we win at the operational level by defeating the enemy commander's plan. To defeat his plan we must identify and destroy or neutralize the center of gravity of his forces. The most economical and perhaps best way to achieve this objective is to strike the enemy at a decisive point, which ideally is also a critical vulnerability. However, given the nature of a modern armed force's center of gravity, the decisive points that we strike should be units, capabilities, or places that play an integral role in the enemy's ability to concentrate his force effects.

To accomplish those tasks identified above, the operational level commander must design a campaign plan in which the battles or major operations are sequenced to isolate and destroy key forces or capabilities that protect the enemy's combat power at the decisive point or could increase or enhance it if they were brought to bear at the decisive point.[71] In fighting these combat actions both before and simultaneously with the battle at the decisive point, the operational commander not only complements the force effects he achieves at the decisive point, but he may also actually enhance those force effects. That is, the combat actions fought before and while the current battle is being fought may actually have a synergistic effect on our own combat power at the decisive point. They thereby enhance the

chances of victory in that battle.

There are two points to be noted here. First, unless the other battles are fought before or in conjunction with the battle at the decisive point to set it up, it may not be successful or decisive. For example, these battles may destroy, delay, or disrupt enemy forces or force effects that could be brought to bear at the decisive battle. In a very real sense, then, they are battles of primary importance and may be decisive themselves in the overall campaign.

Second, while combat power at the decisive point plays an important role in winning the decisive battle in the campaign, it is only one facet of winning the campaign. What wins the campaign is the integrated and interactive battles or major operations that occur before or at the same time as the decisive battle. It is the synergistic effect of all the battles in the campaign on the decisive battle that create the conditions for it to be decisive.[72] Combat power plays an important role in the decisiveness of this battle, but that role is subordinate to the combat synergism created by the execution of the campaign plan as a whole.

Perhaps this is what Jim Schneider means when he says of operational art, "The only decisive battle is the last battle of a war."[73] For the battle to be decisive, the appropriate conditions have to be created by all the operations that occur before and simultaneously with it. If those conditions are not created, and the battle is not decisive, then it will not be the last battle. The same can be said about the last battle of a campaign. The creation of these conditions falls in the domain of operational art.

ECONOMY OF FORCE AND RISK. Inherent in the discussion above are the issues of economy of force and risk. In a theater of operations of a major conventional war, the correlation of forces probably will not be much more than 1.5 to 1 for the stronger side. In other words, they will be roughly equal. To generate the kinds of force ratios for an attack or offensive to be successful, for example, forces will need to be shifted and concentrated to the desired point or points. This concentration of force entails a corresponding thinning of forces in other areas. While this seems simple enough on the surface, the real mark of a competent operational artist will be to decide when, how, and where to thin his forces so he does not put his own plan at risk by

creating a critical vulnerability.[74] Furthermore, he will need to leave "just enough" forces to accomplish the missions he assigns to those forces left in the thinned out sectors. The art of leaving just the right amount of force at the right time to accomplish the assigned mission is the essence of the application of the principle of economy of force. Moreover, it is at the heart of judicious risk-taking.

As articulated in FM 100-5, the principle of economy of force states, "Allocate *minimum* essential combat power to secondary efforts."[75] The operative words in this definition are "essential combat power" and "secondary efforts." The idea of essential combat power connotes enough to accomplish the mission without taking undue risks. It does not connote that units assigned economy of force missions should expect not "to take the hurt."[76] Operational level commanders should expect that units assigned an economy of force role will in all likelihood have to absorb more than their fair share of punishment to ensure that the main effort is not compromised. The degree of risk taken in the economy of force mission ought to be such that in the overall scheme the commander retains a high probability of success in achieving victory where he applies his main effort. He does not retain a high probability of success if the enemy breaks through his economy of force sector and he has to divert forces from the main effort to plug the gap.

The second key term, "secondary effort," is well worth close scrutiny. "Secondary" implies such an effort is of *lesser* importance than another more important main effort. Hence, such an effort cannot be critical in the accomplishment of the more important effort. I make this point because the operational commander must not confuse the difference between an essential supporting effort for a main effort and a secondary mission. The former should not necessarily be an economy of force mission. Its very strength may be an essential element in setting up the main effort for success.

Feints and demonstrations, for example, depend upon their looking like a main effort to be effective. At the operational level, deception operations, follow the same general principle. Moreover, an essential supporting effort may be designed to siphon off enough of the enemy's combat power away from the main effort to make the main effort successful. To be effective in drawing enemy combat power away from

the main effort, it must legitimately threaten the enemy and cause him to believe he needs to turn his efforts there. A significant amount of combat power may be necessary in this sort of effort. In giving these sorts of efforts, which are *not* secondary, significant combat power, we may lessen the need for as much combat power in the main effort.

Economy of force at the operational level, then, is about the proper distribution of force throughout a theater of operations over time to achieve the synergistic effect I spoke of earlier. J.F.C. Fuller considers it to be *the fundamental law* which underpins his principles of war-- from which ours are taken.[77] For Fuller, all the principles of war stem from this law. It provides the operational framework in which to apply the principles of objective, offensive, mass, maneuver, unity of command, security, surprise, and simplicity. If Fuller is correct, as I believe he is, economy of force is elemental to the achievement of campaign synergism, the key to operational victory.

Economy of force is about "economizing" forces as much as it is about distributing them. The proper distribution of force, combined with the proper assignment and synchronization of missions, should result in the optimization of the endurance of the force. The key is to ward off dissipation of your force better and longer than your opponent in order to achieve your aims. You probably cannot defeat your enemy's plan if your force is dwindling at a faster rate than your opponent. Again, Fuller has a useful insight in this regard:

> If, in its entirety, we could grasp the law of causation, we could then so economize our force that, whatever force might be at our disposal, we should expend it at the highest profit. Consequently, if two opponents face each other, and each possesses an identical supply of force, the one who can make his force persist the longest must win, because, as Spencer says, "the desired end will be achieved with the smallest expenditure of force." Therefore, in place of talking of the law of causation, or the law of persistence of force, as the fundamental law of war, I will call this law the law of economy of force, or the law of economic expenditure of force.[78]

Thus, the principle, "Allocate minimum essential combat power to secondary efforts," is as much about *efficiency* of effort as it is about *effectiveness* of effort. The connection between economy of force in this sense with culmination should be fairly evident. Culmination is about the dissipation of combat power, or force, over time. Economy of force is about the retarding of culmination, or

endurance. Let's turn to a discussion of culmination now.

