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**From Beirut to Port Arthur:
Field Artillery Doctrine and Practice In
Low Intensity Conflict**

**A Monograph
by
Major William A. Gregory
Field Artillery**



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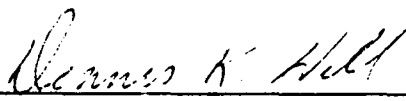
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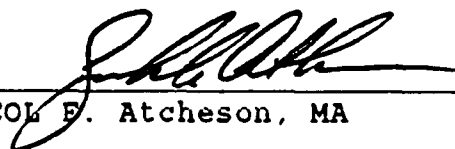
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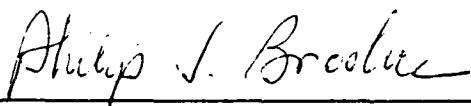
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Abstract

FROM BEIRUT TO PORT ARTHUR: FIELD ARTILLERY DOCTRINE AND PRACTICE IN LOW INTENSITY CONFLICT by Major William A. Gregory, U.S. Army, 49 pages

Field Manual (FM) 6-20, Fire Support in the AirLand Battle, the Army's capstone manual for fire support, states: "The fire support system must be flexible enough to respond to a number of battlefield situations ranging from the nonlinear characteristics of the high- and mid-intensity conflicts to the special demands of low-intensity conflict." Given the likelihood of U.S. forces' involvement in the latter, it is critical that the fire support system, and in particular, the field artillery, be able to respond appropriately. That response is governed in large measure by field artillery doctrine. The purpose of this monograph is to assess the viability of that doctrine to contribute to mission success in varied LIC environments.

Because doctrine emanates from the principles that comprise a given body of theory, the monograph begins with a capsulation of the classical underpinnings of field artillery theory. Linkages between classical theory and the employment of artillery in the LIC environment are then drawn.

Armed with this theoretical foundation, we examine how the artillery has performed historically in each of the four LIC operational categories of combatting terrorism, peacekeeping operations, support for insurgencies and counterinsurgencies, and peacetime contingency operations. Respective case studies include the 1982 War in Lebanon, the U.S. in Lebanon in 1958, the U.S. in Vietnam, and the British in the Falklands. We then turn to the overarching LIC doctrine in FM 100-20, Military Operations in Low Intensity Conflict, and FM 100-2-20, The Threat in Low Intensity Conflict, to glean doctrinally-sanctioned roles for the artillery in the same four operational categories.

The resulting historically- and doctrinally-derived roles for artillery are then juxtaposed with field artillery doctrine to determine if that doctrine has accurately identified the realm of requirements. An assessment regarding the doctrinal adequacy in providing execution guidance for practicing artillerymen is also made. Finally, recommendations are offered to address any deficiencies noted.

The study concludes that there are legitimate roles for the field artillery in all four of the operational categories that comprise the low intensity conflict spectrum. By refocusing and retooling field artillery doctrine to encompass the fire support requirements peculiar to the low intensity conflict environment, the field artillery will be better prepared to fulfill its charge within the context of military operations in LIC.

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I. INTRODUCTION

In spite of the understandable euphoria that has accompanied the apparent Cold War thaw between the United States and the Soviet Union, the hope for world peace remains an illusive pipe dream. In his work *The Future of Land Warfare*, Chris Bellamy offers some sobering facts: of the 654 major conflicts occurring in the 265 year period from 1770-1985, fully 162 of them started during the last twenty-five years of that epoch.¹ He contends that the rate of conflict will not slow; clearly war will retain its preeminence as the weapon of choice in conflict resolution. What has changed is the balance between different types of conflicts.² And that balance may continue to shift toward the milieu of war known as low intensity conflict.

Ranging from subversion and terrorism to use of armed force at opposite extremes of a continuum, low intensity conflict (LIC) encompasses "political-military confrontations between contending states or groups below conventional war and above the routine, peaceful competition among states."³ FM 100-20, *Military Operations in Low Intensity Conflict*, prescribes four broad categories of military operations that comprise that range: combatting terrorism; peacekeeping operations; support for insurgency and counterinsurgency; and peacetime contingency operations.⁴

The United States will inevitably be involved to some degree in each of these four operational categories in both the near and far terms. The purposes of this monograph are twofold: to identify the roles that the U.S. Army field artillery can perform to effectively support attainment of policy objectives in each of these categories, and to assess the adequacy of the doctrine that guides the execution of that support.

Two sources will be used to glean the possible roles for the field artillery in low intensity conflict: history and doctrine. Historical precedents for the use of artillery in each of the four LIC operational categories will be discussed and appropriate roles for the artillery identified. Similarly, requirements derived from LIC doctrine that specify or imply the potential or actual need for field artillery in support of military operations in each of those same LIC categories will be presented.

Once the historically- and doctrinally-derived roles have been identified, they will be used as criteria to determine whether field artillery doctrine recognizes those same roles. Similarly, the overarching LIC doctrine promulgated in FM 100-20 will serve as the criterion to ascertain the degree to which field artillery doctrine supports policy guidance in each of the four LIC operational categories. An assessment will

then be made regarding the adequacy of field artillery doctrine in providing execution guidance for the practitioner. Finally, recommendations will be made to address any deficiencies discovered.

Because doctrine emanates from the principles that compose a given body of theory, theory provides a logical jumping off point in the process of critical analysis. Accordingly, a discussion of the theoretical underpinnings regarding the evolution and employment of field artillery follows.

II. THEORETICAL FOUNDATIONS

Carl von Clausewitz considered infantry, cavalry, and artillery as the three main branches of the army. Artillery's effectiveness was defined by one parameter--the destructiveness of its fire. Clausewitz argued: "Artillery intensifies firepower; it is the most destructive of the arms. When it is absent, the total power of the army is significantly weakened..."⁵ Thus, in Clausewitz's view, artillery manifested the concept of firepower. Arguably, that view remains valid today.

J.B.A. Bailey identifies the four major effects that artillery has on an enemy. The "neutralizing effect" suppresses the enemy by preventing unimpeded movement, observation, and equipment use. The "materiel effect" destroys his equipment. The "lethal effect" results in personnel casualties. And the "morale effect" initiates or enhances the shock and demoralization that occurs among soldiers under fire.⁶

Much of S.L.A. Marshall's research and writing focused on this latter effect and its impact upon the moral domain of war. Marshall not only recognized the debilitating effects of fire upon soldiers at the receiving end, but observed that on the giving end that "artillery is like a shot in the arm. It moves men mentally and sometimes bodily, thereby breaking the

concentration of fear."⁷ Robert Scales aptly summarized this two-edged nature of artillery as it plays in the moral domain:

To infantrymen about to risk their collective skins in an advance across open territory, the sight of shells landing in the enemy's midst tells them they are not alone, that indeed they are part of a larger, massively competent organization whose collective power is clearly superior to the opposition. To soldiers on the receiving end, firepower creates a sense of stress and alarm made all the more fearsome because of its impersonal and anonymous nature.⁸

Clearly then, in virtually any conflict setting, the impact of artillery is both significant and sure.

