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**OPERATIONAL FIRES ON THE URBAN BATTLEFIELD:
AN UNDERDEVELOPED CONCEPT**

By

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A paper submitted to the Faculty of the Naval War College in partial satisfaction of the requirements of the Department of Joint Military Operations.

The contents of this paper reflect my own personal views and are not necessarily endorsed by the Naval War College or the Department of the Navy.

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15. Abstract: Now and into the future the U.S. military will be confronted in asymmetric warfare with adversaries who establish their power centers in urban terrain. Recent history has shown that U.S. forces can defeat adversaries on the conventional battlefield through overwhelming tactical and operational fires. Specifically, the employment of operational fires in conventional warfare have enabled the operational commander to accomplish operational and strategic objectives. However, when battles shift to urban terrain, the complexity of employing decisive operational fires goes up exponentially. The urban environment's characteristics of structured terrain and noncombatant inhabitants restrict the ability to employ lethal operational fires in the traditional fashion. As a result, Joint Doctrine generally views urban warfare as a tactical fight that should be tasked to the tactical commander to achieve operational objectives. The future operational commander needs a fully developed concept to employ operational fires. This study will examine the challenges facing the operational commander in the urban battlespace. Furthermore, an analysis of the evolving Joint MOUT concept will identify the limited integration and considerations for operational fires. This study concludes with recommendations for integrating a full scale employment concept of operational fires into the conceptual framework of Joint MOUT.			
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Abstract of

**OPERATIONAL FIRES ON THE URBAN BATTLEFIELD:
AN UNDERDEVELOPED CONCEPT**

The US military will continue to be confronted in asymmetric warfare by adversaries who establish their power centers in urban terrain. Recent history has demonstrated that US forces can defeat adversaries on the conventional battlefield through overwhelming tactical and operational fires. Specifically, the employment of operational fires in conventional warfare has enabled the operational commander to accomplish operational and strategic objectives. Additionally, decisive operational fires provide more freedom of action for tactical commanders. However, when battles shift to urban terrain, the issues surrounding the use of decisive operational fires grow more complex. The urban environment's characteristics (structured terrain and non-combatant inhabitants) automatically restrict the ability to employ lethal operational fires in the traditional fashion. As a result, Joint Doctrine generally views suburban warfare as a tactical fight and, therefore, will assign the tactical commander the task of achieving only specific operational objectives. This perspective may well cause the tactical commander to be 'over-tasked' and, as such, make him *less* likely to accomplish his mission without the aid of operational fires before and during hostilities.

The future operational commander will need a fully developed set of guidelines re the employment of operational fires. This study will examine the challenges facing the operational commander in the urban battle space. Furthermore, an analysis of the evolving Joint MOUT concept will identify the somewhat limited integration of, and consideration for, operational fires in this concept as it stands. This study will then conclude with recommendations re how to integrate a full-scale employment of operational fires into the conceptual framework of Joint MOUT.

Introduction

In the 21st Century, the urban populations of developing countries will continue to grow dramatically. Potential belligerents are establishing their power centers in an urban environment amongst non-combatants so as to take advantage of the infrastructure and thereby enhance their protection from potential adversaries. As a result, it can be expected that an increasing number of military operations will occur in urban environments. Operational power projection, through operational fires, into cities consisting of combatants *and* non-combatants is extremely difficult. An operational commander is, obviously, forced to exercise restraint in employing operational fires in an environment such as this.

Operational commanders need a fully developed doctrinal concept for employing operational fires in the urban environment to attain operational objectives. Existing doctrinal concepts for employing decisive operational fires in the urban environment are insufficiently developed to assist operational commanders and planners in their task. Therefore, alternatives based on *purpose* and *intent* must be designed to enable the commander to achieve synergistic effects from his platforms and attain his operational objectives.

First of all, this paper will address the challenges of employing operational fires in the urban environment. Secondly, an analysis of the Joint Force Commander's (JFC) Military Operations in Urban Terrain (MOUT) concept will be conducted to identify the shortfalls in this concept as regards the employment of operational fires. Finally, recommendations for employing operational fires in urban operations will be provided.

Urban Operational Challenges

In urban warfare, the operational commander faces a number of operational challenges, both tangible and intangible. Urban terrain poses the biggest physical challenge to war in a city. City terrain takes on many forms, ranging from the single-level structures that are prevalent in Third world countries, to strengthened, high-rise, buildings such as in New York City. Given the three

dimensional nature of multi-level city terrain, it is a safe assumption that seeking out and engaging an enemy harbored in these types of structures will always be a difficult task for an attacking force. Therefore, the focus of this study concentrates on the built-up cities of the First world.

