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LOGISTICS DOCTRINE, SYSTEMS AND PROCESS -
necessary for academia, tolerated in peace, ignored
and/or irrelevant in war

AN INDIVIDUAL STUDY PROJECT

by

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CHAPTER 1

If Army generals are "logistically ignorant"; if intelligent officers can spend 30 years in the service and reach the very pinnacle of the military profession without having acquired a due regard for sustainment of forces in the field; if congressmen who appropriate funds for the military do not understand the value of sustainment to an army in time of war, whose fault is it? For that matter, why is it a commander, who willingly spends two hours discussing whether the engineers in the covering force should be attached or under operational control (OPCON), is not willing to spend five minutes discussing arrangements for sustaining the force.[1]

Logistics is a fundamental of the art of war, along with strategy, tactics, intelligence and communications. The primary purpose of logistics is to deliver adequate potential or actual fire power or shock to the critical places at the critical times for achievement of tactical and strategic objectives.[2] If operations are a blend of logistic and tactical actions to attain a strategic purpose, then logistic action must precede the tactical action, for logistics constrains the deployment, employment and redeployment of forces. Yet logistics is the element which is often minimized, suppressed, or ignored in the strategic, operational and tactical levels of war.

A study of history shows numerous cases of great generals exploiting logistics applications, but their exploitation is generally a single event or for a fleeting period of time. The incongruity is in their failure to accept and apply this fundamental in the long term. It would appear that just as they recognize and exploit tactical strengths of their own and

weaknesses of their enemy during the heat of battle, they are capable of applying the same analytical and artful process with logistics throughout the spectrum of conflict.

Not only does history show us that military leaders have repeatedly subordinated the logistical element in war to the operational art, Dr. Martin van Creveld points out the neglect of military historians to depict accurately the logistical factors of battles, campaigns and wars.

It is therefore surprising that the vast majority of books on military history manage to play lip service to this concept [logistics] and yet avoid making a serious study of it. Hundreds of books on strategy and tactics have been written for every one on logistics, and even the relatively few authors who have bothered to investigate this admittedly unexciting aspect of war have usually done so on the basis of a few preconceived ideas rather than on a careful examination of the evidence. This lack of regard is in spite -- or perhaps because -- of the fact that logistics make up as much as nine tenths of the business of war, and that the mathematical problems involved in calculating the movements and supply of armies are, to quote Napoleon, not unworthy of a Leibnitz or a Newton. [3]

Why then is logistics treated with such little respect? What have we lost by maintaining such an attitude? What do we stand to gain with a more intelligent application? Why must logisticians be tacticians, but tacticians need not be logisticians?

Why with all of the annals of military history available today and with all of the military schooling available and mandated today, do we still have a failure to acknowledge in practice, more so than in word, the criticality of logistics in the strategic, operational and tactical levels of war?

The purpose of this paper is to review the facts which document why, with all of the lessons we have learned in studying warfare, logistics exists today in an antagonistic environment. This paper will address a review of doctrine; points about competence, knowledge, education and training; force structure; and personnel management to determine the shortfalls in any or all of these areas which might cause this phenomenon and/or might perpetuate it. Finally, it will offer recommendations of means to deal with the issue, in the hopes of minimizing its effects or eliminating it all together.

CHAPTER 2

A considerable amount of research time was spent on the history of logistics in warfare. The readings were what many people consider the most formidable works on logistics in warfare and to some classics, not only of logistics history, but of warfare itself. George C. Thorpe's Pure Logistics, Henry E. Eccles' Logistics in the National Defense, and James A. Huston's The Sinews of War: Army Logistics 1775-1953 are the classics. Noteworthy publications of late and potential classics are Martin Van Creveld's Supplying War: Logistics from Wallenstein to Patton, Joseph M. Heiser's Logistics Support, and Julian Thompson's The Lifeblood of War: Logistics in Armed Conflict. Although few in number in comparison to the total works on the history of warfare, the works are comprehensive and insightful.

The discourse of these historians, logisticians and strategists is replete with vivid documentary evidence of long term neglect, misunderstanding and subservience. To recount or to even summarize the truly fine work of these gentlemen is not the intent of this paper. The content of their works is used as a basis for analysis, argument and conclusion.

From antiquity to Desert Storm, strategists, commanders and tacticians who have given due consideration to logistics in the planning, preparation and execution of war have proven to be generally successful. Those who have chosen to subordinate logistics have generally suffered setbacks or defeat. History abounds with example after example of how logistics has played a crucial role in success and defeat at all levels of war. For

the sake of brevity, cases of three historically significant conflicts, the Revolutionary War, the American Civil War and World War II, will be proffered as historical argument.

Revolutionary War

James Huston considers the Saratoga Campaign and the logistics of both sides significant not only to the outcome of the war, but to the history of logistics as well.

"It would be difficult to find any campaign in which logistics played a more direct and decisive part than in this campaign of the Revolution. In the final analysis, it was the breakdown in Burgoyne's transportation--the failure of procurement in Canada,..., the failure of procurement or seizure enroute--and the consequent delays which gave the Americans time to reorganize, and ultimately led to Burgoyne's surrender....

"Britain's greatest logistical advantage during the Revolution was its command of the sea. When the British incautiously moved inland and transferred their dependence for supplies from direct support by sea to long, difficult overland and inland waterway supply lines they abandoned that advantage--and met disaster....

"For their part, the Americans had developed a logistical system which, with all its specific failures and acute shortages, its cumbersome administration, and difficult interstate relations, probably worked at its best during the Saratoga campaign. Major lines of communication remained open throughout; resupply, though sometimes precarious, generally was

adequate; and troops were sufficiently well re-equipped, particularly in the vastly superior firearm....

"Burgoyne allowed logistics to become his master instead of making logistics his servant. He was so concerned with getting everything up to meet all possible contingencies that he was too paralyzed to meet any contingency. In moving his heavy ordnance and stores he lost one of the most important elements of warfare--timing."[4]

American Civil War

Julian Thompson purports several significant lessons learned from the American Civil War, not least of which is the importance of logistics as an element of strategy. The Civil War demonstrated "the importance of a strategy which takes account of logistics, not merely ones own, but the adversary's. Lee and Jackson were the masters of the operational art. But the war was won by the logistics capability of the North, able to arm and sustain its armies, and eventually to maintain Grant in his strategy of relentless pressure on Lee. Grant 'fixed' Lee so he could not detach troops by rail to reinforce the Confederates facing Sherman in Tennessee and Georgia, and later in the Carolinas. Sherman was left in overwhelming strength to demolish the South's vital railway communications, supply and manufacturing center of Atlanta, before cutting loose from his supply base and advancing on a front of 50 to 60 miles wide, feeding his army by foraging; destroying and confiscating all resources and property that might be of any military value to

the South."[5]

This lesson learned plays heavily on another lesson learned of the Civil War, the lack of preparedness of each side to engage in war. Not only did preparedness contribute to the length of the war, but to both sides experiencing defeats early in the war. History bears out that the South never really did acquire the means to sustain its war effort and this may well have been its Achilles heel.