In spite of artillery's tremendous impact in the moral domain, the importance of its tactical utility should not be underestimated either. S.L.A. Marshall's studies led him to conclude: "Fire is the key to mobility. To fire is to move. Weapons when correctly used will invariably bring decision. But without superior firepower, mass and velocity can never win a war."⁹

Marshall's faith in firepower as the bulwark of tactical success blends nicely into the larger contextual framework of the American theory of war. When it comes to war, cost--especially in human terms--is a consideration deeply embedded in the American psyche. One of the hallmarks of the American way of war is the willingness of the American people to underwrite the cost

of materiel, equipment, and munitions if in so doing, human life will be conserved. Such an attitude is pragmatic as well as humanitarian given a society that traditionally has been somewhat less than well-prepared when war becomes a reality.¹⁰

Compensating for an historic lack of preparedness by marshalling its considerable materiel resources further characterizes the American approach to war. The transformation of those resources into the weapons of war normally translates to firepower, for "bombing and shelling from great distances have proven to be the most efficient and effective means of delivering explosive power while avoiding direct bloody contact with the enemy."¹¹

The Army's keystone warfighting manual, FM 100-5, Operations, cites firepower as one of the dynamics of combat power that decides the outcomes of campaigns, major operations, battles, and engagements. Indeed, firepower is intended to provide "the destructive force essential to defeating the enemy's ability and will to fight."¹² Before exploring how firepower can contribute to success in the LIC environment, it is necessary to briefly examine the nature of that environment.

Clausewitz counseled, "War should never be thought of as something autonomous but always as an instrument of policy... Wars must vary with the nature of their

motives and the situations which give rise to them."¹³ Nowhere is this more evident than in the LIC setting where political considerations determine not only the political objective, but also which elements of national power will be applied to achieve that desired end state.

U.S. Army doctrine recognizes that the military's role in the LIC environment will generally be an indirect one in support of political, economic, and informational actions.¹⁴ Ultimately, it is the political object that determines "both the military objective to be reached and the amount of effort it requires."¹⁵

In general, the principle of 'minimum force' often governs the amount of military effort to be exercised in most LIC scenarios.¹⁶ When this principle and the previous discussion regarding firepower as a dynamic of combat power are compared, we arrive squarely at the horns of a dilemma. How can the use of artillery, characterized in both theory and practice by its inherent destructiveness, contribute in an environment where restraint must predominate? Again, Clausewitz offers some valuable insights.

Clausewitz posited that each of the branches of the army had "its own particular use and thus a different sphere of effective action."¹⁷ He emphasized the preeminence of the infantry given its inherent capabilities and flexibility. In addition to being able

to operate in all types of terrain, the infantry was ideally suited to prosecute what Clausewitz termed a "peoples' war". Both of these characteristics play in many LIC situations today. In the same vein, Clausewitz recognized that artillery could be employed in varying situations in most types of terrain, a fact further enhanced by contemporary air mobility. More importantly, Clausewitz believed that the presence of a significant amount of artillery "will impose a more passive and defensive character on operations" to support a strategy designed to "let the enemy court his own destruction."¹³ That belief would come to fruition in practice as a counterinsurgency tactic used by the United States during the Vietnam War.

Next, the roles of artillery in low intensity conflict will be examined from an historical perspective. Examples from each of the four operational categories of combatting terrorism, support for insurgency and counterinsurgency, peacekeeping operations, and peacetime contingencies will provide the basis for analysis.

III. HISTORICAL ANALYSIS

Terrorism is defined as "the unlawful use of--or threat of--force or violence against people or property to coerce or intimidate governments or societies, often to achieve political, religious, or ideological objectives."¹⁹ One aspect of combatting terrorism, that of counterterrorism, may encompass the full range of offensive military measures (emphasis added) to prevent, preclude, or respond to terrorism.²⁰ When the full-range option is selected for execution, the artillery becomes a full-fledged player.

In Palestine in 1948, in response to concerns heightened by burgeoning Jewish and Arab firepower, the British chose to invoke that option. Rather than risk unnecessary casualties in attacking strongpoints in the city of Haifa, the British decided to employ self-propelled guns in a direct fire role to destroy prepared positions. Four years later in Egypt the British used a similar tack in employing 25-pound howitzers to support infantry assaults to root out the Bulak Nizam terrorist organization from the villages of Tel-el-Kabir and El Hammada.²¹

Prior to the 1982 Israeli incursion into Lebanon, the Palestine Liberation Organization (PLO) had supplemented its standard menu of terrorist tactics with

an array of heavy weapons that included long-range artillery and rockets capable of striking targets within the Israeli border. Israel's "Operation Peace for Galilee" sought as one of its objectives to eliminate the PLO as a military-terrorist force. Israeli "preventive-attrition" attacks on the PLO were answered in kind by random shelling and rocket attacks on Israeli border settlements.²²

Once the decision had been made by the Israelis to intervene with significant combat forces in an attempt to resolve the issue with some measure of permanency, the artillery was called upon to perform a variety of tasks. In a conventional role, the Israeli artillery effectively outgunned the more ponderous Syrian artillery arrayed against it. In a more unconventional role, the artillery proved invaluable in reducing fortified positions in rough terrain and in urban areas. In Beirut, where Yasir Arafat and a bevy of PLO fighters were entrenched in a purported Stalingrad-like defense, the Israelis responded with extensive artillery and air attacks.²³ Prepared strongpoints proved especially difficult to deal with, demanding heavy concentrated fire in order to be knocked out.²⁴

The Israeli experience in Lebanon provided a plethora of instructive lessons both in the general sense of combatting terrorism and in the specific sense of

employing artillery in a counterterrorist role.

Foremost among the general themes, all of which bear indirectly on the artillery, is the disquieting proposition that a society victimized by terrorism must understand that it is indeed in a state of war. Thus, its armed forces must be given the rein to deal with the terrorists, and more importantly, with the state sponsoring them. A successful counterterrorist strategy turns on a willingness to inflict an unacceptable level of damage on the terrorists. Such a strategy may include preemptive strikes and/or retaliatory attacks to disrupt terrorist operations, degrade their capabilities, or eliminate their bases of operations. But in the final analysis, preemption and retaliation may not be sufficient to eradicate the terrorist threat; thus, the requirement for combat operations or even full-scale war may be necessitated.²⁵

The 1982 War in Lebanon, dubbed "The Artillery War" by the Israeli Artillery Corps Commander because of the major role that firepower played in it²⁶, also served as a primer regarding the use of artillery in a counterterrorist-turned-conventional scenario. Emergent lessons bear directly on current artillery affairs.

