

**MOUT DOCTRINE AND THE THIRD
WORLD THREAT IN 2005-2010: WILL IT
WORK?**

**A MONOGRAPH
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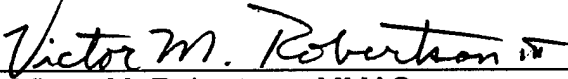
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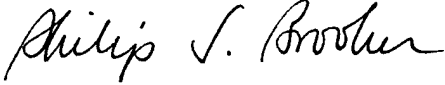
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ABSTRACT

MOUT DOCTRINE AND THE THIRD WORLD THREAT IN 2005 - 2010: WILL IT WORK? By Major Robert B. McFarland Jr., USA, 60 pages.

This monograph addresses the critical window of vulnerability for U.S. forces operating in a MOUT environment of the Third World during 2005-2010. Current MOUT doctrine does not adequately address an opponent using asymmetrical tactics with advanced technologies nor the sprawl of the urban environment in which they operate. Ongoing experimentation with MOUT technology is focused on an extant threat and does not look beyond the next two or three years. Joint Venture 2010 Doctrine and Technology is focused on 2010 and beyond.

This monograph is organized into four sections. It examines whether MOUT doctrine should change to reflect urban conditions tactical infantry forces will face in the years 2005-2010. As part of this examination, the monograph will determine whether MOUT doctrine supports ongoing technology development for use in MOUT. Additionally, it assesses whether the urban environment and its threat will require U.S. forces to operate more dispersed.

Section I examines two historical examples to develop criteria for evaluating current doctrine and its application for the future. Section II reviews current doctrine to determine whether it must change to address the emerging threat and environment. Section III takes criteria developed in Section I and evaluates the effects of MOUT on U.S. infantry forces and their ability to adapt to the changing urban environment. Section IV synthesizes the analysis from the previous sections, provides conclusions, and recommends changes to doctrine to prepare U.S. Army forces for future urban battlefields.

This study concludes that principle fundamentals of urban combat are still valid, and therefore portions of United States Army MOUT doctrine are still applicable. However, the majority of existing Army MOUT doctrine requires updating to reflect the future urban environment and its associated threat, as well as emerging trends in Third World urban areas. Current doctrine is not supported by technology that may provide an advantage over possible opponents. Although current doctrine acknowledges the importance of combined arms task forces when conducting MOUT, it does not address the use of this force in the Third World urban environment. This monograph proposes recommendations to MOUT doctrine that will help U.S. forces prepare to fight in 2005-2010.

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INTRODUCTION

"Memories of the past, conditions of the present, and images of the future are all inherent to the intellectual process of formulating doctrine."¹

Defense Intelligence Reference Document, *"The Urban Century: Developing World Urban Trends and Possible Factors Affecting Military Operations,"* estimates that by the year 2005 the majority of the world's population will live in urban areas.² Most of this increase is occurring in areas that can ill afford it, resulting in a host of problems that could lead to conflict. This may result in the commitment of U.S. Army forces jointly or in combination with other nations to conduct operations across the spectrum of conflict to address these threats. Military operations in urban areas will be part of this commitment.

TRADOC Pam 525-5 states that threats U.S. forces will likely face are of three types. The first are non-nation state forces that include political, racial, religious, cultural, and ethnic challenges from within and without the nation state. They include organized crime and terrorist organizations operating without regard to the nation state, and religious movements and criminal organizations operating globally. The second are Internal Security Forces composed of small, poorly trained and equipped forces. The third type are Infantry-Based Armies. These forces comprise the majority of the less-developed world's armies. They have some armor but consist mostly of dismounted infantry.³

Familiar with U.S. doctrine and tactics, and knowing they are not a match for the U.S. Army in a conventional war, these threat forces will in all probability attempt an

asymmetrical approach.⁴ Asymmetry as defined by U.S. Army manual FM 100-5, Revised Final Draft, is "a way of attacking that forces an opponent to shield against things for which he has no immediate understanding, design or capability, it puts the enemy at a severe disadvantage. It can manifest itself in the physical, moral or cybernetic domains."⁵ In the physical sense, an opponent will find weapons and technology readily available throughout the world.