The importance of logistics relative to strategy is further amplified by Russell F. Weigley in an assessment of American Strategy. In recounting the Civil War he pays tribute to the contribution of Union Major General Henry W. Halleck, "in effect western theater commander as head of the Department of the Mississippi", and his subordinate Brigadier General Ulysses S. Grant. "Halleck partially fulfilled the promise that might have been expected from the first systematic and comprehensive American analyst of strategy....Halleck's insights into the logistical foundations of strategy proved consistently acute. Throughout the war, he maintained a shrewd eye for logistically viable lines of operation for the Union forces, and he increasingly recognized that one of the most effective weapons of the strategy, in an age when battle meant exposure to rifle firepower, was to aim not directly at the enemy but at their logistical bases....His subordinate Grant seemed at first glance the opposite type of soldier, a man of action simple and direct, without historical study or theoretical reflectiveness....Grant soon demonstrated that his capabilities reached far beyond a

mere intuitive grasp of the battlefield....He became the most influential figure in shaping of American strategic thought for the next hundred years, not always with fortunate results.... Grant's emergence as a strategist began with the Fort Henry-Fort Donnelson campaigns, which he executed and in whose design he shared with his commanding officer, General Halleck. Like Halleck, he grasped from the beginning of the war the importance of the rivers that penetrated the western Confederacy as logistically workable lines of operation in a vast area otherwise lacking such lines, except for a few long and vulnerable railroads....Grant's image in military history is principally that of an unsubtle practitioner of attrition warfare....[yet] More important than the casualty toll in the Vicksburg Campaign was the attainment of the campaign's geographic objectives....But when this campaign...brought Grant the command of all the Union Armies, his objectives had to expand beyond the capture of strategic places....Grant felt compelled to modify his strategy and to seek the utter destruction of the Confederacy's capacity to wage war."[6]

World War II

In 1941 in North Africa, Rommel disobeyed Hitler's instructions and took the offensive against the British and won a tactical victory by pushing the British out of Libya. In doing so, he overtaxed the port capabilities of Tripoli, but even worse he stretched his supply lines beyond the culminating point of his campaign. By December of 1941 his forces were in

general retreat. His inability to capture the port of Tobruk sealed his strategic failure in the North African campaign.

Turning to western Europe during 1944, a successful Allied force was moving ever so close to the defeat of German forces. General Eisenhower needed a final blow, a knock out punch, to bring capitulation of the German Army. His conceived plan was a broad front strategy. His decision to mass his forces along the Rhine River, the full length of the Western Front, then launch his final push into the hinterland of Germany, earned him considerable controversy. This strategy was in contrast to two other proposals characterized by much narrower and more powerful concentrated thrusts. On the surface and on further investigation, these plans proved to be oblivious to logistical realities.

"The factor that adherents to both these [alternative] theories have neglected or underestimated is logistics....What is not always recognized is that General Eisenhower's decision in mid-September 1944 was a decision based in large measure on logistics factors....

"The supply situation which set the stage for General Eisenhower's decision was indeed all but desperate, but the reasons for it should not have been difficult to see. It is hardly surprising that combat commanders, in their exasperation over the denial to them of the means to continue the pursuit or launch one bold thrust into Germany, should, on the American front, have immediately vented their annoyance on the Communication Zone, the organization responsible for their

support. But their annoyance reflected both an unawareness of the impact of pursuit on supply capabilities and conveniently short memories concerning the invasion plan and the expected course of operations....

"Since the Overlord operation developed quite differently from what had been expected, the assumptions on which the schedules had been based were largely voided. For the first seven weeks the advance was much slower than anticipated, and the Allied forces were confined to a shallow Normandy beachhead. From the viewpoint of logistical support, the lag in operations was not immediately serious, for it resulted in short lines of communications and gave the service forces added time to develop the port of Cherbourg, whose capture had been delayed....

"Whatever temporary advantage accrued from this situation quickly disappeared after the breakout at the end of July...Despite the logistics complications which the rapid advance had already foreshadowed, decisions now were made to establish a bridgehead across the Seine; then to encircle Paris; and, finally, to continue the pursuit without pause all along the front. On purely tactical grounds these decisions were logically indicated, for the Allies now enjoyed a definite superiority, and the disintegration of enemy resistance offered opportunities that it would have been folly to ignore. From the point of view of logistics, however, these decisions carried with them a supply task out of all proportion to planned capabilities. With the supply structure already severely

strained, these decisions entailed the risk of a complete breakdown....

"The unbearable supply task which the continued advance created can best be appreciated by comparing planned with actual developments....

"Contrary to plan...and as direct consequence of the August decisions, considerably greater forces were being maintained at much greater distances than contemplated. This was accomplished despite an insufficiency of motor transport (which had been predicted even before D-Day), despite the failure to open the Brittany ports, and despite the premature assumption of responsibilities in connection with civil relief of Paris....

"The probability that logistic limitations might strait-jacket tactical operations had been realized as early as 24 August, when General Eisenhower expressed anxiety over the Allies' inability to undertake, simultaneously, the various operations which appeared desirable....

"Logistics planners estimated that there would be twenty-nine divisions in the 12th Army Group by 1 October, but thought it unlikely, on the basis of the current logistic outlook, that more than twenty could be maintained in combat as far forward as the Rhine at that date....

"The situation in mid-September clearly indicated an urgent need both to shorten the lines of communications and to secure additional port capacity....

"The dilemma in which the Allies found themselves at this time was, as previously noted, a direct outcome of the earlier

decisions by which logistic considerations had been subordinated repeatedly to the enticing prospects which beckoned eastward. General Eisenhower himself admitted that he had been willing to defer the capture of ports in favor of the bolder actions which had taken the Allied armies to the German border. The first such deferment had been made on 3 August, when the bulk of the Third Army was turned eastward rather than into Brittany as originally planned. Two weeks later the Supreme Commander had again subordinated logistic considerations when he decided to cross the Seine and continue to drive eastward. Such deferments were no longer permissible....

"The developments of the next few weeks produced little cause for altering the conclusions reached in mid-September....It was clear that the maintenance of large-scale operations would remain unsatisfactory until the port of Antwerp and adequate rail lines of communications were made available. The operations of the 21 and 12th Army Groups, consequently, were to be dominated throughout the fall of 1944 by the necessity of developing a new administrative base in closer proximity to the front lines....

"Tactical operations, to paraphrase an old maxim, had definitely become the art of the logistically feasible."[7]

World War II offers numerous lessons on the importance of logistics. There is no irony in the fact that many are reminiscent of lessons learned in the American Civil War and World War I. Either disdained or obviated for other unknown reasons, logistics constraints which were acknowledged during

and after previous wars befell the American Expeditionary Force, its Allies, and even its enemies. Once again, in the rugged terrain of North Africa and in the hinterland of Central Europe shortfalls in preparedness, inadequate logistical planning, and insufficient sustainment capability proved vital to success and defeat at the tactical, operational and strategic levels of war.