First, the Israeli artillery experience served to vindicate some key aspects of U.S. field artillery doctrine and practice. Technology, as manifested in

weapons systems and ammunition, received high marks in performance. The battery computer system, remotely piloted vehicles, and laser range finders, greatly contributed to effective fire control and target acquisition. Improved Conventional Munitions (ICM) and rocket artillery munitions proved effective against enemy maneuver units and in military operations on urbanized terrain (MOUT) operations. Israeli artillery also evidenced a range of responsiveness from the gun crew assigned the mission of destroying a point target to the execution of a 20-battalion time-on-target.²⁷

Secondly, the importance of direct fire--a technique of proven value in World War II urban fighting and a mainstay of the Soviet artillery's repertoire--surfaced in both the defensive and offensive operations throughout the conflict. In the defense, the ability of artillery units to defend themselves against dismounted and mechanized attacks was severely tested. Survival often hinged on the crew's ability to use the howitzer in a direct fire mode. In the offense, techniques were developed to employ large caliber artillery pieces in a sniper-like role to fire single rounds at selected terrorist and conventional targets at point-blank range.²⁸

Admittedly, "Operation Peace for Galilee" often assumed a more conventional character than it did a

counterterrorist one. Nevertheless, it amply demonstrated the roles and requirements for artillery in the volatile, shifting-sands world of combatting terrorism.

Peacekeeping operations comprise the second operational category of low intensity conflict. The objective of military operations within the larger framework of peacekeeping operations is to maintain the peace already secured through diplomatic initiatives.²⁹ The nature of a peacekeeping mission and the stringent restraints imposed on the use of force for other than self-defense purposes make it an especially challenging mission for U.S. forces. Army units may be required to operate in remote regions where rapid reinforcement or resupply would be difficult at best and a potential enemy has the entire gamut of weapons available to him.³⁰

U.S. doctrine recognizes that each peacekeeping operation is unique. Consequently, no single historical example exists that can adequately serve as a consummate model for study. Perhaps the best representative example is OPERATION BLUEBAT, the American intervention in Lebanon, which began on 15 July 1958 and concluded with the withdrawal of the joint U.S. task force after serving successfully as a peacekeeping force for some 102 days.³¹ Artillery support for the operation was provided by Battery A, 1st Howitzer Battalion, 13th Artillery. Its

mission was to provide direct support for the 24th Airborne Brigade's Force Charlie.³²

The need for that support never materialized. Although the environment was unpredictable and explosively-charged with the potential for combat, only one American casualty was sustained as a result of hostile fire throughout the duration of the operation. Thus, no significant ground combat activities involving U.S. forces took place.³³ Given the object of a peacekeeping operation, the mission must be judged a success.

Support for insurgency and counterinsurgency constitutes the third LIC operational category. At the direction of the National Command Authority, U.S. forces may find themselves providing support for an insurgent movement or assisting a host nation government in opposing an insurgency.³⁴ For the purpose of clarity, we will focus on U.S. involvement in counterinsurgency operations; the Vietnam War will be used as a case study for analysis.

Short of the employment of nuclear weapons, the Vietnam War provides a comprehensive framework for the study of virtually any aspect of the entire spectrum of conflict. Arguably, at any one time, low-, mid-, and high-intensity combat operations may have occurred simultaneously within the theater of war. The discussion

that follows attempts to focus on artillery operations at the "low" end of that spectrum. It must be noted up front that the dividing line between levels was, and is, at best transitory, and at worst, arbitrary.

Perhaps more than any other war in American history, the overriding imperative at the tactical, operational, and strategic levels was the preservation of American lives. Consequently, Vietnam became a fire support-intensive environment, and the field artillery emerged as the workhorse of the fire support system.³⁵

The primacy of fire support as the critical dynamic of combat power was established early in the war with the arrival of the 1st Cavalry Division in 1965:

[Infantry soldiers] were employed in the manner of a matador's cape: seemingly vulnerable and waved in the face of the enemy, their purpose was to draw the enemy into decisive combat. Firepower provided the sword behind the cape. Hidden carefully and raised at the final moment, guns and airpower in the hand of a skilled matador would do the killing.³⁶

Thus, infantry commanders orchestrated their schemes of maneuver to achieve three objectives: to find the enemy, to fix him, and to kill him with firepower.

The predominant tactic to accomplish those ends was the mobile search and destroy mission. The infantry would flush the enemy from his sanctuary, while airmobile artillery would deploy from fire support bases to provide close-in support. At the same time, longer range

artillery would add additional weight to that support from fixed fire support bases. Finally, close support aircraft would provide the finishing stroke to complete the enemy's defeat.³⁷

As the war evolved, reliance on firepower translated to increasingly greater constraints on infantry maneuver. U.S. commanders sought to match strength against weakness by devising situations to maximize the effects of the overwhelming firepower available. In so doing, they would minimize friendly casualty rates.

This evolution culminated in the latter stages of the war in a tactic which employed a variation on the theme of baiting the enemy to court his destruction. Instead of the infantry being dangled as the bait, the artillery and the firebase were flaunted tantalizingly in the enemy's face. The intent of the tactic was to use the firebase as a sort of magnet to goad the enemy into concentrating his forces in order to attack it. Once the enemy committed his forces in mass, the object was to target him and defeat him in detail with synchronized firepower from mutually supporting artillery and attack aircraft.³⁸

Conversely, the enemy endeavored to offset the overwhelming U.S. firepower advantage by acting before that firepower could be brought to bear. Early in the war the Viet Cong had assimilated a key learning point

in dealing with superior firepower: "Surprise the Americans and separate them from their firepower and the battle becomes an even match."³⁹

Given the enemy's adroit avoidance of presenting a massed target to engage, it became impractical in many situations to concentrate artillery in the traditional sense. Because there was no discernable front line, the artillery modified its tactics to provide fires in a 360-degree-environment. Priority shifted from concentration of artillery assets to mobility and dispersal in order to improve responsiveness and provide greater depth of coverage.⁴⁰

A parallel shift of sorts occurred in the fire control arena as well, as batteries, rather than battalions, became the focal point of fire support efforts. Batteries tended to move and support their affiliated infantry battalions in a dedicated fire support role, a kind of symbiotic arrangement that suited both well.⁴¹

A reversal of traditional support relationships transpired within the framework of a tactic that became increasingly popular as U.S. troop levels began to decline. The "artillery raid" headlined the artillery in the lead role of a combined arms operation, with the infantry cast as a supporting actor. A typical operation featured an airmobile insertion of a 105mm battery

reinforced by several 155mm howitzers; responsibility for ground security normally fell to an infantry company. After firing several hundred rounds, this mobile fire support task force would be extracted and returned to its fire base.⁴²

Thus, the peculiarities and exigencies of the Vietnam War demanded that premiums be placed on the leadership, teamwork, and competence of soldiers at the battery level. If Vietnam was known to infantrymen as a lieutenant's war, to artillerymen it was a captain's war. Battery commanders, located with their units in widely dispersed firebases often situated in extremely remote locations, were responsible for making fire support happen. More often than not, both lives and mission success hinged on split-second decisions commanders alone were charged to make.⁴³

While providing timely and accurate fire support for the infantry was the first priority of the artillery commander, protection of his own force also proved to be a matter of concern. Given the war's nonlinear character and the vulnerability inherent in widely dispersed fire bases, the artillery could expect to provide its own measure of self-defense. In addition to developing proficiency in the art of direct fire to engage any enemy who had penetrated the base's outer defenses, artillerymen became adept as journeymen engineers in

employing mines, pyrotechnics, and field expedient obstacles to make the enemy's job as difficult and as costly as possible.⁴⁴

Adding weight to the tactical defense was but one advantage that artillery conferred on the maneuver commander. Artillery's claim as the all-weather, 24-hour-a-day "king" of fire support was vindicated in practice. The artillery's ability to concentrate fire in a given area, over a fixed period of time, and often within a matter of seconds further underscored its versatility. By comparison, the response time of aircraft--if they were able to fly, if they were on station, and even if they were overhead--was likely to be much longer.⁴⁵ Finally, when compared to airpower, the artillery could be much more selective in terms of minimizing collateral damage.