Furthermore, the potential political implications of attacking cities occupied by both enemy forces *and* non-combatants can put restraints on the commander that will reduce his ability to exert the necessary decisive force. This is the reason future adversaries who can't match the attacker's firepower will position their defensive forces in cities and suburbs. Thus, urban fighting could become the great equalizer between the militarily advanced and the technologically deficient. This is the type of asymmetric warfare that is expected to take place in future conflicts. For example, prior to Desert Fox, Saddam Hussein obtained a time advantage over the United States by recognizing America's overwhelming offensive strength and ability to strike any target, and moving these targets into populated areas. Saddam knew that Bill Clinton not only feared risking the lives of his own service personnel, but dreaded the negative publicity that Iraqi civilian casualties might bring.¹ Though the US did, eventually, attack Baghdad, Saddam had gained the time to move or reinforce his valued war materials. Additionally, the duration of the strikes on the city of Baghdad was limited because of political concerns. Moreover, the US may well have lost the strategic battle as, since the attack, Saddam Hussein has restricted inspectors from entering the country. This will once again buy him the time he needs to resurrect his WMD programs, potentially on an even greater scale than before, i.e., on a nuclear scale. Also, other potential adversaries may have observed Saddam's strategy and could mirror it in the future. Because fighting in cities is the most costly, time consuming, and politically taxing of all forms of modern warfare, many considerations will have to be factored into this operational planning model. Quite simply, it is this 'cost-time-political' equation that will be the critical factor in determining success or failure in urban warfare.

One of the primary concerns of the commander is force protection. The probability of the escalation of friendly casualties in urban warfare is directly related to the level of domestic

¹ Ralph Peters, "How Saddam Won This Round," Newsweek, November 22, 1998,

political support for the operation. Whereas the commander's attacking force is his *operational* center of gravity, the protection of this force is directly linked to the *strategic* center of gravity. Thus, the commander will almost certainly be presented with the task of limiting friendly casualties. In an urban environment, attacking forces are routinely faced with three-dimensional warfare. Tall buildings assist the defender as - much like fighting in hilly terrain - he who holds the highest ground has the clear advantage. Additionally, the strengthened structures provide the enemy with shelter and concealment from the attacker.

A second concern is the avoidance of adverse domestic and worldwide political opinion. The commander is challenged with minimizing civilian casualties and collateral damage. Fighting among non-combatants within their habitations increases the probability of civilian casualties. However, whatever precautionary measures the commander takes in order to avoid any degradation of political support for the operation, have to be balanced against the need to accomplish his objective. It is also the case that, in addition to minimizing civilian casualties, a commander must attempt to preserve cultural facilities for future generations.

As a result of these challenges, the commander is restricted in the free and indiscriminate use of ground and air weapons. These concerns are some of the reasons why urban combat has been avoided in the past. Moreover, these critical factors of the urban environment have forced the US military to view urban warfare as a strictly tactical fight. Urban warfare doctrine currently focuses entirely on the tactical level. Individual soldiers learn techniques for maneuver and room clearing; units focus on defending or attacking small, built-up areas, or seizing large cities incrementally through such attacks.² However, the economic, social, and political character of cities makes urban areas lucrative targets for a force wanting to control or influence a nation.³ Unfortunately, the doctrinal concepts of urban warfare at the operational level are in a state of infancy. As a result, the tactical commander is being tasked with achieving not only tactical objectives but operational and strategic objectives as well.

² Department of the Army, Military Operations on Urban Terrain (MOUT), Field Manual 90-10, Washington, D.C.: US Government Printing Office, August 15, 1979, 8.

³ G.J. Ashworth, War and the City (London and New York: Rutledge) 8.

US armed forces were involved in tactical urban engagements in Korea, Vietnam, Panama, and Somalia. They have not had to execute large-scale operational-level missions in urban areas since World War II. Experience of such warfare amongst current service members is nonexistent; doctrine for guiding actions at the operational level of war is also absent.⁴ The operational commander *must* have a fully developed concept to achieve operational objectives. More specifically, he must possess a fully developed operational fires concept so as to be able to achieve operational objectives in the urban environment with the same decisiveness that can exhibited in non-urban conventional warfare. Lastly, he must be able to apply operational fires to neutralize the advantages that adversaries have in the urban environment. The operational commander must be able to effectively use operational fires to remedy the cost, time, and political challenges of urban warfare. It is only by factoring the operational challenges of urban warfare into this urban operational concept that planners will be equipped to effectively employ operational fires in these circumstances.