CULMINATION AND TIME. In defeating the enemy's operational level plan, our aim should be to destroy, disarticulate, or otherwise neutralize the enemy's center of gravity by attacking a critical vulnerability or a decisive point (which hopefully will be the same). The process of culmination makes an attacker or defender progressively weaker and more susceptible to successful attacks against his critical vulnerabilities. Therefore, it is in the best interest of a commander to stimulate the dissipation of his enemy's strength at a much quicker rate than his own. The object is to get the enemy to reach his culminating point before we reach ours.[79] This is why at the operational level it is so important to design a holistic plan that strikes the enemy throughout his depth and breadth in the ways I have suggested above.

At the tactical level, culmination is the decay of combat power over time. Culmination at the operational level, however, is more complex. It is the diffusion of effort, or loss of synergism, over time. As individual tactical level forces in a theater of war expend their combat power, the operational level commander loses his capability to orchestrate his forces synergistically. Increasingly he loses his ability to fight complementary battles or conduct mutually enhancing operations. This, in turn, leads to a corresponding loss of his freedom of action because he must devote an increasing proportion of his force for self-protection. To create a center of gravity, he must take increasingly greater risks in his economy of force sectors. The taking of these risks, then, further dissipates his combat power at the tactical level. This dissipation leads to the tactical unit's inability to contribute much to the overall synergism of the armed forces, and the whole culmination cycle begins again. Once the operational level commander loses his capability to design major operations or campaigns so that their component parts interact synergistically, his center of gravity will become vulnerable to destruction, defeat, or disruption at one or more vulnerable points.

The importance of culmination to the overall discussion should be fairly evident. It is not merely the waning of combat power. It is also the dissipation of campaign synergism, the military analog of entropy. In the worst cases, the armed forces rapidly degenerate

toward disintegration, then disorder, and ultimately, inertness. Hence, culmination of operational level combat synergism plays a central role at the operational level. The operational level commander must take greater and greater risks in economy of force sectors as he attempts to concentrate force at the point of decision, or he must distribute his forces to meet the exigencies he faces throughout his theater. In either case, he gradually loses the power first to integrate and then to concentrate. Once this has happened, his center of gravity can be destroyed, and his plan defeated.

The major thrust of this chapter has been to demonstrate that winning and losing at the operational level is qualitatively different than winning and losing at the tactical level. This difference drives the need for a different concept than combat power to account for the phenomenon of winning at the operational level. The force effect of a well-designed and orchestrated campaign plan should be greater than the sum of its parts. It is more than winning battles at the decisive point; it is more than the aggregate combat power produced in all the battles or major operations in the campaign; and it accounts for instances of losing particular battles to gain a greater effect for the whole campaign. Moreover, it attacks the enemy in all three domains of war. I call this phenomenon campaign synergism. It is now time to identify its basic elements and some principles for achieving it.

CAMPAIGN SYNERGISM

In the previous chapter I addressed the basic differences between winning at the tactical level of war and winning at the operational level. These differences led me to conclude that the dynamic I call campaign synergism is the operative phenomenon at the operational level of war that determines the outcomes of major operations and campaigns. My analysis in coming to this conclusion led me to believe that there are at least five component elements of combat synergism. They are derived from the discussion in the last chapter. Admittedly, the description of these elements that follows is brief and will require further study and debate. An in depth analysis of them is beyond the scope of this paper, but that work could be the subject of a subsequent monograph. Nevertheless, I present them as a "first cut" to stimulate thought and provoke debate. If this process does nothing else, it will help us come to a better understanding of the special nature of the operational level of war. Let's take a look at the dynamic of campaign synergism.

The dynamic of campaign synergism is a second order concept. That is, it sets the conditions at the operational level for a first order concept, the dynamics of combat power, to succeed at the tactical level. In this regard, the operational commander's primary concern is not on how many artillery battalions he can mass on an enemy force, how to maneuver a brigade onto the enemy's flank, or how to fix the first echelon regiments of an enemy defense. What I have described is the tactical commander's job. The operational level commander's job is to establish the military conditions that will optimize the *tactical commander's* chance of successfully *executing* the missions I have identified above.

The operational level commander is focused on an end state that requires the defeat of the enemy's operational level plan. As such, he must constantly retain a holistic view of the entire theater of operations. He must put the appropriate forces in the right place, at the right time, at the proper strength, with the requisite staying power so that their combined force effects complement and enhance each other when the tactical commanders fight the individual battles.[80]

While the dynamics of combat power decide the outcomes of engagements and battles, the dynamics of campaign synergism decide the outcomes of major operations and campaigns. Campaign synergism is the ability to set the terms for, orchestrate, and sustain an operation.

The elements of campaign synergism overarch the elements of combat power. They do not replace them. As they do not directly apply to the *immediate* dynamics of actually fighting the battle, they are by nature more abstract. The five elements of campaign synergism are as follows:

1. Complementary Effort
2. Operational Orchestration
3. Theater Economy of Force
4. Endurance
5. Generalship

The five elements do not address how to generate combat power but instead how to ensure that the combat-power-generating resources are properly mixed and applied in the theater. Moreover, the four elements interweave the physical, moral, and cybernetic domains into the application of combat power. Their combined application capitalizes not only on the physical effects they produce, but also the moral and cybernetic as well.

COMPLEMENTARY EFFORT. Complementary effort is the design of battles and major operations so that their effects will be mutually supporting and supportive of the overall campaign plan. In complementing each other's impact on the major operation or campaign as a whole, these battles or major operations actually serve to enhance the combat power applied in other concurrent and subsequent actions. This result in turn enhances the overall effect individual battles have on the major operation or campaign as a whole. Thus, it is possible for the sum of the whole campaign to be greater than its tactical parts. Whether the planned actions are executed sequentially or simultaneously, they should still have a combat-power-enhancing effect on each other. Even economy of force missions should be designed so that the plan's overall chance for success is enhanced.

A deception operation is a special type of operation that achieves a complementary effect when properly designed and executed. It is a clear example of the fact that to achieve complementary effect the

commander does not necessarily need to apply combat power. Electronic warfare operations are another example of this point.