In the same vein however, when used improperly, the artillery can do much to undercut the intent of a counterinsurgency effort. In Vietnam, the tremendous amount of resources devoted to harassing and interdiction fires came to be the subject of much debate.

Battle damage assessment of any fire support is tenuous at best. Because it is virtually impossible in the case of harassing and interdiction fires, the value of such fires becomes immediately suspect. Clearly, indiscriminate fires impacted adversely upon the

Vietnamese people. As the war progressed, much of the growing anti-American sentiment could be traced directly to the carnage wrought by pointless shelling and bombing.

But applied properly and in the right circumstances, U.S. firepower was decisive. Perhaps the most striking demonstration of this assertion occurred during the 1968 Tet Offensive where, in a hammer and anvil type of arrangement, U.S. and ARVN fire support and maneuver forces were able to inflict a crushing defeat upon the North Vietnamese and Viet Cong. In addition to the nearly catastrophic casualties suffered by the enemy, the immediate effect of the victory was to force the communists to abandon their conventional aspirations and revert to less costly guerrilla tactics.⁴⁶

But it must be emphasized that the victory in this case occurred at the tactical level only. Another more important effect of Tet was its attendant political victory for the communists at the strategic level. Perhaps Robert Scales, a serving U.S. Army artilleryman best captured the most poignant lesson of the war:

With all of [the] tactical and technological successes, a continuing escalation in the destructiveness of firepower never produced the decisive results achieved by lesser efforts in earlier wars. If a single lesson is to be learned from the example of Vietnam it is that a finite limit exists to what modern firepower can achieve in a limited war, no matter how sophisticated the ordnance or how intelligently it is applied.⁴⁷

The final LIC operational category consists of those operations labeled peacetime contingency operations. They are defined as "politically sensitive military operations normally characterized by the short term, rapid projection or employment of forces in conditions short of war."⁴⁸ These operations encompass a variety of diverse contingencies ranging from shows of force to the conduct of combat operations by significant forces to achieve strategic objectives.

One of the more striking examples of the latter was provided by the United Kingdom during its 1982 dispute with Argentina over the Falkland Islands. In it was reflected the anatomy of a contingency operation:

In the space of seven weeks a task force of 28,000 men and over 100 ships had been assembled, sailed 8,000 miles, effectively neutralized the Argentine navy and fought off persistent and courageous attacks from combat aircraft which outnumbered its own by more than six to one. This in itself was no mean feat, but the task force then put ashore 10,000 men in a hostile coast while under the threat of heavy air attack; fought several battles against an entrenched and well-supplied enemy who at all times outnumbered [British] forces; and brought them to surrender within 3 and 1/2 weeks.⁴⁹

The infantryman won the battle for the Falklands, pure and simple. But it was fire support, and in particular the artillery, that established the conditions for success. An after-action report presented to Parliament by the Secretary of State for Defence noted that "the infantry would not have been able to carry

their objectives without the support they received from artillery and Naval bombardment."⁵⁰

Although the British deployed only thirty 105mm howitzers to the Falklands, the fire supporters were able to synchronize them with available airpower and naval gunfire to achieve a synergistic effect. The impact on the Argentineans was decisive.

The criticality of fire support was demonstrated early in the campaign during the battle for Goose Green. Given limited air mobility assets, a troop of three 105mm howitzers was all that could be lifted to provide support for the opening British attack. That meager support would prove to be the only fire support available during the early going: A heavy fog on the morning of the attack forced the curtailment of air operations, and planned naval gunfire support from the frigate Arrow disappeared when the Argentine air threat forced the vessel to retire to a safe anchorage.⁵¹ Because of this experience, the British resolved not to attack again until significant fire support could be assured.⁵²

Artillery's most important contribution during the battle for Goose Green, and an important theme throughout the campaign proper, occurred in the moral domain. The artillery bolstered British morale through its ability to respond in kind to Argentine artillery and had a correspondingly detrimental effect upon Argentine morale.

As they consolidated the objectives at Goose Green, British soldiers described the carnage at the scene: "(The) trenches hit by the artillery fire were the worst. The bodies looked like 'hunks of meat', with arms and legs blown off, stomachs gaping open."⁵³

All five of the 105mm batteries available took part in the final assault on Port Stanley. Nearly 17,500 rounds were fired during preparatory fires and in support of the ground operations that ultimately led to the surrender of the Argentine garrison. In spite of the fact that the well-provisioned, 8,000-man enemy force had more artillery than the British, it was the British fire support that carried the day in the battle for Port Stanley. British casualties would have been exponentially higher absent that support.⁵⁴

The British experience in the Falklands provides some valuable insight into the nuances of fire support in contingency operations. At the strategic level, the Falklands War demonstrated convincingly that "however artillery may be undervalued in peacetime training, its fire is vital in war."⁵⁵ The war also highlighted the artillery's inherent worth as part of a tailored contingency force package. This lesson was truly taken to heart by the British, who concluded from the Falklands experience that infantry required greater indirect fire support. That conclusion resulted in the addition of an

artillery regiment to Britain's "out of area" contingency force.⁵⁶

At the tactical level, we again see the onus of fire support coordination and execution residing at the battery level and below. Once more it was the battery commander who had to sort out the many competing and often frantic requests for immediate fire support.⁵⁷ In providing that support, artillery was generally pushed well forward of the limits dictated by conventional wisdom in positioning artillery. The artillery was also often required to provide "danger close" fires to either protect or extricate friendly infantry finding themselves in dire straits.

Perhaps the most important contribution made by the fire support community was the effective integration of all available fire support assets in support of infantry operations. Efficiency in joint interservice fire support planning translated to operational success in fire support execution. At the tactical level, artillery observers demonstrated great skill in adjusting both artillery and naval gunfire, and in controlling close air support. Indeed, it was the cumulative effect of the joint fire support system in both the physical and psychological domains of war that ultimately "contributed significantly to the final collapse of Argentine morale."⁵⁸

In summary, when examined collectively, the field artillery experience in low intensity conflict suggests several themes. The most important is the fact that field artillery has been called upon to perform missions spanning the entire LIC spectrum. Historical precedents for field artillery roles exist for each of the four LIC operational categories of combatting terrorism, peacekeeping operations, support for insurgency and counterinsurgency, and peacetime contingency operations. Those precedents point to the artillery's continued involvement across that spectrum in both the near and far terms. That involvement will present special challenges to artillerymen. Those challenges emanate from the missions, threats, and unique physical environments peculiar to low intensity conflict situations.