Realities of the post Cold War world will see struggling nations financing their economies by whatever means they can. Russia can be expected to continue a thriving arms trade with the poorer nations of the world well into the 21st century.⁶ The result of this trade in advanced arms to possible opponents, is that U.S. forces can expect future enemies to use technology such as our own sophisticated night vision systems against us.⁷ Their willingness to use weapons of mass destruction and other unorthodox means may invalidate our existing doctrine or cause mission failure. Enemies able to confront U.S. forces with more sophisticated technology will diminish our planning and execution time.

The Marine Corps Warfighting Publication, 3-35.3, Military Operations on Urbanized Terrain (MOUT), states that urban intervention must often be planned and executed in hours or days to take advantage of the turmoil surrounding the crisis.⁸ Units the U.S. Army can expect to employ in these short fused Contingency Operations are its infantry forces, defined in this monograph as light, mechanized, air assault, airborne and ranger forces. These Army units are capable of projecting forces of battalion size and larger on short notice from the United States into an urban environment.

To give these forces an enhanced capability to operate in an urban environment, the U.S. military is actively pursuing advances in technology. The Advanced Concept Technology Demonstration (ACTD) at Fort Benning, Georgia, a joint venture between the U.S. Army and the United States Marine Corps (USMC), is part of this process.⁹ Its objective is to improve the operational effectiveness of soldiers and Marines operating in urban environments through the integration of advanced technologies and associated tactics, techniques, and procedures (TTPs). Results should provide additional technology that will enhance U.S. dismounted infantry capabilities in an urban environment.¹⁰ Other enhancements for U.S. military forces include Joint Vision 2010.

Joint Vision 2010, is "a conceptual blueprint for transforming emerging concepts and technologies into joint operational capabilities to deter or defeat threats envisioned for the early 21st century."¹¹ JV2010 sees a Joint Force interconnected throughout the battlefield by technology that provides our soldiers increased situational awareness, thereby giving them an advantage over their opponents. This has not yet occurred. Until these new technologies emerge around 2010 or later, combat in these urban areas may pose a threat for which U.S. forces are not prepared.

2005 to 2010 is therefore, a critical period for U.S. forces. Current experimentation is using emerging technology against an opponent focused on terrain and based on a threat scenario that does not look much beyond the year 2005.¹² JV 2010 technology is focused on the year 2010 and beyond. Doctrine does not yet address the new threat.

According to a RAND study for the Advanced Research Projects Agency, current U.S. MOU doctrine is based on World War II doctrine and does not address the

emerging realities of urban warfare in the 21st century.¹³ Current doctrine is what U.S. soldiers will train with in 2005 - 2010, until the technology of JV 2010 and its complementary doctrine are implemented. This will not suffice. The 21st century urban battlefield will require a change in doctrine.

This monograph examines U.S. Army MOUT doctrine for infantry forces operating in the urban environment of 2005 - 2010. This examination looks at existing MOUT doctrine and determine whether it must change to address an enemy using asymmetrical tactics with parity in weapons and technology during this time frame. It determines whether MOUT doctrine supports the training and developing technology U.S. forces require to address this threat. Additionally, the monograph assesses whether the congested, urban environment of 2005 -2010, and the threat forces within it, will require U.S. forces to operate in a more dispersed manner.

This study is organized into four sections. Section I provides two historical examples to assist in developing the criteria for evaluating current doctrine and its application for the future. The examples used are the fighting in Mogadishu, Somalia, 3-4 October 1993, and the battle for the city of Grozny in Chechnya, 1994-1996. Section II will review current doctrine and compare it to the criteria to determine whether it must change to address the emerging threat and environment.

Section III takes the criteria developed in Section I and evaluates the effects of MOUT on U.S. infantry forces and their ability to adapt to the changing urban environment. It will identify the strengths and weaknesses of U.S. Army MOUT doctrine. These will determine U.S. Army capabilities to address emerging threat forces in the future urban environment, and whether in addressing this threat, U.S. forces need

to operate in a more dispersed manner. Section IV synthesizes the analysis from the previous sections, provides conclusions, and recommends changes to doctrine to prepare U.S. Army forces for future urban battlefields.