The effectiveness of complementary effort is critically dependent on both the proper orchestration of all combat activities in the theater and the proper distribution of combat power to address the appropriate enemy threat. The commander cannot achieve the complementary effect he wants if he cannot commit the correct force at the right time in the campaign. Therefore, that force must be commited to the tactical fight at the optimal moment and be able to sustain a tempo of operations that complements the other battles or major operations ongoing.

Complementary effort frustrates the enemy commander's plan by diffusing his attention and by preventing him from achieving the operational focus he needs to concentrate his forces for a decisive action. To be prepared for multiple contingencies, he witholds commitment of forces he would otherwise use to help him take the initiative. In short, complementary effort poses the enemy commander with multiple threats for which he must account. In having to attend to them all, he increases his chances for intellectual overload and a critical maneuver mistake.

OPERATIONAL ORCHESTRATION. Operational orchestration is the fighting of battles or major operations at the place, time, and tempo where they will do the most good to help achieve the ends of the campaign plan.[81] This does not entail, by any means, that these actions must occur at the same time. On the contrary, it may be more advantageous to sequence a series of actions in a particular way so that their outcomes achieve the optimum effect. Moreover, the commander will want to orchestrate complementary efforts throughout the depth of the theater. Operational orchestration is the operational analog of tactical synchronization. It differs from complementary effects in that it is focused on the placement and timing of forces and actions rather than on their effects.

In planning for operational orchestration, the commander must juggle several considerations. The first is the operational mobility of the units he is preparing to commit. This consideration includes both the assets to move his forces in enough time and the

transportation networks and terrain he must move them through. Second, he must consider the physical and moral state of both the enemy forces and their commander. He must determine when the most opportune time to strike will be. Third, he must be able to drive his forces to sustain a high enough operational tempo to frustrate the enemy's cybernetic and physical responsiveness to his initiative. Finally, he must commit the force that can generate the relative combat power that is appropriate for the mission assigned. In the case of an effort at a decisive point, the commander should commit the force available with the maximum relative combat power.

Orchestration works against the enemy's plan specifically by applying combat power in a pattern that complies with our schedule, not his. Moreover, we commit the maximum combat power at the decisive point or points of our choosing. Operational orchestration also accounts for possible enemy countermoves to our plan and our possible responses to them. In short, orchestration helps us retain the initiative and forces the enemy commander to react to our operational plan.

THEATER ECONOMY OF FORCE. This element differs from orchestration in that it is concerned with the theater-wide distribution of forces available for commitment against anticipated enemy threats. It is under the considerations of this element that the commander tailors his force to meet overall theater and campaign needs rather than merely the needs for specific battles or major operations. This arraying of operational forces should provide the commander with the most flexibilty in responding to planned events and contingencies that arise throughout the campaign.

In economizing theater forces, the commander must recognize the tension between conflicting operational needs. On the one hand, he ought to weight secondary sectors with enough relative combat power so that they do not present a critical vulnerability to the enemy. On the other, he should weight his main effort or efforts with enough relative combat power to overwhelm the enemy there. The commander must balance these competing requirements continually throughout the campaign as the situation changes. In distributing the forces available wisely, the operational level commander facilitates orchestration and also

contributes to the endurance of his force. Forces distributed and employed wisely are likely to be used up less rapidly.

Economy of force works against the enemy by pitting sufficient forces and their combat power against his strengths and weaknesses to thwart his intentions, whether offensive or defensive in nature. To achieve the kinds of force ratios he needs for success, then, the enemy must change his plan. If we can continually thwart his efforts by an intelligent and efficient distribution of forces, then we can continually disrupt his plan and force him to present us, sooner or later, with exposed weaknesses that we can take advantage of.

ENDURANCE. Endurance is the sustainment of combat power over time and space. It is all the actions an operational level commander can take to stave off the process of culmination. In addition, it is a relative concept. What counts is that we stave off the process of culmination longer and better than the enemy.[82]

Those actions the operational commander takes to slow culmination fall into two general categories: (1) those having to do with the material sustainment of the force and (2) those having to do with force regeneration.[83] While campaigns can be won before either class of action becomes necessary, they can also be lost if either is required but has not been addressed properly. Both theater distribution and stockage are critical to extended campaigns. Without either, a campaign will grind to a halt. There are ample historical examples of campaigns stalling and then eventually failing for want of supplies. Logistics defines the tether to which the operational commander is tied. It delimits the realm of feasibility. It defines when and where he must take an operational pause or risk exceeding his culminating point.[84]

Force regeneration is equally critical to the commander because it represents potential combat power. As units lose men and material in combat, their relative combat power with the enemy changes. If they undergo a greater rate of attrition than the enemy, they could begin losing the campaign. Hence, it is critical to regenerate forces during an operational pause.

GENERALSHIP. Generalship, as Fuller rightly points out in The Foundations of the Science of War, is the key to operational success.

It is the imparting to subordinates of a clear, effective vision of what the operational end state of the campaign should be and how the force will successfully reach that end. It is also the firm imparting of his will to his subordinates regarding the need for doggedly pursuing the plan to success. If the operational level commander can create a better campaign plan than his opponent, outsmart him in its execution, and then pursue it with a will of iron, then the campaign is more likely to end in victory. This is true even when he commands the weaker force of the two.

As I stated earlier, a campaign is as much a duel of wits and will between two operational level commanders as it is a physical contest between two armies. Because it is the operational level commander who sets the conditions at the beginning of the campaign for the commitment of tactical forces, he bears an enormous burden for the success of his army. A poor initial disposition of forces, coupled with a mediocre or weak plan, can lose the campaign. If his plan is beaten, his forces could well be beaten too. The commander, then, is the linchpin of campaign synergism. He must be the "chess master" who maneuvers his enemy into checkmate. As such, he is responsible for balancing the other four elements and is the key multiplier in the campaign synergism model.

CONCLUSIONS AND DOCTRINAL IMPLICATIONS

If combat power is about *fighting* and winning, then campaign synergism is about *setting the conditions for and the orchestration of the fighting*. This is an important distinction that gets at the very heart of the inadequacy of the combat power model as an operational level theoretical tool. It is not that the combat power model is not applicable. It is, and in an important way. But its role is a limited one at the operational level. It tells us only part of the overall story, and in that regard, its focus is too narrow.