CHAPTER 3

In light of the historical backdrop, which is clearly representative of a propensity to subordinate logistics in the three levels of war, what is our posture today? Do our doctrine, professional development, and personnel management procedures aid in our efforts to avoid repeating the mistakes of the past? What, if any, change in attitude is emerging in the senior leadership of our armed forces? This chapter will address these questions.

CURRENT DOCTRINE

The cornerstone of Army warfighting doctrine is FM 100-5. It delineates the Airland Battle concept which is the Army's basic warfighting doctrine. Airland Battle doctrine's four fundamental tenets characterize its operations and its ten imperatives prescribe key operating requirements for its operations. The four tenets and ten imperatives provide the solid foundation and framework from which all other doctrinal materials are developed and promulgated. They are the blueprints of an overall construction process intent on building a house, the Army, strong enough to withstand the most horrific winds, the winds of war.

FM 100-5 states "[t]hat the US Army's ability to sustain its operation is more important as an element of combat power than ever before." This importance is constant regardless of the type of operation, the force structure and any level of intensity. The importance is further amplified as follows:

Sustainment is equally vital to success at both the operational and tactical levels of war. Campaigns will often be limited in their design and execution by the support structure and resources of a theater of war. Almost as commonly, the center of gravity of one or both combatants will be found in their support structures, and in those cases major operations or even entire campaigns may be mounted to destroy or defend those structures. Operational maneuver and exploitation of tactical success will often depend critically on the adequacy of a force's sustainment.[8]

FM 100-5 articulates the challenges of logistics in the following terms:†1

The sole measurement of successful sustainment has always been the generation of combat power at the decisive time and place. As the environment for this has never been more demanding, today's units must be as simple and rugged as possible. They must also use complex weapons and consume large stocks of materiel to fight a sophisticated enemy. High- and mid-intensity operations will therefore be characterized by high consumption of military materiel; by a great diversity of equipment types; by the expansion of the battle area resulting from both sides employing sophisticated weapons, communications, and sensors; and by extended lines of support within and outside the theater of operations. Sustainment on this enlarged, material-intensive, electronically sensitive, and lethal battlefield presents and unprecedented challenge.[9]

To meet these challenges, sustainment of AirLand Battle operations depends upon five fundamental [logistics] imperatives: anticipation, integration, continuity, responsiveness and improvisation.[10]

Anticipation equates to having the right stuff, at the right place, and at the right time. It further implies flexibility to adapt to varying intensities and geographical conditions.

Integration requires not merely the introduction of logistics in the overall plans, but the complete immersion of

logistics into every element and stage of the planning and execution of campaigns and battles.

Continuity reminds us that extended interruptions of the continuous flow of logistics will degrade the combat power of any fighting force. Adherence to this imperative is predicated on a ceaseless and strong defense of logistics bases and lines of operations and/or communication.

Responsiveness speaks to the agility and adaptability required to meet no warning contingencies, to meet surge requirements, and to exploit battlefield successes.

Improvisation addresses the point that the best laid plans sometimes go astray and when failure or inefficiencies befall the other imperatives, non-doctrinal and/or innovative applications may be warranted. Improvisation should not be our method of choice, but rather our ace in the hole.

It is significantly noteworthy that, as presented in FM 100-5, the only element of the art of war which has its own unique imperatives, yet compatible with AirLand Battle imperatives, is sustainment. This should be evidence to logistician and tactician alike that the understanding and practical application of logistics merits a more formidable place in our education, unit training, and daily operations; but most importantly, it belongs in every facet of the planning process and specifically in the commander's decision making process.

It should be even more apparent that responsibility in this endeavor is neither solely that of the logistician nor

tactician, but a common effort. It is a common effort requiring a more equitable balance of understanding the art and science of each other's element of war, and it requires a complementary application in the planning and execution at all levels of war.

Although I am comfortable with the presentation of chapter 4, FM 100-5, the rest of the text shows no integration of the relationship of the sustainment process with the other elements of operational and tactical planning and execution, environment of combat, fundamentals of the offense, fundamentals of the defense, retrograde operations, joint and combined operations or contingency operations. This is the beginning of the problem. FM 100-5 in fact, by virtue of its format and presentation, portrays sustainment as a separate element of operations. Furthermore, it allows those so inclined to avoid the thrust of the logistical discourse in our keystone document.

The problem is continued and exacerbated by the treatment of sustainment or logistics in the other supplemental doctrinal publications, specifically those other than pure logistics publications. The commitment to the articulated importance of logistics in FM 100-5 wanes in the discourse of Combined Arms Center (CAC) promulgated publications. The presentations of logistics are, at best, universally conciliating. A corroborating treatment of logistics throughout warfighting publications is needed to persuade the warfighter of the relative importance of

logistical considerations in planning and executing campaigns and battles.

Doctrinal publications of the Combined Arms Support Command are not without their problems. First, support publications fail to establish sufficient connectivity with the tenets and imperatives of Airland Battle Doctrine throughout their text. Second, systems, procedures and processes developed are disjointed, dysfunctional and counterproductive due to parochialism and inexplicable decisions made in their conception and development. Cases in point are: our current logistics automation debacle; the corresponding materiel management flow disconnects; and our inability to maintain in-transit visibility of materiels ordered. Finally, force structure in echelons above division have yet to meet the challenges of Airland Battle changes. Composition of units at the Corps and Theater level have been under ongoing and continuous analysis since the early 80's. The ad hoc creation of the logistics infrastructure at echelons above corps and the corresponding application of brute logistics in Desert Storm punctuates the dilemma created by the lack of closure on these issues. The logistics community does little to merit the attention of the combat arms group to our "how to" publications when their contents bear little resemblance to the every day and contingency worlds of logistics.

What about Joint Doctrine? The events of the last

three years indicate almost unequivocally that future warfare will be a joint venture, and, just as likely, a coalition affair.

Joint Publication 1 is the keystone document for joint operations. Although not as detailed and definitive in its presentation as FM 100-5, the themes promulgated in Army doctrine are confirmed and reinforced in succinctly stated fundamentals of joint warfare and characteristics of joint campaigns.