Future uncertainties face U.S. Infantry forces on the urban battlefields of 2005-2010. While lessons learned from past urban operations are not a panacea for future battles, they do provide a window from which to view what went right and what went wrong. These observations may offer valuable insights for inclusion in future doctrine. The following section provides two historical examples to facilitate an analysis of doctrine for future urban combat.

SECTION I: HISTORICAL REVIEW
of
PAST URBAN OPERATIONS

"An Army's doctrine is inseparable from its past; therefore, rigorous study of the past is as important to articulating a credible doctrine as is the forecasting of future trends and threats."¹⁴

Mogadishu, Somalia: 3-4 October 1993

On the 3rd and 4th of October, 1993, the future course that urban combat operations are likely to take, played out on the streets of Mogadishu, Somalia, during Operation Restore Hope. It pitted the U.S. Army's elite Delta commandos, Rangers, and other Special Operations forces, General Purpose forces, and United Nations forces, against a third world enemy in the urban sprawl of Africa.

Operation Restore Hope, the United Nations humanitarian relief and nation-building effort in Somalia began with benign intentions. In addition to U.S. forces, over twenty other nations contributed forces and over 49 non-governmental organizations (NGOs) were involved.¹⁵ However, the decision to intervene with 30,000 American troops caught most Americans in and outside the government by surprise.¹⁶ The Army responded by assigning the mission to the 10th Mountain Division (L) and other Army forces from around the world.

Maneuver forces conducted extensive MOUT operations, day and night, throughout Mogadishu. MOUT operations required detailed intelligence and were the most difficult operations conducted.¹⁷ Adding to this difficulty was the outdated Army MOUT doctrine FM 90-10, written in 1979 and oriented on urban operations in Europe, not in the sprawling, urban environment of East Africa.¹⁸ It fails to describe building and street patterns of the Third World.¹⁹

10th Mountain Division soldiers were well trained for MOUT as were Special Operations Forces, albeit TTPs made the difference and not FM 90-10.²⁰ However, outdated doctrine did not negate the fact that MOUT missions throughout history require adherence to fundamental principles. From the 10th Mountain Division (L) perspective, these include slow movement and maintaining contact with units on the flanks, a system of boundary and control measures, and marking systems for night operations.²¹

Fighting on 3-4 October, 1993, also showed that an objective must be isolated for as long as it takes to successfully accomplish the mission.²² Effective isolation requires an assault force to have freedom of maneuver over secure lines of communication.²³ Without a secure line of communication on which to operate, an attacker may become isolated. A Ranger security force experienced this difficulty when it was inserted one block away from its planned position and was cut off.²⁴ Delta commandos and the main Ranger force also became isolated while waiting on a convoy to move captured prisoners. The arrival of the convoy to move the prisoners back fell prey to this same isolation.²⁵

As Operation Restore Hope dragged on, UN and U.S. initial high hopes to bring stability to the region began to fade. A decision to use U.S. Army Special Operations Forces to assist in the capture of General Mohammed Farrah Aidid for crimes committed against United Nations forces signaled a turn for the worse. U.S. efforts to capture General Mohammed Farrah Aidid and members of the Habr Gidr clan resulted in a rising toll of dead and wounded Somalis. This resulted in a growing hatred of American forces by the Somalis.²⁶

Somali fighters were veterans of many fire fights and would sell their services to the highest bidder. However, most were now fighting the Americans for free.²⁷ By now

all of them were familiar with the U.S forces operational patterns and spies within the support organizations assisting in Operation Restore Hope reported on the American forces movements.²⁸ This would prove fatal for U.S. and UN forces on 3-4 October 1993, when U.S. Special Operations forces conducted a raid on a Habr Gidr clan meeting.