The Combat Power Model tells us how to determine the outcomes of the decisive battles, and perhaps even the major operations in a campaign. It does not, however, tell us how to win campaigns. Winning the decisive battle in a campaign is often the *terminus* of the orchestration of simultaneous and sequential battles or major operations. That is, it is often the last battle in the campaign.[85] It is the product, then, of all that has gone on before and which occurred simultaneously with it. Telling the operational commander how to go about winning the decisive battle of a campaign is like telling the chess master about how to checkmate his opponent at the end of the game after the move has been set up by all that preceded it. The "helper" has missed the point, and he has not told the chess master much.

As suggested above, the nature of winning at the operational level is much different than winning at the tactical level. Defeating the tactical commander is about making him "quit the battle." Defeating the enemy's operational commander is about making his key tactical units quit the campaign or major operations, *thus defeating his plan*. The second part of the condition above is the operational level commander's primary responsibility. He gets the major units in a position and condition to allow the tactical commanders to accomplish the first part of the condition.

Insofar as operational level victory is primarily about defeating the enemy commander's plan, the campaign is a contest of wits and wills between opposing commanders. This is not to disregard or denigrate the importance of resourcing and actually fighting the campaign, however.

The operational commander must have competent tactical commanders and adequate resources at the correct places at the beginning of the campaign. Nonetheless, the commander who can outthink the other and thereby impose his will on the other is the one who will emerge as the victor. As I pointed out early in the this paper, when the opposing operational level commander recognizes that he has run out of options and resources he is essentially beaten-- if he is a rational man. He has no other alternative than to capitulate or order his tactical lieutenants to withdraw and regroup for a subsequent campaign.

Operational level combat, while it has a significant and very real physical element, occurs primarily in the moral-mental and cybernetic domains. It is about the transmission of a concept of operation and commander's intent all the way down to the lowest levels of the army, and its being understood and executed as intended. This process requires a clear, decisive plan and an officer corps that is operationally and tactically well-grounded.

The campaign synergism model I proposed in the last chapter is a template for the kind of thought process that ought to occur in the commander's mind. The concept of the operation he proposes ought to maximize the five elements of campaign synergism: complementary effort, operational orchestration, theater economy of force, endurance, and generalship. If he maximizes those five elements, then the operational outcome should go in his favor.

Thinking "synergistically" at the operational level can also be helpful in coming to grips with some of the shortcomings of FM 100-5 in its present form. First, in characterizing operational level outcomes in terms of the combat power model, the authors may lead potential operational artists to think of winning solely in terms of specific decisive battles rather than in terms of the combined effects of all the actions in the theater as an integrated whole. While the manual talks about making the fight integrated and holistic in the tenets of Airland Battle, it does not clearly tie the tenets to the combat power model in the way I have suggested. In fact, the exact relationship between the two concepts is not made clear at all.[86]

The danger with thinking the way I have suggested in the preceding paragraph is that we may create officers who fight tactically against

an operational opponent. The combat power model leads to confusion over who is responsible for defeating an operational level force. The suggestion is the commander who wins the decisive battle at the decisive point is the commander who defeats the operational level commander. This suggestion leads to the further supposition that tactical commanders might think it is their role to defeat the operational level plan of the enemy.[87] Their thinking in this way would be a recipe for disaster, especially against a foe like the Soviets who have thoroughly studied and understood the operational level of war for decades. In short, FM 100-5 tends to lead commanders to think from a tactical perspective at both the operational and tactical levels of war.

Major General (Retired) Edward Atkeson has suggested that the source of our confusion is that we mistake the *forces which are players at the operational level* with those *levels of command at which operational decisions are made.*[88] Corps, for example, are often operational level players, but their own "internal" decisions are tactical in nature. Army group commanders, in all likelihood, are the first level of command responsible for operational level decisions. Hence, we think that the tactical action that plays the central role in the operational defeat of our enemy is somehow operational in nature when it is not. The *decision* for commiting the unit that wins the campaign is made by an operational level commander who sees the commitment of that one unit as *only one piece* in the overall plan.

There is a second, and equally insidious, byproduct of thinking in terms of the combat power model to attain favorable operational outcomes. It is the danger of employing operational level combat and combat support assets in a tactical role rather than in an operational level one.[89] If we confuse operational *players* with operational *decision-makers,* then we may put operational level resources in the wrong hands. In NATO, where our allies do not have some of the state-of-the-art operational level resources we have, this misallocation of resources could have catastrophic ramifications.[90] For these resources could be assigned to American corps-- tactical players-- assigned to Army Groups commanded by allies who do not have them. Such an arrangement could result in their being used tactically

rather than operationally. The operational commander would not have access to those resources at all or would have only indirect, and late, access to them.

The comments I have made above suggest that we ought to scour our doctrine, and in particular FM 100-5, to further refine our doctrinal distinctions between the tactical and operational levels of war. If we confuse the tactical level with the operational level of war in terms of the role of combat power, then there may be other similar confusions elsewhere in the manual. Perhaps one way to sort out these issues is to discuss the tactical level in one part of the manual and the operational level in another. Perhaps two separate manuals is a better way to go. Certainly the second alternative could accommodate the operational manual being written by joint doctrine writers, who by all rights probably ought to be in charge of U.S. operational doctrine. Whichever way we go, we would avoid the current problems of moving between tactical level and operational level concepts and confusing the two.

In conclusion, as large a quantum leap in improvement the current FM 100-5 is over preceding versions, it still has room for improvement. As it stands, it needs to account for the differences between tactical and operational level victory better. Incorporation of a campaign synergism model like mine or something similar would be a step in the right direction. Our military literature in periodicals like Military Review, Parameters, and Army reflect a growing sophistication in understanding the operational level of war that should also be incorporated in FM 100-5. Let's update our doctrine to reflect that sophistication.

ENDNOTES

[1] Colonel John F. Meehan III, "The Operational Trilogy," Parameters XVI (Autumn 1986): 15.

[2] LTC Clayton R. Newell, "Exploring the Operational Perspective," Parameters XVI (Autumn 1986): 22. See also Meehan, "The Operational Trilogy," p. 15.

[3] MG (Retired) Edward B. Atkeson, "The Operational Level of War," Military Review 67 (March 1987): 31. See also Robert M. Epstein, "The Different Levels of War in the Napoleonic Period: Austerlitz and Friedland," unpublished manuscript, School of Advanced Military Studies, CGSC, Ft. Leavenworth, Ks., 1983.