The artillery must be prepared to meet these challenges. The historical analysis presented here demonstrates that doing so will be no easy task. Implicit in the challenges are considerations that impact on field artillery training, organization, and leadership. "Being prepared" also bears significant ramifications for the doctrine that establishes the framework for that training, organization, and leadership. It is to the issue of doctrinal sufficiency that we now turn.

IV. DOCTRINAL ANALYSIS

We have thus far examined the performance of the field artillery in low intensity conflict from an historical perspective, and have determined that there are indeed roles for the artillery in each of LIC's four operational categories. Analyses of FM 100-20, Military Operations in Low Intensity Conflict and FM 100-2-20, The Threat in Low Intensity Conflict, suggest that the field artillery may be required to perform these and other roles in light of the nature and types of threats facing the U.S. Army both now and in the future.

The discussion that follows focuses on field artillery doctrinal responses to threats in each of the four LIC operational categories of combatting terrorism, peacekeeping operations, support for insurgency and counterinsurgency, and peacetime contingency operations. The discussion format begins by identifying the doctrinally-recognized threat. Next, both specified and implied roles for artillery in supporting military operations to combat the threat are discussed. These doctrinally-derived roles will then be compared with those described in field artillery doctrine to determine if any voids exist. Finally, an assessment will be offered regarding the effectiveness of field artillery doctrine in providing execution guidance for artillerymen

charged with performing those roles.

We have seen from our earlier discussion of the Israeli experience in Lebanon that combatting terrorism is a complex and multi-faceted undertaking. Terrorism is a form of political warfare designed to realize political ends⁵⁹, and may assume many different forms. Most forms fall into one of three variants. Because fighting any of these variants may likely result in some type of military operation, each of these variants will be briefly examined, with special focus on the potential roles for artillery.

The first variant, organizational terrorism, employs a variety of techniques and tactics in order to gain influence and impose its agenda upon its target.⁶⁰ Hostage-taking ranks among the favorite ploys of terrorists. In order to deal with the potential requirement to rescue nationals seized as hostages by such terrorist groups as the Abu Nidal Organization, many countries have opted to constitute, package, and train some type of contingency airborne force complemented with supporting artillery.⁶¹

A second variant of terrorism occurs in an insurgent form, where a terrorist element seeks to challenge a government's legitimacy within the larger framework of an insurgency. Although an attempt to characterize the convoluted situation in Lebanon may prove to be a tenuous

undertaking at best, perhaps this variant best describes what is happening there in practice today. Suffice to say that the competing factions in that political quagmire all possess relatively significant military capabilities. Most possess some numbers of artillery assets. Absent a diplomatic breakthrough of miraculous proportions, the force of arms will continue to be the method of choice. Any resort to a military solution would necessarily involve artillery to balance the "means" equation.

The final terrorism variant, the one "that poses the greatest challenge to the U.S. Army in LIC," is that of state-sponsored terrorism.⁶² It is also the variant that is most likely to lead quickly and directly to a conventional conflict between states. Perhaps it is with such a scenario in view that our doctrine discusses the use of a joint task force augmented by general purpose and special operating forces in a counterterrorism role.⁶³ The involvement of artillery in such an operation is all but guaranteed.

In addition to preparing for the potential counterterrorist roles described above, artillery commanders bear responsibilities in the second functional area of combatting terrorism--that of antiterrorism. Protecting the force, "measures that installations, units and individuals take to reduce the probability of their

falling victim to a terrorist act,"⁶⁴ becomes a matter of daily concern to commanders at all levels, especially in areas where units are forward-deployed.

Given the facts that combatting terrorism involves both counterterrorism and antiterrorism actions, and that the field artillery may play in the former and must play in the latter, what are the doctrinal implications involved? What kind of guidance does field artillery doctrine provide for the artillerymen assigned these and other missions within the realm of low intensity conflict?

Field Manual 6-20, Fire Support in the Airland Battle, the artillery's capstone fire support manual, omits any discussion of a role for artillery in combatting terrorism. It is addressed neither in the specific sense by topic, nor in the general sense in the course of the manual's limited discussion of fire support in low intensity conflict. Although there is no direct discussion of a commander's responsibilities regarding antiterrorism, one principle of fire support planning is to "provide for the safeguarding and survivability of friendly forces/installations."⁶⁵ This principle notwithstanding, the linkage with antiterrorism is missing, as is any measure of "how to" guidance.

Similarly, FM 6-20-50, the tactics, techniques, and procedures manual for light artillery operations, states

that terrorism counteraction operations "would be conducted by specially trained forces and are not discussed in this manual."⁶⁶ In short, there is no existing recognition of artillery roles or execution guidance for artillerymen in the arena of combatting terrorism.

The same observations regarding doctrinal deficiencies hold true regarding roles for the field artillery in peacekeeping operations. The threat in such an unpredictable environment looms ominously because of the nature, mission, and restraints imposed.⁶⁷ Field artillery provides the ground commander with the flexibility to deal with such unpredictable situations. Having that capability may pay big dividends, especially in a situation where a peacekeeping mission makes an abrupt transition to a peacemaking one.

Further, our doctrine recognizes that our peacekeeping forces may be required to operate in isolated regions where there may be little prospect for immediate reinforcement. Should the need arise, the artillery's capabilities in massing fires in time and space, or for light artillery to be moved rapidly by air to deal with a given threat, provide measures of assurance to the force. Thus, in most situations, peacekeeping forces should be tailored to include an appropriate artillery package. At the same time, field

artillery doctrine must be more expansive in recognizing roles for artillery in peacekeeping operations, and in providing "how to" execution guidance.

Support for insurgency and counterinsurgency (COIN) operations may be the most complex of the four low intensity conflict categories. Where insurgents challenge a repressive government, or a government's policies and actions oppose the interests of the United States, support to insurgents would most likely take the form of some type of special operations forces assistance. Some situations may require the employment of artillery mobile training teams (MTTs) and other Army agents to provide technical and/or tactical advice to insurgents as well.

Similar support may be required in a COIN setting where a government recognized as legitimate by the U.S. needs help in eliminating an insurgency that threatens the government's continued existence. Although the principal U.S. operational mechanisms are by design intended to be limited to training the insurgents, providing them with equipment, and giving them minimal combat support⁶⁸, there are and will be circumstances where COIN mission requirements become quite expansive. At the expansive end of the continuum, tactical operations may be directed that task U.S. forces with missions ranging from defending key installations to

conducting deliberate attacks.⁶⁹ Field artillery figures as a key player in support of operations throughout that range.

The COIN environment poses some particularly demanding challenges. Increasing urbanization in almost all nations provides insurgents with lucrative opportunities to conduct anything from a limited, exclusively urban guerrilla operation, to a full-fledged, synchronized campaign characterized by a combination of urban and rural actions.⁷⁰ Local police forces may require reinforcement in controlling insurgent-inspired rioting; other situations may dictate the need for close combat to root the insurgents out or to destroy them.⁷¹ Once again the demand for field artillery support in general, and in MOUT operations in particular, surfaces as a very real possibility.