As efforts intensified to capture members of the Habr Gidr clan and Aidid, it became more of a Special Operations effort. This resulted in other participating units and forces being left in the dark in an effort to keep mission secrecy intact. This mode of operating insured that when the mission on 3-4 October went awry, the rescue force would be unprepared. "Providing time for proper planning and the conduct of rehearsals requires that regular forces supporting special operations units be given early warning of upcoming missions."²⁹

Proper planning time and rehearsals become even more critical when forces from other nations are involved. Multinational forces operating together and providing different types of armaments need to train together as do disparate units of the United States.³⁰ Compounding this difficulty was the approach taken by the Somali people themselves. "Somalia's clan leaders recognized the benefits of bringing a better equipped adversary into an urban area and used this knowledge to manipulate U.S. policy in favor of their political objectives."³¹

Somali fighters, knowing U.S. forces operated under restrictive rules of engagement (ROE), used U.S. ROE to their advantage. When the fighting started on the 3rd of October, Somali militiamen grabbed their weapons and moved to the sound of the guns. Armed with modern U.S. and Russian weapons that included, M16 and AK47 assault rifles, RPG7s and other antitank weapons, they soon surrounded the Americans

and began shooting at them from all directions.³² Using women and children as shields, they were able to get in close to shoot and then blend in with them to hide their presence.³³ These human shields also allowed militiamen to hide from helicopters.

By mingling with unarmed civilians, Somali militiamen could use their clothing to hide weapons from the helicopters. As the helicopters flew over, the militiamen waited until they passed and would then fire their RPGs at them. They succeeded in downing two and crippling another. This success in destroying the hated helicopters was like blood to a school of sharks.

"The helicopters, even more than the Ranger's rifles and machine guns, were what kept gunmen at a distance."³⁴ Without helicopter support the Rangers were exposed. The ferocity of the attack increased. At the same time it brought elation to the Somali's, it brought dread to the Joint Operations Center (JOC) where officers viewing the action from live feed videos watched in horror.³⁵ It became apparent that the mission was in danger and a rescue force was organized.

Using armored HMMWVs and five ton trucks, two rescue columns attempted to reach the Delta commandos and Rangers consolidating on the downed helicopters. In a frightening portent of technology inappropriately used, officers monitoring the fight from aerial platforms and video screens back in the JOC succeeded in causing mass confusion on the ground by not fully understanding the intensity of the combat on the ground and confusing one convoy with another.³⁶ These errors compounded the situation for the soldiers in the convoys, actively engaged fighting Somali men, women, and children, who were attempting to stop them from reaching the U.S. Special Forces.³⁷

Another rescue convoy was put together using U.S. and UN forces. MG Montgomery, Deputy Forces Commander UNOSOM, directed Malaysian mechanized battalion assets and Pakistani tanks be made available to the Quick Reaction Force (QRF), composed of soldiers of the 10th Mountain Division (L) and other U.S. forces.³⁸ Reinforcing the importance of a common doctrine known to all participants, the commander of the rescue convoy linked up with all elements involved and briefed the mission with his graphics which were copied by all.³⁹

This one act of dissimilar forces, able to understand doctrinal graphics and then execute an operation in a compressed time cycle, is testimonial to the importance of a common doctrine whatever the tactical scenario. It is the result of a well grounded education system within the United States Army that caters to officers, non commissioned officers, sister services, and international officers. It is proof that well written doctrine for urban combat operations is possible when soldiers understand and practice it .

A combined arms force of armor, infantry, and fire support elements bludgeoned its way through the city, and eventually rescued the beleaguered Americans. History has shown time and again when conducting urban combat operations that this type force is necessary. Although the intent was not to clear the three miles from the Ranger base to the objective, this is basically what happened.⁴⁰ Armored vehicles encountered roadblocks and were ambushed continuously by machine guns and antitank weapons.⁴¹ The convoy and its soldiers were subjected to sniper fire, anti-aircraft fire, RPGs and small arms fire.⁴² However, this rescue convoy proved adequate for the mission.

American and United Nations forces used tanks, MK19 automatic grenade launchers, mortars, helicopter rocket and machine gun fire, as well as small arms fire to reach and rescue the surrounded American's. The American's had the additional benefits of night vision devices and infrared lasers to assist them in their fire planning and direction.⁴³ Overwhelming firepower proved decisive, and is just one of several fundamental principals critical to successful urban combat.