[4] The Relative Combat Power Model recognizes leadership as a combat multiplier, but it does not measure combat outcomes in terms of failure of will or C^3I. Instead, it measures the physical manifestation of their impact on combat.

[5] Department of the Army, FM 100-5: Operations, Washington D.C.: GPO, May 1986, p. 11.

[6] Ibid.

[7] BG Huba Wass de Czege, "Understanding and Developing Combat Power," unpublished manuscript, School of Advanced Military Studies, CGSC, Ft. Leavenworth, Ks., 1984, p. 12.

[8] Ibid.

[9] Ibid., p. 15.

[10] Ibid., p. 20.

[11] Ibid., p. 12. See also FM 100-5: Operations, p. 12-13.

[12] FM 100-5: Operations, p. 12.

[13] Ibid.

[14] Wass de Czege, "Understanding and Developing Combat Power," pp. 26-29.

[15] FM 100-5: Operations, p. 12.

[16] Ibid. See also Wass de Czege, "Understanding and Developing Combat Power," pp. 12, 27-29.

[17] Wass de Czege, "Understanding and Developing Combat Power," pp. 13, 23-25.

[18] Ibid., pp. 23-25.

[19] FM 100-5: Operations, p. 13.

[20] Ibid.

[21] Ibid.

[22] Wass de Czege, "Understanding and Developing Combat Power," p. 29-34.

[23] FM 100-5: Operations, p. 13.

[24] Ibid.

[25] Ibid., pp. 13-14.

[26] Ibid., p. 14.

[27] Department of the Army, FM 23-100: Leadership and Command at Senior Levels, Washington D.C.: GPO, June 1987, pp. 7-9.

[28] General Glenn K. Otis. Lecture at the School of Advanced Military Studies, Ft. Leavenworth, Ks., 20 February 1990.

[29] To see this possibility, the reader should consider the 1968 Tet Offensive conducted by Vietcong forces. While their intent was surely not to lose, their loss was paradoxically a major turning point in the war which led to the eventual withdrawal of U.S. forces.

[30] For further information on this war, see The London Sunday Times' The Yom Kippur War (Garden City, N.Y.: Doubleday and Doubleday, Inc., 1974) and Chaim Herzog's The Arab Israeli Wars (New York: Random House, Inc., 1982).

[31] BG Huba Wass de Czege. Telephone conversation on 7 February 1990. General Wass de Czege posited this view of what operational level combat power was during our discussion. This may be an uncharitable characterization of his position, but I could think of no more plausible way to couch his viewpoint.

[32] FM 100-5: Operations, pp. 12-13.

[33] Ibid., p. 13.

[34] Ibid., p. 12. See also Wass de Czege, "Understanding and Developing Combat Power," pp. 12-13.

[35] Ibid.

[36] Inherent in this discussion is my belief that decisive battle is still possible in modern war, particularly in mid-intensity conflicts where nuclear weapons are not used. This is most true in wars where one side owns a significant qualitative or quantitative advantage over its enemy and has the latitude to use that advantage. As one moves up the spectrum of conflict towards high-intensity, large-scale conflict, however, the chances of a decisive battle occurring decline proportionately because of the scope and breadth of the war. At the high end of the spectrum, major operations and campaigns determine the eventual outcome of the war. Nonetheless, there can be decisive battles that decide the outcomes of campaigns and major operations. Ultimately, if nuclear weapons are employed, the concept becomes almost meaningless because the notion of victory becomes almost meaningless.

[37] For a complete and lucid discussion of the development of the modern battlefield, see James J. Schneider's "The Loose Marble-- and the Origins of Operational Art," Parameters XIX (March 1989): 85-99 and "The Theory of the Empty Battlefield," RUSI: Journal of the Royal United Services Institute (September 1987): 37-43.

[38] The Soviets are very concerned about this issue as evidenced by their doctrinal literature. See V.G. Reznichenko's Taktika [Tactics], trans. Foreign Broadcast Information Service (Moscow: Publisher unknown, 1987), pp. 6-7, 32.

[39] James J. Schneider. Class notes from seminar at School of the Advanced Military Studies on 22 February 1990. Jim Schneider presented this analogy to illustrate the relationship between the physical, moral, and cybernetic forces in a cohesive and effective unit in combat. See also Schneider's "The Theory of Operational Art," unpublished manuscript, School of Advance Military Studies, CGSC, Ft. Leavenworth, Ks., March 1988.

[40] J.F.C. Fuller, The Foundations of the Science of War (London: Hutchinson and Co., Ltd., 1932), p. 46.

[41] Newell, "Exploring the Operational Perspective," p. 22. See also Fuller, The Foundations of the Science of War, p. 107. See also Meehan, "The Operational Trilogy," p. 17.

[42] Ibid.

[43] Major Frederic E. Abt, "The Operational End State: Cornerstone of the Operational Level of War," School of Advanced Military Studies Monograph, CGSC, Ft. Leavenworth, Ks., 1988, pp. 3-7.

[44] Ibid., p. 7.

[45] General Glenn K. Otis, Notes from lecture given at the School of Advanced Military Studies, CGSC, Ft. Leavenworth, Ks. on 20 February 1990.

[46] Atkeson, "The Operational Level of War," p. 31.

[47] This notion is very similar to what Jomini meant by the term "combinations." See Jomini's The Art of War, trans. H.H. Mendell and W.P. Craighill (Philadelphia, Pa.: J.B. Lippincott and Co., 1862; reprint edition, Westport, Cn.: Greenwood Press, 1971), pp. 65-67, 171.

[48] Meehan, "The Operational Trilogy," p. 17.

[49] Field Marshal Keitel made this point succinctly during the Nuremburg Trials when he said, "A mistake in strategy can only be made good in the next war." See Brian F. Fugate, Operation Barbarossa (Novato, Ca.: Presidio Press, 1984), p. 59.

[50] Fuller, The Foundations of the Science of War, p. 107.

[51] Ibid., p. 108.

[52] Ibid., p. 110.

[53] Meehan, "The Operational Trilogy," p. 12.

[54] This idea is drawn from Robert McQuie's "Battle Outcomes: Casualty Rates as a Measure of Defeat," Army (Nov 87): 31-34. McQuie argues that the "principle condition associated with defeat appears to have been the use of maneuver by an enemy....It does not seem to have been associated with the intensity of his firepower....Where maneuver was the decisive influence, moreover, recognition of defeat appears to have arisen from a look toward the future and the enemy's potential capabilities rather than toward the past and the casualties he has inflicted."