Artillery further serves to complicate the planning and execution of insurgent operations. FM 100-2-20, The Threat in Low Intensity Conflict, asserts that the insurgents must consider the potential impact of artillery when planning every operation. The artillery's ability to target remotely-located support bases not only compounds the problem of logistics for the insurgent commander; it causes him to be concerned with the preservation of his force as well. Artillery may also play a role in insurgents' strategies. As an insurgency

approaches the stage of full-blown conventional operations, the mission of the insurgents' artillery centers on neutralizing the government's "means" for combat. At the same time, artillery contributes to the weakening resolve of both the people and government to continue the fight.⁷² In this situation, it is incumbent upon the government to have the capability to respond both in degree and kind if it is to remain militarily viable.

Artillery doctrine accords more attention to the subject of fire support for counterinsurgency operations than it does any other LIC mission. FM 6-20-50, the light artillery operations manual, acknowledges that in a COIN scenario, "conventional fire support operations require some modification because of the frequent movement of guerrilla forces and consideration of METT-T."⁷³ It goes on to describe two types of COIN missions: strike campaigns, where conventional fire support planning and execution considerations purportedly still apply; and consolidation operations, where fire support requirements presumably parallel those of conventional defensive operations. Fire support for security posts, roadblocks, and patrols is also discussed, as is support for deception plans and "population and resources control". Finally, special fire support coordination measures peculiar to the COIN environment are

addressed.⁷⁴ Unfortunately, "how to" COIN guidance for fire supporters is sorely lacking in detail.

The most extensive of the four LIC operational categories is that of peacetime contingency operations. Field artillery doctrine acknowledges six types of peacetime contingency operations: intelligence-gathering missions; strike operations; rescue and recovery; demonstrations/show of force; unconventional warfare; counterterrorism; and noncombatant evacuation.⁷⁵ No roles for artillery are specified in any of these operations, nor is any execution guidance given other than that discussed above.

Overarching LIC doctrine paints a much more comprehensive picture of the types of peacetime contingency operations which may involve artillery support. There are other types of operations in addition to the six mentioned in field artillery doctrine that have implications for artillerymen. The most notable of these include "drug war" operations, support for U.S. allies against internal or external threat, and seizure of strategic objectives.⁷⁶ Each of these will be considered in turn.

Low intensity conflict "threat" doctrine describes a situation in which the "war on drugs" expands to limited conventional operations by regular U.S. military forces. The mission postulated is to force the drug

cartels to abandon their bases of operations in Columbia, Bolivia, and Peru. Such a mission "will likely require sporadic but determined applications of combat power at the low intensity level."⁷⁷ That spells artillery amongst a host of other combat, combat support, and combat service support players.

An example of support for an ally facing an internal threat would be a U.S. military response to a request by the beleaguered Aquino government to fight the burgeoning insurgency in the Philippines. In all likelihood, artillery would be part of the force package committed to resolve the situation. Similarly, a U.S. response to a Honduran request for diplomatic and military assistance in the event of an invasion by Nicaragua would be representative of support for an ally against an external threat. Artillery and airpower would undoubtedly figure prominently in either an Honduran or combined response to such an indiscretion by Nicaragua.⁷⁸

The last type of peacetime contingency operation to be discussed is the seizure of strategic objectives deemed essential to national security. The U.S. Army, either singly or as part of a joint task force, may be ordered to conduct combat operations in scenarios similar to those recently experienced by U.S. forces in Grenada and Panama. Again, the force packages would be structured to balance the capabilities of the anticipated

enemy and would probably include supporting artillery.

It must be noted at this juncture that the potential for employment of chemical weapons by threat forces exists across the entire LIC spectrum.⁷⁹ Conventional wisdom dictates that when that potential does exist, that the U.S. and its allies must have a countervailing capability. U.S. artillery provides that capability in the form of a credible deterrent and/or retaliatory force.

No discussion of these or other potential roles for artillery in peacetime contingency operations occurs in detail in any field artillery doctrine. In truth, this condition characterizes field artillery doctrines' overall treatment of low intensity conflict in all four operational categories.

Why the paucity of doctrinal direction for field artillerymen when it comes to low intensity conflict? The problem begins with the field artillery capstone manual, FM 6-20, Fire Support in the Airland Battle. That manual acknowledges its lineal genesis to be FM 100-5, Operations; no references are made to the overarching doctrine promulgated in FM 100-20, Military Operations in Low Intensity Conflict. Ergo, when FM 100-20 states that it "complements warfighting doctrine by providing operational guidance for military operations in LIC from which implementing doctrine can be developed

(emphasis added),"⁸⁰ the resulting void in "how to" guidance can be easily explained. In fact, the totality of "implementing doctrine" contained in FM 6-20 is as follows:

The principles of fire support must apply to an ever-increasing number of hostile world situations that extend across the spectrum of conflict from thermonuclear war to low intensity conflicts. The fire support system must be flexible enough to respond to a number of battlefield situations ranging from the nonlinear characteristics of the high- and mid- intensity conflicts to the special demands of low-intensity conflict.⁸¹

It is not surprising then, that FM 6-20's short shrift treatment of low intensity conflict translates to shallow handling of the same in the supporting series of field artillery "how-to" publications. Consequently, there is a chasm between the roles for artillery that are recognized in FM 100-20 and FM 100-2-20, and those defined in the implementing field artillery doctrine that guide practitioners in role execution.

V. CONCLUSIONS AND RECOMMENDATIONS

The involvement of the United States Army across the spectrum of low intensity conflict is virtually assured. Dr. Neil Livingstone paints a vivid word picture of the contemporary challenges posed by the LIC environment:

The prospective battlefield of the next twenty years is more likely to be an urban wilderness of concrete and buildings, the tarmac of an international airport, or the swamps, jungles, and deserts of the Third World than the valleys and sweeping alluvial plains of Europe...or what some have called the "low frontiers of warfare."⁸²

FM 100-5 maintains that meeting the challenges described above will require "initiative in leaders, special preparation in training, and flexibility and restraint in operations."⁸³ I would add the codicil "and comprehensive doctrine" to this assertion, because it is doctrine that provides the framework and serves as the catalyst for those actions to occur.

The purpose of this monograph was to ascertain whether current field artillery doctrine adequately meets the contingencies encountered across the spectrum of low intensity conflict. In light of the historical and doctrinal analyses and resulting evidence presented, I must conclude that it does not.

We have seen that significant differences exist between historically- and doctrinally-derived roles for field artillery and those recognized by field artillery

doctrine in each of the four operational categories that comprise the low intensity conflict spectrum. Because those roles have been ill-defined or ignored in total by field artillery doctrine, little substantive guidance exists for practitioners. The resulting void must be filled if there is to be any meaningful contribution by the artillery to either the immediate realm of tactical success, or to the more ethereal realm of policy objectives.

The bottom line is that reality dictates that the artillery must be prepared to perform a multiplicity of functions singly or in concert in each of LIC's four operational categories. The challenges inherent in this charge are significant; much work needs to be done. Accordingly, the following recommendations in the areas of doctrine, training, and leadership are offered as starting points for corrective actions.