Agility, the ability to move quickly and easily, should characterize our operations....Strategic agility requires properly focused logistic support and a smoothly functioning defense transportation system. Forward-deployed forces, pre-positioning, and the ability to deploy forces readily from the United States, and redeploy them as necessary within and between theaters, also enhance strategic agility.[11]

Sustaining operations at the strategic and operational levels underwrites agility, extension of operations, and freedom of action....Strategic and theater logistics and deployment concepts are integral to combat success. Those concepts are driven by the plans and orders of joint force commanders and supported by the Services, by other supporting commands, and often by host-nation support from allies and friends. Logistics standardization (to include deployment procedures and equipment interoperability where practical) will also enhance sustainment of joint operations.[12]

Logistics sets the campaign's operational limits. The lead time needed to arrange logistics support and resolve logistics concerns requires continuous integration of logistics considerations into the operational planning process. This is especially critical when available planning time is short. Constant coordination and cooperation between the combatant commander and component staffs - and with other combatant commanders - is a prerequisite for ensuring timely command awareness and oversight of deployment readiness,

and sustainment issues in the theater of war.[13]

Joint Publication 4-0 (Test), Doctrine for Logistics Support in Joint Operations, is the joint doctrine equivalent of Chapter Four, FM 100-5. Here again the treatment of logistics in this publication is quite good, providing a fundamental basis for understanding and a solid framework for application. Most importantly, it is useful to logistician and warfighter alike.

But the Joint Publication series as a whole warrants the same criticism as does its Army cousin. Detail and connectivity are lacking. Explicit guidance on important interoperability matters is not fully developed and most publications have been published under "test" designations for at least the last five years. These shortcomings grow exponentially in their gravity with the passage of time. Our involvement in the most recent conflicts found us involved in joint and combined military operations. Furthermore, it is commonly believed that any future conflicts will be similar in nature. For this reason, our bringing to closure the development and promulgation of joint doctrine is of paramount importance.

COMPETENCE

As members of the military we pride ourselves on being part of a profession. A vital component of a profession is the competence of its leaders. There may be no other profession where this component is so vital to the success of, credibility of and survivability of the profession and the professional. Yet we are aware that perfection does not exist in our ranks,

and that the less capable sometimes rise to the heights of our profession. Most tenured officers have seen this. But every once in a while we need someone to remind us of it.

An officer may be highly successful and even brilliant, in all grades up to the responsible positions of high command, and then find his mind almost wholly unprepared to perform its vitally important functions in time of war.[14]

A professional officer as he or she progresses must relentlessly pursue being competent in every aspect of the arts and sciences of warfare. RADM Eccles underscores this point when he says, "no military commander or high civilian executive, operating in the fields of strategy or logistics, can hope to deal effectively with these contradictions unless he has acquired an intuitive appreciation of fundamental theory and principle." [15] He goes on to say, "this appreciation can not be acquired by hasty scanning of military literature. It comes only when one has thought deeply about these matters in the light of the evidence of history. But such appreciation of fundamental principles is of little real value unless the commander exercises critical supervision of those matters which in summation create readiness for combat." [16]

Competence is generally characterized by knowledge, good judgment, common sense and an ability to think logically. Essentially, good judgment and common sense, although desirable qualities, are no substitute for knowledge, regardless of how it is acquired. RADM Eccles is absolutely correct when he says "professional knowledge is essential. The person charged with assisting the commander in the exercise of logistic coordination

must have knowledge of war as a whole. He must have a good knowledge of strategy, a thorough knowledge of logistics, and enough knowledge of tactics to recognize the logistical implications of tactical events and developments."[17]

While in agreement with this postulate, I would have to contend as well that the commander and the persons charged with assisting him in the exercise of tactical coordination, must have knowledge of war as a whole. They must have a good knowledge of strategy, a thorough knowledge of tactics, and a fundamental knowledge of logistics to recognize the logistical implications of tactical events and developments so they can work cooperatively, harmoniously and in concert with their logistics "bedfellow", not "adversary".

General John R. Galvin expressed the same opinion in an article in 1984 while serving as VII Corps commander. In his article on "grass roots logistics", he wrote"

With our exploding world of technology, it is even more necessary for the tactician to be a logistician. He who carries the saber must also carry a wrench. The equation works the other way too: The logistician must be a tactician with a keen ability to sense the flow of the battle....Good tacticians have always been sensitive to their own - and the enemy's - logistics situations.[18]

As stipulated earlier, competence is generally characterized by knowledge, good judgment, common sense and an ability to think logically. The key ingredient to our acquired competence is the knowledge obtained by means of formal schooling, both military and civilian, field experience, training and exercises, and self development.

Education

From the time an officer leaves his/her accession institution, ROTC, OCS, or service academy, he/she progresses along a sequential path of formal schools designed to develop ultimately the military strategist capable of articulating and carrying out the national and military strategies of our country. Officer basic courses prepare new officers for their initial assignment in platoons and companies. Advanced courses develop the skills necessary to orchestrate all elements of company size units and lead its members to successfully meet the unit's mission requirements. CAS3 prepares the officer to meet the requirements and responsibilities of battalion staff. Command and General Staff Officers Course (CGSOC) prepares officers for general staff positions and field grade command. The Army War College (AWC) education culminates the officer's formal development by focusing on the national security level, developing the requisite skills and knowledge to integrate the role of the senior military officer into the political, economical, social and military aspects of a democratic society.

Historically, throughout the progression of schooling from accession source to CGSOC, the focus of curriculums has been skewed to the employment of maneuver and combat support forces. Logistics branch schools do devote a considerable amount of time to branch specific skills in their basic and advanced courses, but a requisite and significant block of their curriculum has always been tactics at the level to which the course is focused. The degree of formal logistics training received in

combat/combat support branch courses pales in comparison.

One would expect that upon attendance at the senior courses at CGSC and AWC, a student would be exposed to a balanced curriculum, giving appropriate emphasis to all the fundamentals of the art of war. This has not been the case. Through the 1990/91 Academic Year, emphasis at each of these institutions has continued to focus on the operational art of war fighting .

The 1991/92 Academic Program at CGSOC inaugurated a new curriculum which is the result of revision efforts begun in 1989. Programmed changes will dramatically alter the critical knowledge and skills officers will acquire and the curriculum focus. Revisions as delineated by the commandant in January 1991 are promising. "The focus of instruction in the six blocks of core instruction is on planning, execution and sustaining military operations at the tactical and operational levels of war in five different regional settings." [19] Sustainment instruction is an integral part of at least two of six core blocks and implied as integral parts in the others. But before CGSC is worthy of plaudits, a review of the implementation would definitely be warranted. The reason for the pessimism is the precedent set by the Army War College.

In 1987-88, the Army War College faculty conducted a total analysis of purpose and mission of the college and of the resident curriculum. This thorough review and analysis concluded that the curriculum should include certain essential subjects. Senior level (strategic) leadership, national strategy, joint doctrine, regional threats and strategies,

theater campaigning and the role of the military in implementing national strategy were those subjects. It must be noted that these same subjects make up the core curriculum of the course in Academic Year 1991/92. "The Curriculum Committee also identified a need to improve the integration of military history and ethics into all courses and to improve logistics and intelligence instruction at both the strategic and operational levels." [20] So, from a current perspective, how well did the Army War College do?