Current Concept Analysis

In October 1998 the draft for the "Joint Operational Concept for Military Operations on Urbanized Terrain" was released. This publication provides guidance for the conduct of MOUT at the operational level. Although operational fires are addressed to some degree, an analysis of this newly devised concept reveals shortfalls in the intended application of operational fires. The following analysis is focused on two areas. First, the overall Joint Concept will be examined to reveal the applicability of operational fires. Second, a concentrated analysis of the view of operational fires capabilities in MOUT will be provided. When compared to Milan Vego's guidance on the use and purpose of operational fires, numerous shortfalls are revealed.⁵ In summary, the following questions need to be answered in future doctrine for Joint Operational MOUT: Does the tactical nature of urban warfare prevent the merging of operational fires into the urban warfare framework? Can Urban Operational Objectives be attained through the use of

⁴ Russel W. Glenn, Combat in Hell: A Consideration of Constrained Warfare. (Santa Monica: Rand 1996), 15.

⁵ Professor Milan N. Vego is a Joint Military Operations instructor at the U.S. Naval War College. He has conducted extensive studies on operational art.

Operational Fires? And, ultimately, can the general requirements of operational fires be decisive in the urban theater?

The evolving JFC MOUT Concept takes essential elements/phases of warfare and constructs a framework from them. A proposed framework for developing a MOUT campaign plan is Shape, Isolate, Penetrate, Exploit, Consolidate, and Transition.⁶ Operational fires can be most effective in the Shape, Isolate, and Penetrate phases in operations conducted in open terrain. Therefore, these three phases will be addressed to identify the areas in which operational fires can accomplish, or play a role in attaining, operational objectives in urban terrain.

Shape.

In general, the JFC views shaping an area of operations as the preparing of an area for operations by determining essential elements through intelligence and counter-intelligence operations. In much the same way as open battle space, the Joint approach to MOUT shaping relies on Intelligence Preparation of the Battlefield (IPB) to accomplish objectives before hostilities. The JFC evaluates the urban battle space and determines the implications for military operations.⁷ There are a number of key objectives that the JFC concept states should be accomplished in this phase:

- * Control key terrain, facilities, functions, or nodes**
- * Unhinge the enemy's decision cycle**
- * Lower or destroy enemy will to resist**
- * Cut/Control intra-city mobility and communications**
- * Facilitate further collection of information**
- * Trigger an enemy response**
- * Position forces to accomplish other phases⁸**

⁶ US Joint Chiefs of Staff, Draft Joint Operational Concept for Military Operations on Urbanized Terrain, (Washington D.C.: October 20,1998),

⁵.

⁷ Ibid.

⁸ Ibid.,6.

Basically, the objectives in this shaping can be broken down into two categories. First, there are those actions taken to determine the enemy's disposition and physical characteristics. Second, there are those actions taken to shape or alter the theater so as to create a more favorable climate for the commander. JTF will rely heavily on special operations forces to attain both types of objectives.

In conventional warfare, operational fires are often used to accomplish some of these stated objectives. However, no mention is made in the Joint MOUT Concept of using operational fires to accomplish these objectives in *urban* operations.

Isolate.

At the operational level, the term 'isolate' means cutting the adversary off from the functions he needs to be effective.⁹ An enemy's critical functions are numerous in an urban environment and can range from their dependence on the urban infrastructure to support received from outside the urban area of operations. The JFC concept of isolating adversaries fully incorporates the use of operational fires to obtain this objective; namely, the use of precision fires to physically isolate the battle space. Moreover, this concept also recognizes the complexity of physically isolating the enemy from non-combatants. Therefore, in addition to precision fires, psychological operations must be incorporated into, and synchronized with, the isolation plans. The potential drawback is that the desired effect of psychological operations may take more time than is anticipated or available. The enemy may react to counter the planned synergistic effect of synchronized psychological operations and precision fires.

Penetrate.

At the operational level, 'penetrate' means to orchestrate the seizure and control of the critical nodes identified during IPB.¹⁰ The JTF concept stresses the avoidance of enemy centers of resistance and the need to attack enemy resistance through specialized mobility techniques. However, to do this the attacking forces will need to have freedom of movement to 'up the

⁹ U.S. JCS, Draft Joint MOUT, 7.

¹⁰ Ibid.

tempo' of operations. While the tactical commander seeks out the paths of least resistance in order to maneuver to the decisive points, operational fires can be used to facilitate operational maneuver and to deny the enemy the same freedom.

Draft JTF MOUT-Concept of Operational Fires Analysis

The following is the Operational Fires portion of the Draft JTF MOUT Concept.