The overarching doctrine proffered in FM 6-20, Fire Support in the Airland Battle, is fundamentally sound. But as a capstone manual, it must address fire support across the entire spectrum of conflict in more than a cursory fashion. What is needed is simply a broadened focus on the role of fire support in low intensity conflict. The limited scope of the manual's current discussion regarding LIC has already been addressed. That limitation can easily be eradicated by expanding the

discussions of conventional fire support to accommodate the special requirements dictated by the exigencies inherent in combatting terrorism, providing support for insurgencies or counterinsurgencies, conducting peacekeeping operations, or executing a peacetime contingency operation. In short, the link with FM 100-20 must be firmly established so that appropriate, detailed implementing guidance may be developed.

Specifically, the "conventional" fire support functional areas highlighted in FM 6-20 that beg for direct application to operations in low intensity conflict include, but are not limited to: fire support and the principles of war; the basic tasks of fire support; synchronization of the fire support system (especially the utility and critical importance of the decide-detect-deliver methodology); the fire support planning/coordination principles; fire support planning process; and the fire support plan. Major revision of these areas is not suggested; however, a simple retooling is required to provide the needed linkages between FM 100-20 and FM 6-20, and to firmly establish the doctrinal basis for operational practice.

Once the overarching field artillery doctrine contained in FM 6-20 fully embraces low intensity conflict within its purview, the arduous but important task of developing supporting tactics, techniques, and

procedures for incorporation in the supporting "implementing" manuals such as FM 6-20-50 can proceed. In this regard, historical practice offers a litany of invaluable experience from which to draw. Some examples follow.

Clearly, one of the recurring themes emanating from historical practice is the importance of competent performance at the battery level. Time and time again, it was the field artillery battery commander and his unit who played key roles in LIC operations. Fire supporters at battery level were called upon on countless occasions to orchestrate the entire fire support system in support of the maneuver commander. Their abilities to do so often meant the difference between mission success and failure. Scales noted: "The U.S. Army discovered in Vietnam that the task of wielding aerial firepower to support ground forces was particularly difficult...."⁸⁴ In the same vein, he counseled that "the complete integration of naval gunfire with the tactical scheme of maneuver requires a great deal of training, familiarity, and trust...."⁸⁵ Here, the implications for both tactics and operations are self-evident.

Our historical analysis further demonstrated that success at the tactical level also depended on the battery's ability to execute self-defense and other basic unit-level tasks, both independently and as part of a

task-organized force. Obviously, these tasks must continue to receive emphasis in today's training environment. Airmobile operations, artillery raids, "danger-close" fire missions, and direct fire techniques stand among the most important to be mastered.

Finally, the importance of leadership as a dynamic of combat power cannot be overemphasized. I have already underscored the premium placed on leadership at the junior level. The roles of senior leaders deserve equal consideration, for it is they who establish the conditions for success and who are charged with the orchestration of campaigns and major operations in any conflict environment. Nowhere is this more critically important than in low intensity conflict.

In conclusion, the field artillery will be called upon to perform a variety of roles in each of the operational categories that define low intensity conflict. Accordingly, artillery doctrine, training, and leaders must be focused on establishing the conditions for success to meet the demands inherent in LIC settings. Only then will the field artillery be fully prepared to contribute to mission success in any environment. With a concerted effort, that objective is well within reach.

ENDNOTES

1. Chris Bellamy, *The Future of Land Warfare* (New York: St. Martins' Press, 1987), p. 1.
2. Ibid.
3. Field Manual Number 100-20, *Military Operations in Low Intensity Conflict* (Washington, DC: Departments of the Army and Air Force, 1987), Glossary, p. 14.
4. Ibid, p. 1-10.
5. Carl von Clausewitz, *On War* (Princeton, NJ: Princeton University Press, 1976), pp. 285-286.
6. J.B.A. Bailey, *Field Artillery and Firepower* (Oxford: Military Press LTD, 1989), p. 10.
7. S.L.A. Marshall, *Men Against Fire* (Gloucester, Mass: Peter Smith, 1947-Reprinted 1978), p. 191.
8. Robert H. Scales Jr., *Firepower in Limited War* (Washington, DC: National Defense University Press, 1990), p. 230.
9. Marshall, p. 84.
10. Scales, pp. 4-5.
11. Scales, p. 5.
12. Field Manual Number 100-5, *Operations* (Washington, DC: Department of the Army, 1986), pp. 11-12.
13. Clausewitz, p. 88.
14. FM 100-20, p. vi.
15. Clausewitz, p. 81.
16. Bailey, p. 235.
17. Clausewitz, p. 287.
18. Ibid, pp. 287-288.
19. FM 100-20, p. 3-1.
20. Ibid, p. 3-20.

21. Bailey, p. 261.
22. William V. O'Brien, "Counterterrorism: Lessons from Israel," Strategic Review, XIII (Fall 1985), p. 40.
23. M. Thomas Davis, 40 KM into Lebanon (Washington, DC: National Defense University Press, 1987), p. 97.
24. Bailey, p. 255.
25. O'Brien, p. 41.
26. Brigadier General Arie Mizrachi, "Israeli Tactics and Weapons-Lessons Learned in Combat," Field Artillery. (February 1990), p. 7.
27. Ibid, pp. 7-10.
28. Ibid, pp. 8-9.
29. FM 100-20, p. 1-11.
30. FM 100-2-20, The Threat in Low Intensity Conflict (Coordinating Draft)(Fort Leavenworth, KS: U.S. Army Combined Arms Center Threat Directorate, 1990), p. 5-2.
31. Roger J. Spiller, "Not War But Like War": The American Intervention in Lebanon (Fort Leavenworth, KS: Combat Studies Institute, U.S. Army Command and General Staff College, 1981), p. 1.
32. Ibid, p. 49.
33. Ibid, p. 1.
34. FM 100-2-20, p. 6-11.
35. Scales, p. 82.
36. Ibid, p. 67.
37. Bailey, p. 241.
38. Ibid, p. 243.
39. Scales, p. 73.
40. Bailey, p. 240.
41. Ibid.

42. Major General David E. Ott, Field Artillery, 1954-1973 (Washington, DC: U.S. Government Printing Office, 1975), p. 148.
43. Scales, pp. 84-86.
44. Ibid, p. 138.
45. Bailey, p. 247.
46. Ibid, p. 247.
47. Scales, p. 153.
48. FM 100-2-20, p. 6-11.
49. The Falklands Campaign: The Lessons (London: Her Majesty's Stationery Office, 1983), p. 6.
50. Ibid, p. 17.
51. Harry Summers, "Ground Warfare Lessons" in Military Lessons of the Falklands Islands War, edited by Bruce W. Watson and Peter M. Dunn (Boulder, Colorado: Westview Press, 1984), p. 70.
52. Bailey, p. 259.
53. Paul Eddy, Magnus Linklater, and Peter Gillman, War in the Falklands (New York: Harper and Row, 1982), p. 239.
54. Scales, p. 233.
55. Bailey, p. 260.
56. The Falklands Campaign, p. 32.
57. Scales, p. 227.
58. The Falklands Campaign, p. 17.
59. FM 100-2-20, p. 4-1.
60. Ibid, p. 4-3.
61. Bailey, p. 45.
62. FM 100-2-20, p. 4-4.
63. FM 100-20, p. 3-13.
64. Ibid, p. 3-19.