The current curriculum at the AWC is sparse at best on logistics. Presented briefly in Course 3, logistics is virtually smothered in the overwhelming material on the Planning, Programming, Budgeting and Execution System. The concept is again addressed in Course 4, but is less than incisively presented. The preponderance of logistics instruction is presented by guest speakers in a general forum in Bliss Hall. Unfortunately, the presentations, most often, are state of logistics presentations or specifically tied to a specific event or function. In general, they do not provide the fundamental logistics concepts and applications in sufficient detail to promote understanding and acceptance of the logistical intricacies at the operational and strategic levels. As in most CPXs and/or wargames, logistics play in the campaign planning exercise is generally suppressed in the exercise design, and more often than not logistics considerations are ignored, halfheartedly considered or magically executed in exercise play. The first term of advanced courses offers a Strategic

Logistics elective which is available to twenty students. This advance course is not offered in term two. Twenty seats do not even accommodate the total number of CSS officers in the Class of 1992. Even worse it conveys the message that the intended audience is logisticians and that the applicability of the subject to others is minimal.

Training and Exercises

Enhancements in training methodology, intensity and focus have borne successes for our forces in our most recent conflicts. The one area where a significant shortfall in training application still exists is in the planning and conduct of exercises at all levels and of all types.

G. Murphy Donovan believes, "short of war, military exercises and war games are the best available extended classroom for the development of military arts," [21] If this is true, why are they not exploited to the fullest? Donovan thinks "professional attitudes toward exercises and war games are ambiguous at best. On one hand, at the tactical level, we have excellent centers training some of the best units in the world. Exercises, practice, and drill are important for tank crews, ship's captains, and aircraft commanders. If officers at this level fail to perform, the penalties are severe...At the operational/strategic level the exercise game is played by a different set of rules. Senior officers do not take exercises seriously as a venue to hone their strategic skills. There are few penalties for this neglect--except when it is too late, when we win battles and lose wars." [22]

Why, especially, is logistic play suppressed? RADM Eccles assesses it as follows:

Too seldom have the reports of these exercises included a realistic appraisal of the logistic problems and situations that would have been encountered under wartime conditions. Most peacetime exercises make little pretense of having realistic logistic aspects. The usual excuse is that to do so would detract from tactical training, or otherwise unduly complicate the maneuver.[23]

As simplistic and, maybe, caustic as it may sound, very seldom is any other explanation offered, or considered necessary by those of responsibility. To many this is intolerable. Such short sightedness diminishes our readiness to do battle and our effectiveness to prosecute it.

General Vuono succinctly captures the essence of the issue when he said, "the insights we draw from realistic exercises in sustaining combat power will provide the starting point for informal decisions or possible modifications of force design, command and control arrangements, and equipment requirements. Sustainment is not solely a logistics issue. It is an essential and critical part of the operational art."[24]

Personnel Management

Personnel management initiatives and programs implemented in the 1970s and 1980s clearly demonstrate an ignorance of, and maybe a little disdain for, logistics by some senior leadership in the Army at the time. The implementation of dual specialty and functional area policies and programs was clearly an effort to retain combat arms officers. Officers noncompetitive in their branches due to ratios of population to key jobs, were

given a new lease on military life through a process of feigned reincarnation. CSS officers were replaced or unable to occupy positions of upward mobility and professional development because of transferred CA officers ill-prepared to assume the positions at senior leadership and management levels. A case in point is offered in evidence: The position of Security, Plans and Operations (SPO) officer in the DISCOM of a forward deployed division was in the interim filled by a CPT(P) logistician for several months awaiting the arrival of an Infantry LTC with an alternate specialty designation in logistics (92). His arrival was less than two months before a Reforger exercise. His record showed no realistic background in the specialty or functional area, a weakness which became readily apparent in his performance during Reforger. His tenure as SPO lasted three months, at which time he was assigned other duties to enable him to hone the skills which, through no fault of his own, he was lacking in logistics.

A little over a year later, a second combat arms LTC with a logistics functional area designation was made SPO. He handled responsibilities of training, intelligence and deployment readiness exercises well, but he was unable to orchestrate logistics support to the division. Others in the DISCOM with complementary responsibilities performed the primary logistical responsibilities of the SPO. This included the planning for and the execution of support during another Reforger. Within a year he became the XO of the DISCOM, replacing another combat arms officer.

Less than a year later he was to leave the DISCOM to take command of a combat arms battalion. Personal problems prevented him from doing so and he was sent to Fort Leavenworth as an instructor - a LOGISTICS instructor for CAS3, CGSOC and PCC.

Accepting that he had learned something in his two years at the DISCOM, it is still mindboggling how the Army can assign a relative neophyte in logistics to a key logistics teaching position, if you accept that CAS3, CGSOC and PCC are pivotal training periods in an officers development.

Can you imagine the tactics department at CGSC having a Ordnance, Transportation or Quartermaster officer as a principal instructor?

The effects of such policy in the long run did not serve the Army well. For every combat arms officer that successfully made the transition or met with success in such assignments, there were three or four others who didn't. For a logistics community already suffering from a shortfall of experienced personnel, this adopted solution to its problems fell miserably short. Although branch populations increased, overall experience levels were diluted.

The policy and the implementing programs did not include job retraining for participants, nor extended assignments in the logistics functional area for acquiring experience and providing stability in personnel management. It did not consider the sociological differences of the warfighter and logistician. Rather, it merged two homogeneous but divergent groups with less than desirable success. Sensitivities and professional pride

were scarred on both sides. Animosities were intensified and effectiveness and efficiencies degraded. Upon analysis, it appears this policy was not truly conceived and implemented as a logistics enhancement, nor given the emphasis as a long term fix. As implemented, it is understandable that it did not work.

Current Literature

If one accepts that history demonstrates logistics failure on a grand scale and for an unacceptably prolonged period, it is heartening to find current literature and professional writings which suggest change in prevailing perceptions and attitudes of warfighters. Too, it offers hope in turning around the antagonistic environment that has persisted for so long.

Lately and frequently, published works convey the critical importance of logistics in the art of war. Authors range from the most senior officers of our services, to senior officers still wiping the wet mud from their boots.

One most formidable presentation was proffered by the former Chief of Staff of the Army, General Carl E. Vuono.

There is nothing clearer in the study of war than the need for adequate force sustainment...AirLand Battle doctrine has focused our thinking from a primarily tactical outlook to a more complete view, one which includes a operational level. Similarly, we have shifted our focus from a consideration of static supply balance formulas to one of sustainment. This concept of sustainment is central to both the tactical and operational levels. It differs from the concept of supply in its scope and in its emphasis on the the tenets of initiative, agility, depth and synchronization.

Sustainment is not just another way of saying continuous supply or replenishment: What we are sustaining is not only a unit's manning or fuel

level or ammunition; we are also sustaining combat power...Determining the requirements for sustainment combat power is as much art as science, and as much anticipation as accounting.