Operational Fires- The nature of urban terrain presents challenges in employing fires. Limited visibility affects targeting, fire support coordination, and battle damage assessment. Tall structures become intervening crest for surface-delivered fires. The cover afforded by the terrain affects penetration characteristics and fuse functioning, reducing weapons effects below the threshold for successful engagement. The fire support system must adapt by providing for target location and designation in three-dimensional terms, extremely precise ordnance delivery (e.g., to a specific room in a building), munitions with variable penetration and explosive characteristics, and the coordination of lethal and non-lethal fires against different targets near one another. Joint forces must fully understand the expected effects of ammunition when used against different combinations of building materials. Joint forces at every level must understand the integration of and maneuver in urban terrain, and the critical importance of timeliness in precision engagement. Traditional fire support coordination measures may need adaptation. Firepower must be available for highly accurate longer-range engagements, yet be affordable enough to be available for high volume interdiction fires to support the joint forces.¹¹

Shortfalls in the MOUT Concept.

There are a number of shortfalls in the operational fires section of the draft concept. First, the distinction between tactical fires and operational fires is vague in the JFC concept. The JFC operational fires concept provides strict guidance for tactical fire control. However, JFC operational fires planners receive *no* guidance on how to employ operational fires in urban warfare. In terms of planning, operational fires are a separate part of the operational scheme. They are not fires support; hence, the success of operational maneuver can be affected by the use of operational fires.¹²

¹¹U.S. JCS, Draft Joint MOUT, 11.

Second, the JTF conceptual doctrine does not clearly define urban operational fires. Vego's definition ("Operational fires are the application of firepower to achieve a decisive impact on the conduct of a campaign or major operation."¹³) specifically states that operational fires must have a decisive impact. Given the restrictions of employing fires in urban terrain, a limited volume of operational fires may not always be intended to be *decisive* but, rather, to achieve desired results. In short, urban operational fires may not always be totally decisive but must provide the desired conditions to accomplish operational objectives.

Therefore, urban operational fires could be defined as the application of lethal and non-lethal fires to achieve the desired effects of a campaign or major operation.

Third, while the draft doctrine describes operational fires as a capability, there is only a limited correlation between the general operational fires requirements and urban operational fires requirements. Operational fires are meant to create favorable conditions for the future operations of other forces.¹⁴ This is one of Vego's general requirements of operational fires in a campaign or operation. However, the Joint Operational Fires Concept does not specify *any* such requirements. Requirements surely need to be specified to assist planners in determining what, when, where, and how, fires should be administered to affect the operation or campaign.

Finally, the purpose of urban operational fires is not specifically addressed in the Joint Operational Fires Concept for MOUT. Operational fires can be used to accomplish a single or several purposes. Optimally, operational planners will always focus on a specific purpose to be achieved by conducting operational fires within a given time frame.¹⁵ In conventional warfare, operational fires are planned to accomplish operational objectives. However, the Joint MOUT Concept restricts the use of operational fires to the supplementary role of isolating the battlefield.

¹² Vego, Milan, On Operational Art, Third Draft (1998 Milan Vego) Joint Military Operations., U.S. Naval War College. Newport, R.I. 195.

¹³ Vego, Milan, On Operational Art, (1998 Milan Vego) 195.

¹⁴ Ibid.

¹⁵ Vego, Milan, On Operational Art, (1998 Milan Vego) 203.

Analysis Summary.

It would appear that the Joint concept for urban operational fires is underdeveloped because operational fires are not fully integrated into the operational MOUT concept. Perhaps the reason for this limited integration is the Joint perspective of MOUT itself as compared to the view of the applicability of operational fires. The MOUT perspective sees urban warfare primarily from a tactical viewpoint. In short, the JFC believes that tactical actions in MOUT will be the primary means of attaining operational objectives. Therefore, employed fires in MOUT are considered *tactical* fires. However, operational fires are traditionally considered 'operational' according to who administers them and why, when, and where they are administered. Specifically:

- * Operational fires are to accomplish operational objectives**
- * Operational fires are normally conducted well before hostilities**
- * Operational fires are normally conducted outside of the area of operations**
- * The operational command echelon controls operational fires¹⁶**

These distinguishing features of operational fires change on the urban battlefield because of that battlefield's time, space, and force characteristics. Given the nature of the urban battlefield, tactical, operational, and strategic objectives are confined in a limited space, causing the traditional gaps between the three levels to diminish somewhat. Tactical objectives can also be operational objectives. The enemy's operational reactions to time, space, and force can be shortened in urban hostilities. The tactical and operational area of operations may well be the same. Some operational actions are lowered to the tactical level and some tactical actions are elevated to the operational level. Thus, urban warfare can be viewed as an 'Operational-Tactical' fight with no distinction between the two levels. As a result, the operational-tactical command echelon controls the fight. For example, the German 6th Army employed an operational fight in the battle for Stalingrad. The commander of the Sixth Army controlled both the operational maneuver of penetrating the city and the tactical maneuver of attempting to lay siege to the city.