[55] J.F.C. Fuller, The Foundations of the Science of War, pp. 108-110.

[56] A good example of such an event was Hooker's withdrawal at Chancellorsville even though he was in a position to defeat Lee's forces in detail. For an account of this battle, see The West Point Atlas Series' The American Civil War, Thomas E. Griess, series ed. (Wayne, N.J.: Avery Publishing Group, 1987), pp. 138-142.

[57] Karl von Clausewitz, On War. ed. and trans. Michael Howard and Peter Paret (Princeton, N.J.: Princeton University Press, 1976), p. 97.

[58] James J. Schneider, "The Theory of Operational Art," Second revision of unpublished paper, School of Advanced Military Studies, CGSC, March 1988, p. 34. What I say here is perfectly consistent with the thrust of BG Wass de Czege's combat power model. We diverge in the nature of our focus. General Wass de Czege focuses primarily on achieving superior combat power at the decisive point(s). My focus is wider and more eclectic. I will argue later that there is much that must occur before and concurrently with actions at the decisive point(s) to make success at the decisive point(s) possible. If these events and actions do not occur, a unit may not generate sufficiently superior combat power at the decisive point to cause the

disarticulation, disintegration, or defeat of the enemy's forces and, hence, his plan.

[59] FM 100-5: Operations, pp. 179-180. Several journal articles have been written about how this particular definition confuses the notions of "center of gravity" and "decisive points." Two excellent articles in this regard are Jim Schneider and Colonel Lawrence Izzo's "Clausewitz's Elusive Center of Gravity," Parameters XVII (Sep 87): 46-57 and Colonel Izzo's "The Center of Gravity is Not an Achilles Heel," Military Review 68 (Jul 88): 72-77. For the remainder of the paper I will make a clear delineation between the two concepts using Schneider and Izzo's distinction.

[60] Schneider, "The Theory of Operational Art," p. 27.

[61] von Clausewitz, On War, pp. 485-486.

[62] Schneider, "The Theory of Operational Art," pp. 26-27. See also Captain Bruce Gudmundsson's "Field Stripping the *Schwerpunkt*," Marine Corps Gazette (Dec 89): 30-32 for a useful discussion of the term "Schwerpunkt."

[63] Schneider, "The Theory of Operational Art," p. 27. See also Schneider and Izzo's "Clausewitz's Elusive Center of Gravity," pp. 48-49.

[64] General William E. Depuy, "Concepts of Operation: The Heart of Command, The Tool of Doctrine," Army (Aug 88): 30.

[65] Izzo, "The Center of Gravity is Not an Achilles Heel," p. 76.

[66] Ibid., p. 74.

[67] Schneider, "The Theory of Operational Art," p. 27.

[68] Schneider and Izzo, "Clausewitz's Elusive Center of Gravity," p. 57.

[69] Gudmundsson, "Field Stripping the Schwerpunkt," p. 30.

[70] Jomini, The Art of War, pp. 77 and 170.

[71] von Clausewitz, On War, pp. 194-197, 204. See also Schneider and Izzo, "Clausewitz's Elusive Center of Gravity," pp. 50-51; Jomini, The Art of War, p. 63; and Fuller, The Foundations of the Science of War, pp. 262-267.

[72] The operational whole of these battles is greater than their individual tactical "sum." This is the *main* difficulty with the Relative Combat Power Model.

[73] Schneider, " The Theory of Operational Art," p. 14.

[74] Fuller, The Foundations of the Science of War, pp. 293-300.

[75] FM 100-5: Operations, p. 174.

[76] General Glenn K. Otis. Lecture given at the School of Advanced Military Studies at Ft. Leavenworth, Ks. on 20 February 1990.

[77] Fuller, The Foundations of the Science of War, pp. 293-300.

[78] Ibid., p. 202.

[79] FM 100-5: Operations, p. 181. FM 100-5 defines an offensive culminating point as "a point where the strength of the attacker no longer significantly exceeds that of the defender, and beyond which continued offensive operations therefore risk overextension, counterattack, and defeat." In Book VI, Chapter 8 of On War Clausewitz identifies the defender's culminating point as the point "when the defender must make up his mind and act, when the advantages of waiting

have been completely exhausted."

[80] Schneider, "The Theory of Operational Art," pp. 41-42.

[81] FM 100-5: Operations, pp. 17-18. In a large sense, operational orchestration is the operational counterpart of synchronization. It differs from tactical synchronization, however, in that it incorporates more than just the military element of national power. There is a balancing of military considerations with the other three elements (political, economic, and psychological/moral).

[82] Fuller, The Foundations of the Science of War, p. 154. See also T.E. Lawrence, "The Evolution of a Revolt," Army Quarterly 1 (Oct 20): 60, 63.

[83] FM 100-5: Operations, p. 181.

[84] Meehan, "The Operational Trilogy," p. 16. See also Schneider, "The Operational Level of War," pp. 22-25.

[85] Schneider, "The Operational Level of War," p. 12.

[86] One of the chief weaknesses of the entire manual is its liberal sprinkling of tenets, principles, and imperatives throughout without tying them together in an integrated and unified theory. The authors owe the reader an explanation, for example, of how the elements of combat power are related to the tenets of Airland Battle and then, in turn, how these two conceptual models relate to the principles of war. One way of doing this is to explain the tenets using the elements of combat power or the principles of war, if that is possible. In a coherent theory, one can explain all the component concepts in terms of at least some of the other component concepts. In this author's mind, this is a major failing of FM 100-5. It is also a complicated problem that goes well beyond the scope of this paper.

[87] The current Battle Command Training Program team comes suspiciously close to espousing such a position. For example, team members tell the division commander that he is doing battle with a front commander against a front's assets. Moreover, they never really integrate what is going on around the *entire theater* into the scenario. As I have suggested in previous chapters, if the army group commander is doing his job properly, he should be able to take some of the burden, at least, off of the division commander's shoulders. That is not, however, how the exercise is played.

[88] Atkeson, "The Operational Level of War," p. 31. See also Robert M. Epstein, "The Different Levels of War in the Napoleonic Period: Austerlitz and Friedland."

[89] Ibid., pp. 33-35. General Atkeson focuses on theater intelligence assets only, but his point is valid for other operational level assets as well.

[90] Ibid., p. 34.