Our Army's ability to man, arm fuel, fix, transport, and protect will largely determine our warfighting effectiveness; however, it is not instructive to discuss sustainment as a separate element of operations. It is as much a factor in battle, from planning to execution, that it is best looked at from the perspective of a series of imperatives that apply the concept of sustainment to the dynamics of warfighting. These sustainment imperatives include anticipation, integration, continuity, responsiveness and improvisation.[25]

It is equally refreshing and encouraging to see and/or hear one's peers from the combat arms branches make the same proclamation. For example, two fine tacticians and academicians, one a former faculty member and holder of the John J. Pershing Chair of Military Planning and Operations, Colonel John F. Meehan III, and the other a current and distinguished faculty member, Colonel William W. Mendel, proffered these thoughts.

Meehan said "[i]t is difficult to overstate the importance of logistics at the operational level. At this level, especially in modern wars, logistics often will be the key consideration of all plans. To a large degree, logistics defines operations at the operational level. A campaign plan that cannot be logistically supported is not a plan at all, but simply an expression of fanciful wishes. The campaign plan, and the phasing of that plan, must allow for logistical restrictions as they exist and provide the time and resources for the logistical structure to be impulsed."[26]

COL Mendel couched his similar view by saying, "I find that

sustainment is at least the equal of employment considerations in sequencing campaigns. After all, the the campaign establishes requirements for the procurement and apportionment of national resources for the CONUS sustaining base. Forward bases must be established, lines of communications must be opened and maintained, intermediate bases must be established to support new phases, priorities for services and support must be established by phase. Logistics, then, is key to sequencing the campaign plan....So let me put it directly: sustainment is one-half the campaign. Plan accordingly. The higher you go in the levels of war, the more significant the sustainment function becomes."[27]

It is the thought process of these gentlemen, intuitively ingrained in tactician and logistician alike, that is desirable.

Logisticians must be knowledgeable of tactics for without this knowledge they are unable to employ astutely the logistics imperatives of anticipation, integration, continuity, responsiveness and improvisation.

Tacticians must be knowledgeable of logistics for without this knowledge they are unable to seize the initiative, maximize agility, exploit depth and decisively synchronize on the battlefield.

We must recognize that logistics support in unilateral campaigns is difficult and logistics support in bilateral (two nation) campaigns is increasingly difficult. But logistics support in multilateral or coalition campaigns is a monumental undertaking and an even greater threat to successful operations

if overlooked or slighted in any way.

What is not desirable is the greater portion of the senior leadership in the Army giving continued lip service to the importance of logistics in the strategic, operational and tactical levels of war. Rhetoric has failed to alter prevailing attitudes and thus produce effective and efficient logistical support in peacetime and contingency operations over the last two decades.

Summary

An understanding of logistics has always been necessary for the professional officer, but not ever required, nor always accepted. Logistics knowledge and experience is even more critical in today's warfare and essential for the officers who will face the imposing challenges of future warfare.

In the past, combat arms and some combat support types have seen the combat service support family as bureaucrats who vehemently adhere to systems and demonstrate iron clad inflexibility. To make matters worse, their perception is that logisticians have no appreciation for the complexities of tactical and operational maneuver.

If compared to the perceptions of CSS officers as already illustrated by the quotation which began this paper, we may conclude that we spend more time emotionally debating the inequalities and deficiencies of each other than we do trying to understand each other and coming to a consensus on what to do to remedy the obvious impasse we have experienced for decades, maybe even centuries.

The bottom line is that we have created over the years an adversarial environment where antagonism between warfighter and supporter continuously exists. Contributing to this dilemma is the development of systems, processes and methodologies which are involved, cumbersome, incompatible and fail to have connectivity. Counterproductive as well is the development of unsound doctrine, presented ineffectively and doing little to diminish the adversarial condition.

CHAPTER 4

Given the animosities of the environment outlined in the historical perspective and further characterized by current shortcomings, whatever we do to improve the environment must not rekindle old confrontations, exacerbate current hostilities, nor create new antagonisms. One would hope that this would be easy. But Liddell Hart summarizes the formidable challenge we face when he points out that "the only thing harder than getting an idea in the military mindset is to get an old one out." [28] Our dilemma is we must do both. Or is it?

Our approach must be to derive a program that concentrates on the introduction of logistics concepts and applications into the development of the officer corps. This program must be intense from initial entry to career termination. Our goal should be to breed a new generation of thinkers: professional officers who have been developed understanding the relative importance of all elements of the art of war; officers whose thinking is no longer skewed by the teaching and reinforcement that one element of war, generally maneuver, is prevalent over all others; and officers who do not progress ignorant of the other elements of the arts and sciences of war. To the extent that those elements appear to officers to be so vast and complex, the intuitive response is to suppress their importance.

Everyone should remember that "anyone is free to reject a particular subject as dull and a particular approach as unproductive. What one should not do is to inflate our likes and dislikes into cosmic law." [29]

We in the military must remember that "whenever a commander is faced with a military problem, he should not become so absorbed in one aspect of the problem - whether strategic, logistical, or tactical - that he considers it without reference as to how it affects and how it is affected by other elements." [30]

So what are the components of the program to breed a new generation of thinkers. The components advocated are not all inclusive, but do correlate to the discussions of doctrine, competence, literature and personnel management earlier in this paper.

Doctrine

As we develop and promulgate Airland Battle Future doctrine, we must take the opportunity not only to adjust and enhance our doctrine as a result of our Just Cause and Desert Storm experience, but we must incorporate in the process measures to fully integrate logistics applications with warfighting applications and vice versa in the respective doctrinal publications. Interservice applications and interoperability must also be incorporated.

Chapter four of FM 100-5 delineates specific and critically important logistics guidance and intent. So significant is the guidance and intent, it should carry through in the promulgation of supplemental doctrine, in the thinking of the leadership and in the conduct of every day business of the Army.

Detail and connectivity in fewer, better manuals must be the standard. Quality not quantity is the watchword. Fewer,

succinct, quality products should result in greater attention to and application of our deliberately developed and promulgated doctrine.

Education

The present and the immediate future offer a golden opportunity to establish a professional development program and educational system that will establish and ultimately inculcate in the professional officer of our Army, the knowledge and understanding of logistics needed to meet the challenges of a smaller, projectable force.

With the downsizing of the Army, it is expected that longer tours and longer pin on points for promotion to all grades will ensue. It is not inconceivable, and in fact very likely, that those soon to attend the Command and General Staff Officer Course will be midterm to senior Captains. Those soon to attend the Army War College will be midterm to senior Majors. This would create an environment mirroring the period in our military history between World War I and World War II. If this comes true, the opportunity to instill logistics in our professional force of the future at an earlier and more advantageous time is at hand.

In order to effect change, we need to incorporate viable, balanced and appropriate instruction in the curriculums of our professional development educational system. Courses of instruction must be more than sequential and progressive, they must treat all the elements of war fairly and proportionally to their applicability on the battlefield. Specifically, logistics

instruction must be revamped and reoriented.