¹⁶ *Ibid.* 195.

By the end of September the Sixth Army had accomplished its strategic objective. The Volga waterway was severed, half of Stalingrad was in German hands, and the rest under fire. Hitler, however, became as obsessed with taking the city as Stalin was with holding it.¹⁷

Another view is that large urban areas in the 21st Century will simply swallow up tactical formations. It may take an entire regiment to secure a multi-story building or a block of numerous small buildings. A large city that tilts the space/force ratio in favor of space can refute the argument that operational and tactical levels will overlap. In this case, the operational commander may be forced to resort to decentralized control of his units. Tactical commanders would be assigned selected portions of the city. Thus, the urban battle could, it would seem, be viewed as a tactical fight. However, in actuality, even if a tactical commander's area of responsibility may shrink in a large and dense city, the operational commander's area of operations may still be the city itself. Nonetheless, this scenario actually reinforces the argument for the application of operational fires. The operational commander can still employ operational fires on other parts of the city to attain operational objectives that will augment continued operations.

Furthermore, in this case the operational commander gives up the principle of mass and quite possibly unity-of-effort. If the operational commander decides to attack a city he should have more than the doctrinal 3:1 force ratio. Given the three-dimensional terrain within a battle space, a commander will have to factor into his reckoning both the size of the enemy force and the size of the city. However, effective operational fires can be the force 'multiplier' needed to close the 'force ratio' gap.

Force Ratio: Successful attackers most often had superior manpower and fire. In cases where the attacker won, but was inferior in manpower and firepower, the defender violated one or more principles of war. Nevertheless, the average attacker-to-defender ratio in 22 urban battles was 4:1. Another consideration for the both the attacker and defender is the relationship between force ratio and combat duration. Historically, the stronger the attacker, the shorter the duration of the fight.¹⁸

¹⁷ R.D. McLaurin and others, Modern Experience in City Combat. (Ft. Belvoir , DTIC 1987) 82.

¹⁸ "Modern Urban Battle Analysis and Observations (Part II)" MAWTS-1 Aviation Combat Element MOUT Manual <http://www.geocities.com>

In conclusion, the limited integration of operational fires into the JFC MOUT concept can be attributed to a narrow view as to what constitutes 'urban space'. The concept is being formulated strictly from terrain considerations. Because of the concentrated terrain, urban battle space has been viewed from the tactical perspective, thus limiting the role of operational fires. Furthermore, operational fires cannot easily be distinguished from *tactical* fires in urban terrain. Given this fact, the concept for the application of operational fires in urban terrain should surely be based on *purposes*.

Recommendations for Enhancing Operational Capabilities

Even with the clear challenges associated with the employment of operational fires in an urban environment, the JTF commander must not let such constraints hinder his freedom to employ fires when required. Planners *need* to use emerging technologies, of both lethal and non-lethal types, and employ operational fires to attain operational objectives. Vego outlines many purposes for the employment of operational fires.¹⁹ Though not a verbatim reproduction of Vego's list, the following recommendations encompass and address valid purposes that justify the employment of operational fires in an urban environment. These recommendations are based on a systems approach: integrating intended purposes of operational fires into the evolving Joint operational concept of urban warfare.

Shaping the Urban Battlefield.

In Sidon the Palestinians showed themselves capable of halting Israeli frontline forces in an urban environment and unhinging the Israeli blitzkrieg, within which the IDF operated. In

¹⁹

Purposes

- Isolate/shape the "battlefield"
- Facilitate one's own/friendly operational maneuver
- Prevent the enemy's operational maneuver
- Interdicting the enemy's uncommitted forces
- Destroy/neutralize the enemy's critical functions and facilities
- Disrupt /Cut-Off the enemy's Logistical Support and Sustainment
- Deceive the enemy as to the place and Time of Major Operation/Campaign
- Diminish the enemy morale
- Protect one's own area of operations
- Protect development of new bases (in maritime theater)
- Prevent enemy forces from leaving the theater, 203

actions in Sidon, the Israelis consistently resorted to massive firepower in the form of artillery barrages and air strikes to break Palestinian resistance. This firepower could not be wielded with the precision needed to hit the PLO targets without causing large numbers of civilian casualties and general destruction.²⁰

During the shaping phase of the operation the commander must mould the urban battlefield to create favorable conditions that will heighten the probability of attaining his operational objectives. After determining the shape of the battlefield *prior* to hostilities, he must use operational fires to alter it in such a way as to create freedom for operational maneuver, to limit enemy operational response, or to degrade the infrastructure that enemy C2 is relies upon. The Israelis failed to employ operational fires for the purpose of shaping the battle space in Sidon. As a result, the tactical fight turn into a long and costly struggle.