BIBLIOGRAPHY

BOOKS

Aron, Raymond. Clausewitz: Philosopher of War. Englewood Cliffs, N.J.: Prentice-Hall, Inc., 1985.

Bellamy, Chris. The Future of Land Warfare. New York: St. Martin's Press, 1987.

Cordesman, Anthony H. The Iran-Iraq War and Western Security 1984-87: Strategic Implications and Policy Options. London: Jane's Publishing Company, 1987.

Clausewitz, Karl von. On War. Translated and edited by Michael Howard and Peter Paret. Princeton, N.J.: Princeton University Press, 1976.

Cooper, Matthew. The German Air Force 1933-1945: An Anatomy of Failure. New York: Jane's Publishing Incorporated, 1981.

_____. The German Army 1933-1945: Its Political and Military Failure. New York: Stein and Day Publishers, 1978.

Dixon, Norman. On the Psychology of Military Incompetence. New York: Basic Books, 1976.

Donnelly, Christopher. Red Banner: The Soviet Military System in Peace and War. Alexandria, Va.: Jane's Publishing Company, 1988.

Donovan, Timothy H. et al. The American Civil War. The West Point Military History Series. Wayne, N.J.: Avery Publishing Group Inc., 1987

Doughty, Colonel Robert A. The Seeds of Disaster: The Development of French Army Doctrine 1919-1939. Hamden, Cn.: Archon Books, 1985.

Dupuy, Colonel (Ret) Trevor N. Understanding War: History and Theory of Combat. New York: Paragon House Publishers, 1987.

_____. Numbers, Predictions, and War. Fairfax, Va.: HERO Books, 1985.

Eisenhower, David. Eisenhower: At War 1943-1945. New York: Vintage Books, 1986.

Fugate, Bryan I. Operation Barbarossa: Strategy and Tactics on the Eastern Front. Novato, Ca.: Presidio Press, 1984.

Fuller, MG J.F.C. Generalship: Its Diseases and Their Cure. Harrisburg, Pa.: Military Service Publishing Co., 1936.

_____. The Foundations of the Science of War. London: Hutchinson and Co., Limited, 1932.

Guderian, General Heinz. Panzer Battles. Washington, D.C.: Zenger Publishing Company, Inc., 1952.

Herzog, Chaim. The Arab-Israeli Wars: War and Peace in the Middle East. New York: Random House, Inc., 1982.

Horne, Alistair. To Lose a Battle. London: Penguin Books, 1979.

Jomini, Baron Antoine H. The Art of War. Philadelphia, Pa.: J.B. Lippincott and Co., 1862; reprint ed., Westport, Cn.: Greenwood Press, 1971.

Karnow, Stanley. Vietnam: A History. New York: The Viking Press, 1983.

Keegan, John. The Mask of Command. New York: The Viking Press, 1987.

Kellett, Anthony. Combat Motivation: The Behavior of Soldiers in Battle. Boston: Kluwer-Nijhoff Publishing, 1982.

Krepinevich, Andrew F. The Army and Vietnam. Baltimore Johns Hopkins University Press, 1986.

Lewy, Guenter. America in Vietnam. Oxford: Oxford University Press, 1978.

Liddell Hart, B.H. Strategy. New York: Praeger Publishers, 1974.

London Sunday Times Insight Team. The Yom Kippur War. Garden City, N.Y.: Doubleday and Doubleday, Inc., 1974.

MacDonald, Charles B. A Time for Trumpets. New York: William Morrow and Co., Inc., 1985.

Middlebrook, Martin. Operation Corporate: The Story of the Falklands War, 1982. London: Viking, 1985.

Miksche, Ferdinand O. Blitzkrieg. London: Faber and Faber, 1941.

Palmer, General Bruce. The 25-Year War: America's Role in Vietnam. Lexington, Ky.: The University Press of Kentucky, 1984

Pike, Douglas. PAVN: People's Army of Vietnam. Novato, Ca.: Presidio Press, 1986.

Posen, Barry R. The Sources of Military Doctrine: France, Britain, and Germany between the World Wars. Ithaca, N.Y.: Cornell University Press, 1984.

Race, Jeffrey. War Comes to Long An: Revolutionary Conflict in a Vietnamese Province. Berkeley, Ca.: University of California Press, 1972.

Reznichenko, General Vasiliy G. Taktika [Tactics]. Translated by Foreign Broadcast Information Service. Moscow: Publisher unknown, 1988. U.S. Government Document Number JPRS-UMA-88-008-1-1.

Sheehan, Neil. A Bright Shining Lie: John Paul Vann and America in Vietnam. New York: Random House, 1988.

Simpkin, Brigadier Richard E. Race to the Swift. London: Brassey's Defence Publishers, 1985.

Summers, COL Harry G. On Strategy: A Critical Analysis of the Vietnam War. Novato, Ca.: Presidio Press, 1982.

van Creveld, Martin L. Command in War. Cambridge, Ma.: Harvard University Press, 1985.

_____. Fighting Power: German and U.S. Army Performance, 1939 1945. Westport, Cn.: Greenwood Press, 1982.

_____. Supplying War: Logistics from Wallenstein to Patton. Cambridge: Cambridge University Press, 1977.

Vigor, P.H. Soviet Blitzkrieg Theory. New York: St. Martin's Press, 1983.

von Mellenthin, Major General F.W. NATO under Attack: Why the Western Alliance Can Fight Outnumbered and Win in Central Europe without Nuclear Weapons. Durham, N.C.: Duke University Press, 1984.

_____. Panzer Battles: A Study of the Employment of Armor in the Second World War. Norman, Ok.: University of Oklahoma Press, 1981.

Weigley, Russell F. Eisenhower's Lieutenants: The Campaign of France and Germany, 1944-1945. Bloomington, In.: Indiana University Press, 1981.

Wray, Timothy. A. Standing Fast: German Defensive Doctrine on the Russian Front During World War II. Ft. Leavenworth, Ks.: Combat Studies Institute, CGSC, 1986.

Ziemke, Earl F. and Magna E. Bauer. Moscow to Stalingrad: Decision in the East. Washington, D.C.: Center of Military History, U.S. Army, 1987.

FIELD MANUALS, PAMPHLETS, PERIODICAL ARTICLES, AND UNPUELISHED PAPERS

Abt, Major Frederic E. "The Operational End State: Cornerstone of the Operational Level of War," SAMS Monograph, CGSC, Ft. Leavenworth, Ks., 6 May 1988.