It is important that we seriously review again, our curricula of the Command and General Staff College, both CGSOC and CAS3, and the Army War College with the intent to imbue logistics in the teaching of the art and science of national defense. The focus of logistics instruction must not be the logistician, but universal applicability to all branches in attendance. Curriculum changes should incorporate elements of instruction which, as a result of front end analysis, are essential to the logistics competencies the Army desires in its intermediate, senior and strategic leadership.

In general the desired competencies should break out as follows. The orientation of CAS3 should be on the tactical level of war, focusing on divisional logistics operations. Primary emphasis should be placed on BSA operations with further emphasis on the interdependence on the DSA and DISCOM. The CGSOC orientation should be on the operational level of war, focusing on corps logistics operations. Primary emphasis should be placed on the COSCOM, but collateral emphasis is placed on divisional and theater level logistics. It is important to note that connectivity is equally important in our educational curricula as it is in our doctrinal publications. Finally, the AWC should orient on the strategic level of war, focusing on the theater and CONUS based logistics operations. The Strategic Logistics advanced course, per se, should not be an elective for predominantly logistics officers, but a part of the core curriculum for all officers. The course should address

strategic lift, industrial preparedness, and sustainment activities at the strategic level of war, while also imparting the impacts of strategic level constraints on the operational level of war.

Personnel Management

Personnel management programs designed to balance the officer force structure and provide upward mobility are essential to the health and welfare of the officer corps. But programs conceived and implemented must be founded on a commitment to success, which means time and resources must be allocated to training and early development. Our current program to transition overstrength branch officers, generally combat arms officers, into understrength branch management fields, generally CSS branches, while still early in their careers is beneficial to the officer as well as the Army. But the advanced course curriculum is not sufficient training for that transition. This is currently the primary means of training. Branch schools need to develop follow on courses or some means of formalized supplemental training, to provide these officers with the requisite knowledge necessary for them to compete fairly in what is to become an extremely competitive career field.

Exercises

Barring actual combat, exercises provide us with the most economical and productive means of honing our warfighting and logistical skills. It therefore behooves us to maximize the benefit to be derived. Regardless of type, scope and/or length

of an exercise, realistic and practicable logistics play must be incorporated. Furthermore, plausible means of evaluating and/or assessing logistics implications must be employed and strictly enforced.

RADM Eccles proffers a rather simplistic, yet viable means of achieving this result. He suggests, "one effective way of improving the logistic adequacy of maneuvers and exercises is to require that at the conclusion of each phase of the maneuver, each tactical commander be required to submit a dispatch report as to his current state of logistics readiness and as to his specific plans to restore it to the level necessary for continued combat." [31]

Literature

Proponents for and publishers of our premier professional publications must continue to encourage and solicit the works of senior officers, warfighters and logisticians, on logistics and its affects on the strategic, operational and tactical levels of war. It is important that logistics articles are presented in publications related to the combat arms branches. It is even more important that they appear frequently in the respective publications of our staff and senior service colleges. This is especially the case with works by our most senior leadership. The message their articles convey is twofold. First, the one directly related to the subject of their article, and second, the implication that logistics is important in the overall scheme of our profession. With this orientation to publication, we ensure the message of the preacher is directed at the church

body, rather than at the choir.

We should make the literary works of James Huston, George C. Thorpe and Henry E. Eccles required readings in our professional development program. They can be included in the curriculum changes advocated earlier, and required of all or some of the staff and senior colleges. Their value and applicability to enhanced logistical instruction goes without saying, but what is additionally achieved is the salvation of these works from extinction. Today, these works are virtually impossible to acquire, not just for personal libraries, but for academic instruction. Something needs to be done to generate requirements for additional printings of these militarily significant literary works. Their historical and logistical analyses are essential to current and future understanding of the art of war. Warfighter and logistician alike, as benefactors, can ill afford the extinction of these publications.

Summary

The US Army has an excellent logistics system, probably the best of any army in the world...Its shortcoming may be neglect of logistical art by commanders who do not fully understand their role in logistics. It cannot be left solely to logisticians to guess what commanders need to conduct their campaigns. Commanders must know what they want and logisticians must be able to tell them whether or not they can provide it. If they cannot provide it, then the true test of the commander's logistical art is at hand--the art of improvising, the art of

economizing, the art of making do...Continued neglect of the logistical art is potentially more dangerous than our neglect of the operational art.[32]

By implementing a program comprised of the components outlined above, we move from rhetoric to real action. We in effect give meaning to the words of General Vuono, who wrote:

Doctrine and training also shape the thinking of our leaders. Changing the ways we view the critical function of sustainment is as essential to the force of the future as any item of equipment. The integration of sustainment planning at all levels and in all phases of the operation must be a part of formal education and field experience.[33]

These words were written in the summer of 1988, but disregarded and violated in December 1989 and August of 1990 in the planning, preparation and execution of Operations Just Cause and Desert Shield/Storm, where "brute logistics" was still the Army's application process of choice. It is even more ironic, that although he did not use the term, he wrote in the same article the following assessment of "brute logistics":

While past successful sustainment operations often relied on improvisation - and we can reasonably expect it to be key to future success as well - it is a mistake to count on improvised solutions to compensate for known shortfalls. Improvisation is not a substitute for anticipation, rather it is the ability to react to the unanticipated.[34]

Years of misconceived and unfounded perceptions are not easily erased and replaced with what to many would be a "totally new line of thought". Inroads may be possible, but to set a goal of complete rehabilitation of the senior force is unrealistic. Our focus must be to educate and nurture our young officers commencing now, so that the force of the future will

benefit from the reform we desire, yet cannot realistically attain today.

ENDNOTES

[1]Charles W. McInnis, "Sustainment Doctrine: Not Keeping Pace With AirLand Battle Doctrine," Military Review (February 1988): 23.

[2]James A. Huston, The Sinews of War: Army Logistics 1775-1953 Army Historical Series, Office of the Chief of Military History (Washington, DC: 1966), 655.

[3]Martin Van Creveld, Supplying War: Logistics from Wallenstein to Patton (Cambridge, Mass.: Cambridge University Press, 1977), 231.

[4]James A. Huston, The Sinews of War: Army Logistics, 1775-1953. (Washington, DC: Government Printing Office, 1966), 57.

[5]Julian Thompson, The Lifeblood of War: Logistics in Armed Conflict, (London, England, Brassey's, 1991), 29.

[6]Russell F. Weigley, "American Strategy from Its Beginning through the First World War". Makers of Modern Strategy: from Machiavelli to the Nuclear Age edited by Peter Paret. (Princeton, New Jersey: Princeton University Press, 1986), 429-432.

[7]Roland G. Ruppenthal, "Logistics and the Broad-Front Strategy," Command Decisions (Washington, DC: Government Printing Office, 1960), 419-427.

[8]US Department of the Army, Field Manual 100-5: Operations (Washington, DC: 5 May 1986), 59.

[9]Ibid., 60.

[10]Ibid., 62.