Destruction of an enemy's long-range missiles, anti-aircraft platforms, aircraft, or radar assets will create the necessary freedom of action for operational maneuver. These assets may be located within or outside of the city limits. In shaping the battlefield, it is imperative that enemy weapons systems or detection assets that can impede the ability of friendly forces to attack be degraded or destroyed. Precision engagement from air, naval, or ground platforms can deliver these desired results well before an operational maneuver commences.

The use of operational fires to trigger an enemy operational response is another method that can be employed to shape the battlefield. Employing operational fires for this purpose may cause the enemy to reposition his operational units outside the city. Moreover, this action may cause the enemy to reveal the positions of his operational or strategic weapons and resource centers. For example, the bombing of selected targets in Iraq during the early phases of Desert Storm caused Iraq to move air assets outside of the area of operations. Destruction of selected critical nodes within the city could psychologically weaken the enemy's resolve to defend.

Furthermore, operational fires can be used to trigger a response from non-combatants. In conjunction with psychological operations, non-lethal fires, as an extreme measure, could well

cause non-combatants to leave the area of operations. Although this may cause negative public opinion, it is surely more desirable than a high non-combatant casualty rate during actual hostilities. Successfully accomplishing this particular operational objective leads to the accomplishment of the strategic objective of protecting the friendly center of gravity. If the operational commander can succeed in minimizing civilian casualties then he can maintain public support for urban operations.

Lastly, in his efforts to shape the battlefield, the commander could initiate an 'infrastructure depletion' stage. In this stage of the shaping process, the commander can use operational fires to destroy or degrade the enemy's critical functions and facilities. Targets are selected that will bring about a degradation of that part of the infrastructure that benefits from the urban environment. Destruction of communication nodes through precision strikes can disrupt the internal mutual support systems for defense. Additionally, non-lethal weapons can be used. Platforms designed to deploy an electromagnetic pulse that will permanently damage electronic assets can be used to disable C2 systems, weapon systems, and radar systems. Although this type of strike may not be completely decisive, they have the potential to inflict a significant operational impact on the enemy. Conversely, the commander's decision to initiate and carry out the infrastructure depletion stage could have negative political implications. In particular, if power plants and water resources are destroyed then non-combatants could well suffer from the consequences. Worldwide public opinion could turn as a result of these actions. Therefore, it is important that the commander prioritize infrastructure targets. First, he must engage targets that are used exclusively by the enemy. Second, and only if necessary, he must attack targets that are used by both non-combatants *and* the enemy.

Whether the operational commander uses lethal or non-lethal weapons, he can shape the urban battlefield through operational fires. Effective shaping of the urban battlefield can put the element of time on the side of the attacker. If an enemy's critical factors are degraded or destroyed in the shaping phase of operations, it will take time and resources for the enemy to restore the factors to a desired state.

²⁰ Mcmillin, Eric F., The IDF, the PLO and Urban Warfare (Defense Technical Information Center, 1993), 55.

Isolate battlefields.

For the first week of July the PLO retained control of West Beirut against the wishes of the leaders of the Muslim residents of the city. Though the PLO leadership had already made the decision to leave, they would do so only unfavorable conditions. At no point did the PLO prevent Lebanese from leaving the besieged city as a matter of policy. However, any property left behind by those that sought safety and fled was usually looted. The Israelis responded with the siege practice of increasing the misery of all in the besieged city, soldier and civilian alike. The bombardment of the city became more intense and less discriminate and at various times the IDF halted food and water supplies to the city. Both of these actions brought criticism in the media and increasing American pressure on the Begin government. From the perspective of the law of war, both the PLO and the Israeli approaches during this phase were highly questionable. In terms of achieving war aims, the political advantage shifted in the PLO's favor.²¹

The operational commander seeks to isolate the main enemy force from its strategic leadership and its supporting infrastructure. This isolation is accomplished by PSYOPS and by interdicting critical C2 nodes, sources of sustenance, and transportation networks.²² In the above passage, the Israelis chose to isolate the enemy from sustaining resources through the use of operational fires and other actions. Operational fires used for the purpose of isolation can be broken down into three distinct categories:

- 1) Isolating the enemy from internal and external support.
- 2) Isolating enemy forces from their leadership.
- 3) Isolating the enemy from non-combatants.