Allen, Ralph L. "Piercing the Veil of Operational Art," Parameters XVI (Winter 86): 23-29.

Aron, Raymond. "Clausewitz's Conceptual System," Armed Forces and Society 1 (Nov 74): 49-59.

Atkeson, Major General (Ret) Edward B. "The Operational Level of War," Military Review 67 (Mar 87): 28-36.

Barbero, Major Michael D. "The Iran-Iraq War of Exhaustion: The Result of the Paradoxical Trinity," SAMS Monograph, CGSC, Ft. Leavenworth, Ks., 9 May 1989.

Bolt, Colonel William J. and Colonel David Jablonsky. "Tactics and the Operational Level of War," Military Review 67 (Feb 87): 2-19.

Brickhouse, Major G. Kevin. "A Primer on Maneuver Warfare," Marine Corps Gazette (Oct 89): 64.

Carlson, Colonel Kenneth G. "Operational Level or Operational Art?," Military Review 67 (Oct 87): 50-54.

Crawford, Major Dorn. "The Operational Level of Deterrence," Military Review 67 (Jan 87): 14-22.

Depuy, General (Ret) William E. "Concepts of Operation: The Heart of Command, The Tool of Doctrine," Army 38 (Aug 88): 26+.

Dupuy, Colonel (Ret) Trevor N. "Let's Get Serious About Multipliers," Army 33 (May 83): 18-25.

Ellison, Major Gregory W. "Operational Art: The Missing Link in the Iran-Iraq War," SAMS Monograph, CGSC, Ft. Leavenworth, Ks., 26 Apr 88.

Epstein, Robert M. "The Different Levels of War in the Napoleonic Period: Austerlitz and Friedland," Unpublished manuscript, SAMS, CGSC, Ft. Leavenworth, Ks., 1983.

Fastabend, Major David A. "A Theory of Conflict and Operational Art," SAMS Monograph, CGSC, Ft. Leavenworth, Ks., 9 May 88.

Filiberti, Edward J. "Developing a Theory for Dynamic Campaign Planning," SAMS Monograph, CGSC, Ft. Leavenworth, Ks., 26 Apr 88.

FM 22-103: Leadership and Command at Senior Levels. Department of the Army. Washington, D.C., Jun 87.

FM 90-2: Tactical Deception. Approved Final Draft. Department of the Army. Washington, D.C., Dec 87.

FM 100-5: Operations. Department of the Army. Washington, D.C., 5 May 86.

FM 100-6: Large Unit Operations. Coordinating Draft. Department of the Army. Washington, D.C., 30 Sep 87.

Franz, Wallace P. "Operational Concepts," Military Review 64 (Jul 84): 2-15.

Gudmundsson, Captain Bruce. "Field Stripping the *Schwerpunkt*," Marine Corps Gazette (Dec 89): 30-32.

Izzo, Colonel Lawrence L. "The Center of Gravity is Not an Achilles Heel," Military Review 68 (Jul 88): 72-77.

Jablonsky, Colonel David. "Strategy and the Operational Level of War: Part I," Parameters XVII (Spring 87): 65-76.

Karsh, Efraim. "The Iran-Iraq War: A Military Analysis," Adelphi Papers 220, International Institute of Strategic Studies, London: Henry Ling Limited, The Dorset Press, Spring 87.

Lawrence, T.E. "The Evolution of a Revolt." Army Quarterly 1 (Oct 20): 55-69.

Lind, William S. "Some Doctrinal Questions for the U.S. Army," Military Review 57 (Mar 77): 54-65.

Lind, William S. et al. "The Changing Face of War: Into the Fourth Generation," Military Review 69 (Oct 89): 2-11.

Luttwak, Edward N. "The American Style of Warfare and the Military Balance," Survival (Jan/Feb 79): 57-60.

_____. "The Operational Level of War," International Security 5 (Winter 80/81): 61-79.

McQuie, Robert. "Battle Outcomes: Casualty Rates As a Measure of Defeat." Army 37 (Nov 87): 31-34.

Mearsheimer, John J. "Maneuver, Mobile Defense, and the NATO Central Front," International Security 6 (Winter 81/82): 104-122.

Meehan, Colonel John F. III. "The Operational Trilogy," Parameters XVI (Autumn 86): 9-18.

Newell, Lieutenant Colonel Clayton R. "Exploring the Operational Perspective," Parameters XVI (Autumn 86): 19-25.

_____. "Balancing the Ends, Ways and Means," Army 36 (Aug 86): 24-32.

Runals, Major Stephen E. "A Different Approach," Military Review 37 (Oct 87): 44-49.

Schneider, James J. and Colonel Lawrence Izzo. "Clausewitz's Elusive Center of Gravity," Parameters XVII (Sep 87): 46-57.

_____. "The Loose Marble--and the Origins of Operational Art," Parameters XIX (Mar 89): 85-99.

_____. "The Theory of Operational Art," Second revision of unpublished paper, School of Advanced Military Studies, Command and Staff College, Ft. Leavenworth, Ks., Mar 88.

_____. "The Theory of the Empty Battlefield," RUSI: Journal of the Royal United Services Institute for Defense (Sep 87): 37-43.

Segal, David. "The Iran-Iraq War: A Military Analysis," Foreign Affairs (Summer 88): 946-963.

Sullivan, Major General Gordon R. "Learning to Decide at the Operational Level of War," Military Review 67 (Oct 87): 16-23.

Sutten, Lieutenant Colonel Charles G. Jr. "Command and Control at the Operational Level," Parameters XVI (Winter 86): 15-22.

Swain, Colonel Richard M. "Removing Square Pegs from Round Holes," Military Review 67 (Dec 87): 2-15.

Thornton, Major Skip. "A Working Theory of Operational Art," SAMS Monograph, CGSC, Ft. Leavenworth, Ks., 16 May 89.

Wass de Czege, BG Huba. "Understanding and Developing Combat Power," Unpublished paper, School of Advanced Military Studies, Command and General Staff College, Ft. Leavenworth, Ks., 1984.

Williamson, Colonel William R. "Campaign Planning," Parameters XIV (Winter 84): 20-25.

LECTURES

Otis, General (Ret) Glenn K. Lecture presented to the School of Advance Military Studies, CGSC, Ft. Leavenworth, Ks., 20 February 1990.