[11]Secretary Joint Staff, Joint Publication 1: Joint Warfare of the US Armed Forces (National Defense University Press, 11 November 1991), 24 (hereafter referred to as Joint Pub 1).

[12]Ibid., 31.

[13]Ibid., 46.

[14]William S. Sims, RADM, USN, in and address at the Naval War College, December 1919.

Henry E. Eccles, Logistics in the National Defense (Harrisburg, Pa: Stackpole Company, 1959), 79.

[15]Ibid., 310.

[16]Ibid., 311.

[17]Ibid., 258.

ENDNOTES

[18]John R. Galvin, "The VII Corps Commander Views Grass Roots Logistics," Army Logistician (July-August 1984): .

[19]John B. Miller, BG(P), USA, "Training and Educating Leaders for the Future: The New CGSOC Curriculum," Military Review (January 1991): 14.

[20]Howard D. Graves, "The US Army War College: Gearing Up for the 21st Century," Parameters (December 1988): 5.

[21]G. Murphy Donovan, "Sustaining the Military Arts," Parameters (September 1989): 17.

[22]Ibid., 19.

[23]Henry E. Eccles, Logistics in the National Defense (Harrisburg, Pa, The Stackpole Company, 1959), 300.

[24]Carl E. Vuono, "Sustaining Combat Power," Army Logistician (July-August 1988): 5.

[25]Carl E. Vuono, "Sustaining Combat Power," Army Logistician (July-August 1988): 2-3.

[26]John F. Meehan III, "The Operational Trilogy," Parameters (Autumn 1986): 16.

[27]William W. Mendel, "The Campaign Planning Process", U.S. Army War College, Department of Military Planning and Operations. Readings in Implementing National Military Strategy: Volume 1 (AY 1992): 176 & 177.

[28]Liddle Hart, Thoughts on War (London, Faber & Faber, Ltd, 1944).

[29]Peter Paret, "The New Military History" Parameters (Autumn 1991): 18.

[30]Henry E. Eccles, Logistics in the National Defense (Harrisburg, Pa: The Stackpole Company, 1959), 19.

[31]Henry E. Eccles, "Logistics in the National Defense," (Harrisburg, Pa: Stackpole Company, 1959), 301.

[32]Clayton R. Newell, "Logistical Art" Parameters (March 1989): 40.

[33]Carl E. Vuono, "Sustaining Combat Power," Army Logistician (July-August 1988): 6.

[34]Carl E. Vuono, "Sustaining Combat Power," Army Logistician (July-August 1988): 5.

BIBLIOGRAPHY

Association of the United States Army Institute of Land Warfare
Operations of Desert Shield and Desert Storm: The Logistics
Perspective. Special Report, September 1991.

Brown, Kenneth N. Strategics: the logistics-strategy link. A
National Security Essay, National Defense University Press,
March 1987.

Crowe, William J., Jr. "Senior Officer Education, Today and
Tomorrow", Parameters. Vol. XVII, No. 1, Spring 1987, pp. 2-9.

Department of the Army, Office of the Deputy Chief of Staff,
Logistics. Operation Desert Storm Sustainment. Washington,
D.C., undated.

Donovan, G. Murphy "Sustaining the Military Arts", Parameters.
Vol. XIX, No. 3, September 1989, pp.13-23.

Eccles, Henry E. Logistics in the National Defense, The
Stackpole Company, May 1959.

Field Manual 100-5: Operations, Headquarters, Department of the
Army, Washington, D.C., May 1986.

Field Manual 100-16: Support Operations: Echelons Above Corps,
Headquarters, Department of the Army, Washington, D.C., 16 April
1985.

Galvin, John R. "What's the Matter with Being a Strategist",
Parameters. Vol. XIX, No. 1, March 1989, pp. 2-10.

Graves, Howard D. "The US Army War College: Gearing Up for the
21st Century", Parameters. Vol. XVIII, No. 4, December 1988,
pp. 2-12.

Green, Richard G. and Palmerlee, Thomas R. A Short History of
Logistics. Logistics Studies Office Staff Paper, Hqs, United
States Army Combat Developments Command Combat Service Support
Group, Fort Lee, Virginia, 16 July 1965.

Hart, Liddell Thoughts on War. Faber & Faber, Ltd, 1944.

Heiser, Joseph M. Logistic Support. Vietnam Studies.
Washington: Department of the Army, 1974.

Huston, James A. The Sinews of War: Army Logistics 1775-1953.
Office of the Chief of Military History, United States Army,
Washington, D.C., 1966.

Lukert, Edward P. Strategic Logistics- The Missing Link.
Strategic Studies Institute, U.S. Army War College, 15 March
1977.

Makers of Modern Strategy: from Machiavelli to the Nuclear Age.
edited by Peter Paret, Princeton University Press, 1986.

McInnis, Charles W. "Sustainment Doctrine: Not Keeping Pace
With AirLand Battle Doctrine", Military Review. February 1988,
pp.22-29.

Meehan, John F. III "The Operational Trilogy", Parameters.
Vol. XVI, No. 3, Autumn 1986, pp. 9-18.

Mendel, William W. "The Campaign Planning Process", U.S. Army
War College, Department of Military Planning and Operations.
Readings in Implementing National Military Strategy: Volume I
AY 1992.

Miller, John E. "Training and Educating Leaders for the Future:
The New CGSOC Curriculum", Military Review. January 1991, pp.
10-17

Newell, Clayton R. "Logistics Art", Parameters. Vol. XIX, No.
1, March 1989, pp. 32-40.

Paret, Peter "The New Military History", Parameters. Vol. XXI,
No. 3, Autumn 1991, pp. 10-18.

Ruppenthal, Roland G. The European Theater of Operations;
Logistical Support of the Armies 2 vols. U.S. Army in World
War II. Washington, OCMH, Department of the Army, 1953, 1959.

Ruppenthal, Roland G. "Logistics and the Broad-Front Strategy",
Command Decisions. GPO, Washington DC, 1960, pp. 419-427.

Secretary, Joint Staff, Joint Pub 1: Joint Warfare of the U.S.
Armed Forces, National Defense University Press, 11 November
1991.

Thorpe, George C. Pure Logistics. National Defense University
Press, April 1986.

Thompson, Julian The Lifeblood of War: Logistics in Armed
Conflict. Brassey's (UK), 1991.

U.S. Army War College, Department of Military Strategy, Planning
and Operations. Readings in Implementing National Military
Strategy. Carlisle Barracks: 1991. Volume I: "The Campaign
Planning Process," by COL William W. Mendel.

Van Creveld, Martin Supplying War: Logistics from Wallenstein
to Patton. Cambridge University Press, 1977.

Vuono, Carl E. "Sustaining Combat Power", Army Logistician
July-August 1988, pp.2-6.

Weigley, Russell F. "American Strategy from Its Beginning through the First World War", Makers of Modern Strategy: from Machiavelli to the Nuclear Age edited by Peter Paret. Princeton University Press, 1986.