65. Field Manual Number 6-20, Fire Support in the AirLand Battle (Washington, DC: Headquarters, Department of the Army, 1988), p. 3-6.
66. Field Manual Number 6-20-50, Tactics, Techniques, and Procedures for Fire Support for Brigade Operations (Light) (Final Draft)(Fort Sill, OK: U.S. Army Field Artillery School, May 1989), pp. A1-A2.
67. FM 100-2-20, p. 5-2.
68. FM 100-20, p. 1-2.
69. Ibid, p. E-33.
70. Ibid, p. 1-1.
71. FM 100-2-20, p. E-14.
72. Ibid, p. 3-34.
73. FM 6-20-50, p. A-6.
74. Ibid, pp. A-6 to A-8.
75. Ibid, p. A-2.
76. FM 100-20, p. 6-11.
77. FM 100-2-20, p. 2-5.
78. Ibid, p. 2-4.
79. Ibid, p. 8-1.
80. FM 100-20, p. vii.
81. FM 6-20 p. 1-7.
82. Dr. Neil C. Livingstone, "Fighting Terrorism and 'Dirty Little Wars'," Air University Review (March-April, 1984), p. 6.
83. FM 100-5, p. 6.
84. Scales, p. 233.
85. Ibid.

BIBLIOGRAPHY

BOOKS

- Bailey, J.B.A. Field Artillery and Firepower. Oxford: Military Press Ltd, 1989.
- Bavly, Dan and Ehiahu Salpeter. Fire in Beirut. New York: G.P. Putnam and Sons, Inc., 1984.
- Bellamy, Chris. The Future of Land Warfare. New York: St. Martin's Press, 1987.
- Clausewitz, Carl von. On War. Edited and translated by Michael Howard and Peter Paret. Princeton: Princeton University Press, 1976.
- Eddy, Paul and Magnus Linklater with Peter Gillman. War in the Falklands. New York: Harper and Row, 1982.
- Gabriel, Richard A. Operation Peace for Galilee: The Israeli-PLO War in Lebanon. New York: Hill and Wang, Inc., 1984.
- Hastings, Max and Simon Jenkins. Battle for the Falklands. New York: W.W. Morton & Company, Inc., 1983.
- Khalidi, Walidi. Conflict and Violence in Lebanon. Cambridge, MA: Harvard Center for International Affairs, 1979.
- Krepinevich, Andrew F. Jr. The Army and Vietnam. Baltimore, Md: Johns Hopkins University Press, 1986.
- Marshall, S.L.A. Men Against Fire. Gloucester, Mass: Peter Smith, 1947. (Reprinted 1978)
- Nalty, Bernard C. The United States Marines in Nicaragua. Washington, DC: Headquarters, US Marine Corps, 1968.
- Palmer, General Bruce Jr. The 25-Year War: America's Military Role in Vietnam. New York: Simon & Schuster, Inc., 1984.
- Watson, Bruce W. and Peter M. Dunn, editors. Military Lessons of the Falkland Islands War: View from the United States. Boulder, Colorado: Westview Press, 1984.

PERIODICALS

- DeFrancisco, Colonel Joseph E. and Major Robert J. Reese. "Nimrod Dancer Artillery: Fire Support in Low Intensity Conflict." *Field Artillery* April 1990: 17-21.
- Dodd, Colonel Norman L. "The Use of Artillery in Out-of-Area Operations." *Asian Defence Journal* Sep. 1986: 60-69.
- Hoffman, Bruce. "Commando Warfare and Small Raiding Parties as Part of a Counterterrorist Military Policy." *Conflict* 7.1 (1987): 15-42.
- Livingstone, Dr. Neil C. "Fighting Terrorism and 'Dirty Little Wars.'" *Air University Review* March-April 1984: 4-16.
- McMichael, Major Scott R. "URGENT FURY: Looking Backward and Looking Forward." *Field Artillery* March-April 1985: 8-13.
- Merriam, Lieutenant Colonel John C. "What Role for Artillery in LIC or MIC?" *Field Artillery* April 1990: 9-16.
- Mizrachi, Brigadier General Arie. "Israeli Artillery Tactics and Weapons--Lessons Learned in Combat." *Field Artillery* February 1990: 7-10.
- O'Brien, William V. "Counterterrorism: Lessons from Israel." *Strategic Review* XIII.4: 32-44.
- Zais, Major Mitchell M. "LIC: Matching Missions and Forces." *Military Review* August 1986: 79, 89-99.

GOVERNMENT AND LEGAL DOCUMENTS

- Davis, M. Thomas. *40 KM into Lebanon: Israel's 1982 Invasion*. Washington, DC: National Defense University Press, 1987.
- Dixon, Colonel Howard Lee. "Low Intensity Conflict: Overview, Definitions, and Policy Concerns." Langley Air Force Base, Va: Army-Air Force Center for Low Intensity Conflict, 1989.
- The Falklands Campaign: The Lessons. Presented to Parliament by the Secretary of State for Defence by Command of Her Majesty. London: Her Majesty's Stationery Office, 1983.

Field Manual Number 6-20, Fire Support in the Airland Battle. Washington, DC: Headquarters, Department of the Army, 17 May 1988.

Field Manual Number 6-20-50, Tactics, Techniques, and Procedures for Fire Support for Brigade Operations (Light)(Final Draft). Fort Sill, OK: Headquarters, U.S. Army Field Artillery School, 9 March 1989.

Field Manual Number 90-8, Counterguerrilla Operations. Washington, DC: Headquarters, Department of the Army, 29 August 1986.

Field Manual Number 100-5, Operations. Washington, DC: Headquarters, Department of the Army, 1986.

Field Manual Number 100-20, Military Operations in Low Intensity Conflict. Washington, DC: Departments of the Army and Air Force, 30 November 1987.

Field Manual Number 100-2-20, The Threat in Low Intensity Conflict(Coordinating Draft). Fort Leavenworth, KS: US Army Combined Arms Center Threat Directorate, 1990.

Godwin, W.A. "Operational Employment of the Light Infantry Division" US Army Command and General Staff College Masters Thesis, Rochester, NY: Rochester University, 1986.

Jureidini, P.A. "Military Operations in Selected Lebanese Built-Up Areas, 1975-1979" Alexandria, VA: Abbott Associates 1979.

Kubasko, W.P. "Field Artillery Operations in the Arctic" Carlisle Barracks, PA: Army War College, 1987.

Ott, Major General David Ewing. Field Artillery, 1954-1973, Washington, DC: US Government Printing Office, 1975.

Scales, Robert H. Jr. Firepower in Limited War. Wash., DC: National Defense University Press, 1990.

Schiemann, LTC Heinz A. "Fire Support for the Light Division." US Army War College Military Studies Program Paper, Carlisle Barracks, Pa: Army War College, 1987.

Spiller, Roger J. "Not War But Like War: The American Intervention in Lebanon." Fort Leavenworth, KS: Combat Studies Institute, US Army Command and General Staff College, January, 1981.