Operational fires can be used to isolate the enemy from much-needed support. Disrupting or cutting off the enemy's logistical support and resources is another form of infrastructure

²¹ Andrew Gowers and Tony Walker, *Behind the Myth: Yasser Arafat and the Palestinian Revolution*, (New York: Branch Press, 1992) 209.

²² U.S. JCS, Draft Joint MOUT, 7.

depletion. Within the theater, the enemy may be seeking refuge in neighboring cities that are mutually supportive of each other. Resource centers and logistics bases may be located in the suburbs or in rural areas. All transport avenues leading into and within a city can be interdicted for the purpose of isolating the enemy. In this case, the attacker's operationally decisive points in urban warfare are transportation networks, bridges, ports, and airports.

Interdiction of critical C2 nodes will help to isolate enemy forces from their leadership. Through internal infrastructure depletion, precision fires directed at power plants and communication centers will have a decisive impact on enemy command and control of forces in the city and abroad. Moreover, if the enemy is dependent on a computerized form of C2, surgical isolation methods can be used to disrupt it. First, and in the shaping phase, the operational commander could order 'information draw' operations to identify the C2 nodes that need to be isolated. Second, in the isolation stage, operational fires in the form of 'information push' can be employed. This stage entails pushing false information into the enemy informational network. As a result, enemy forces may well respond to the false intelligence and, in doing so, their reactions may unintentionally assist the operational commander. At the very least, the enemy forces would be isolated from the command and control of their leadership.

Isolating enemy forces from non-combatants is the most complex task of the operational commander. As with the shaping phase, non-lethal weaponry and PSYOPS may be the only methods available to accomplish this objective. In the shaping phase, the intent of non-lethal fires was to get the non-combatants to leave the city altogether. In the isolation phase, operational fires can again be used around operational objectives prior to attack, in an attempt to flush the remaining non-combatants from the target areas. At the tactical level, non-lethal weapons such as area denial and incapacitation agents are used on non-combatants in an effort to control them. On a larger scale, the same type of platforms could possibly be used, in conjunction with PSYOPS, to isolate the non-combatants from the battle space.

Facilitate friendly, and restrict enemy, operational maneuver.

Urban combat between irregular forces and conventional units was not new to Sidon. In 1976, combined elements of the leftist Lebanese National Movement and the PLO, known together as the Joint Forces, defeated a Syrian Army attack on the city. In Sidon, a sudden Syrian armored thrust into the city had ended in disaster when Palestinian and Muslim members of the fragmented Lebanese National Army - glorying in the name of the "Lebanese Arab Army" - trapped the Syrian tanks in Riad Solh Street and destroyed every one, burning their crews inside.²³

During the penetration phase of an attack on urban battle space, operational fires could be used for the purpose of facilitating the commander's operational maneuver and preventing the enemy from maneuvering. New technologies are being designed to accomplish both of these tasks simultaneously. In fact, the MOUT Advanced Concept Technology Demonstration team is designing non-lethal weapons tailored to accomplishing just such an objective. Future technology will provide an aircraft-mounted microwave source or non-nuclear electromagnetic pulse that can burn out electrical systems on vehicles and thereby render them immobile. This kind of technology can enhance the operational commander's ability to degrade the enemy's maneuvering capabilities. On the other hand, the technology would also have to be developed to provide *friendly* forces with adequate protection *against* this type of attack. Currently, these weapons systems are only being designed for small scale or tactical use.

In conventional warfare, one characteristic used to distinguish between operational and tactical fires is the range or depth the platform in question is able to achieve. For example, MLRS is normally used as a tactical weapon, but, when the same platform is retrofitted with the ATACMS, it becomes an operational weapon because of its now extended range. In urban warfare the defining principle *should* be the 'intensity' the weapon platform can bring to bear. Hence, an upgraded version of this weapon system should be developed and used by the operational commander. He would be able to employ it with decisive results against the enemy's operational units. Additionally, by paralyzing and preventing enemy operational units from interdicting friendly operational maneuvers, the commander has an increased opportunity to acquire an enemy's decisive points while protecting his own.

Interdicting the enemy's uncommitted forces.

In the 1967 battle for Jerusalem, Jordanian artillery sited on the high ground to the east of the city maintained a constant but militarily ineffective shelling of the western Jewish suburbs, while Israeli air power was unable to support their ground forces in the old city, although successfully interdicting Jordanian reinforcements in the open country to the east of the city.²⁴

In the above case the Israelis used operational fires against the Jordanian operational reserve. These actions can take place during hostilities as the operational forces are moving toward contact. A deep air strike is a method of operational fires used for the purpose of interdicting an advancing enemy's operational reserve. However, operational fires are more decisive when the operational reserve is identified and destroyed during the shaping phase. Accurate and in-depth IPB will enable planners to accurately identify the enemy's operational reserve. Long range precision munitions can have a decisive impact on the enemy: degrading his operational ability to fight. In the battle for Stalingrad the German Sixth Army split the Russian 62nd Army, thus gaining a foothold in the fight for the city. However, the Germans did not take measures to degrade or interdict Russian reserves. At Hitler's headquarters, it was assumed that the battle for the city had consumed Soviet reserves and that, therefore, insufficient resources remained for an extensive operation.²⁵ This poor assumption by Hitler and his intelligence organizations allowed the Russians to counterattack with one million men, all well armed. As a result of this operational maneuver, the Russians were victorious at Stalingrad. With accurate intelligence and extensive operational fires, the Germans could probably have reduced Russian reserves to the point of ineffectiveness.

Recommendations Summary.

The underlying concept for employing effective operational fires in urban battle space requires the full integration of lethal and non-lethal weaponry based on intended purposes. The complex

²³ Robert Fisk, *Pity the Nation*, (New York: MacMillan, 1990) 57.

²⁴ G.J. Ashworth, *War and the City* (London and New York: Rutledge) 119.

²⁵ Richard Overy, *Why the Allies Won* (New York: Norton 1995),81.

nature of urban battle space complicates the requirements for operational fires and, therefore, emerging technologies need to focus on the operational level to meet these requirements. If the operational commander has the freedom to employ urban operational fires through non-lethal and lethal means then, potentially, he can achieve his operational objectives just as he would in open terrain. However, an increased use of operational fires, lethal *or* non-lethal, may provide the enemy with an opportunity to exploit the commander's *strategic* center of gravity - public support. The use of lethal fires in urban battle space inevitably increases the possibility of non-combatant casualties. Moreover, the effects of new, non-lethal, weapons on non-combatants can cause casualties and hardship. Put simply, non-lethal weapons can permanently disable people. Non-lethal weapons used for the purpose of infrastructure depletion can also cause hardship for non-combatants. Subsequently, these hardships could well become the problem of the operational commander as the FEBA advances or after hostilities. Will the commander have the personnel to take care of non-combatant casualties? Will the commander possess the logistical resources to reduce the hardship faced by the non-combatants as a result of infrastructure depletion?

Enemy propaganda against the large-scale use of operational fires in urban space may tilt public opinion against the operation. The operational commander must assess the effects of his operational fires through extensive Battle Damage Assessment (BDA). In addition, extensive BDA of the effects of fires on non-combatants will have just as much importance as the BDA conducted on targets. The commander's accurate knowledge of non-combatant BDA will enable him to effectively manage the cost-time-political equation.

Conclusions

Operational commanders need to rise above the notion that the urban battle space is a strictly *tactical* arena. This preconception has severely restricted the development of doctrinal concepts for urban warfare at the operational level. Commanders need to overcome their dependence on tactical levels of command in attempting to achieve operational and strategic objectives in an urban battle space. The evolving Joint MOUT Concept certainly provides the proper foundation

on which to build an operational doctrine for MOUT. However, given the number of restraints built into the guidance, planners do not, currently, have the freedom to exercise the same degree of operational art in the urban environment, as they do in a more conventional theater.

Moreover, the restraints placed on the operational commander in the urban battle space have restricted the possible use of operational fires to achieve operational objectives. The nature of urban terrain and the presence of non-combatants should certainly be considered when deciding how to employ operational fires. However, these conditions should not be the determining factor in a decision *not* to use operational fires. The determining factor in deciding whether or not to sanction the use of operational fires should be the intended *purposes* and *requirements*. Clearly, the list of possible intended purposes for the use of operational fires in urban terrain differs from that of open terrain, especially in the shape, isolate, and penetrate phases. Furthermore, the unique characteristics of urban space expand and complicate the requirements that the use of operational fires will have to meet. Therefore, emerging technologies need to be used to meet the operational commander's needs. An increased inventory of lethal and non-lethal platforms will provide the operational commander with the flexibility to employ operational fires to serve *many* purposes.

While operational fires can clearly play an important role during an urban conflict, insufficient or underdeveloped doctrine regarding their use will merely compound a commander's inability to employ them effectively. However, the effective integration of an operational fires doctrine into the Joint MOUT concept could well provide planners with the ability to apply operational art *despite* the restraints of an urban battle space.

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