Adherence to fundamental principles during MOUT is mandatory for success. Operations in Somalia showed that failure to follow these fundamentals may result in defeat. Success requires a coordinated plan that isolates the objective and allows the attacker to seize a foothold and maintain freedom of maneuver. The plan must provide for overwhelming firepower and be based on deliberate movements that protect the flanks and rear of attacking units. A secure route is required and the appropriate forces task organized to maintain its clearance.⁴⁴ The forces executing the operation must be familiar with each others strengths and weaknesses and rehearse the operation to be truly effective. U.S. forces failed to follow some of these fundamentals and suffered because of it. Russian forces fared no better fighting Chechen forces in Grozny, Chechnya, where they had their own taste of future urban combat.

Grozny, Chechnya: 1994-1996

Urban combat in Chechnya, shows that a modern army with vast MOUT experience, using the latest in modern weapons and technology, is still susceptible to defeat when facing a Third World threat. Chechen rebels used whatever means necessary to achieve victory, and in so doing, provide further insight on possible opponents U.S. forces may expect to encounter in future urban combat.

Russian armed forces probably have more experience in offensive urban warfare than any other army in the world.⁴⁵ Russian strategists knew that Grozny, with a population of 400,000, defended by 15,000 regular soldiers, 30,000 to 40,000 paramilitaries, and up to 500,000 reservists would require an offensive force with a 6:1 ratio.⁴⁶ However, they, like the U.S. Forces in Somalia, underestimated their enemy and paid a steep price for their miscalculation.

As in Somalia where hired guns made a living killing U.S. and UN personnel, in Grozny "an estimated 2000 to 6000 mercenaries fought on the Chechen side with salaries ranging from \$1000.00 U.S. dollars per month to \$550 to \$1000 dollars per day."⁴⁷ Chechen forces used the latest styles of anti-tank and anti-aircraft weapons.⁴⁸ They also used booby traps extensively.⁴⁹ Using asymmetrical tactics and sustained by a fanatical zeal, they proved more than a match for a weak and demoralized Russian force.

A weakened Russian military was in no condition to campaign against the Chechen's. The army lacked 12,000 platoon leaders when the intervention began, severely crippling small unit operations.⁵⁰ The lack of division level operations in the two years leading up to the Chechen campaign seriously eroded their division level capabilities.⁵¹ Along with a poorly trained army, failure to follow fundamental principles of MOUT crippled the Russians throughout the operation.

Their initial mistake was in failing to isolate Chechnya itself. Throughout the war the Chechen's were able to receive a steady flow of supplies from allies outside the Republic.⁵² As the U.S. military learned in Somalia, failure to isolate the objective is a recipe for disaster. Although isolating a Republic is much more difficult than one objective, the fundamental principle is still crucial. Even though the Russian's were able

to tactically isolate and secure many cities, it proved impossible to win the war without operational isolation.⁵³

Russian planners identified Grozny as the center of gravity, defined by the U.S. Army as the "hub of all power and movement upon which everything depends."⁵⁴ It was this center of power that they chose to attack. The initial attack by mechanized forces consisting of tanks and armored personnel carriers expected little resistance. Instead the Chechen's put up a determined fight and the Russians lost 105 of 120 vehicles. Their second attack fared little better and they lost 140 of 200 tanks.⁵⁵

The loss of so many vehicles reflects the intensity of urban combat. Grozny's suburbs typified the sprawl of many Third World cities being composed of small, wooden houses. Conversely, the city center, was composed of strong concrete buildings. These buildings were multilevel with large basements. Within the city were underground passageways, bomb shelters and other infrastructure associated with large cities.⁵⁶ The infrastructure was ideal for a weaker force defending against a stronger force.

Knowing they could defeat Russian armor in the city center, the Chechen's chose this as their battleground. They deliberately allowed the Russians to penetrate the streets of the city center. They then surrounded and destroyed them.⁵⁷ The armor forces lack of infantry support proved their undoing.⁵⁸ Russian forces eventually grew to 38,000 men, 230 tanks, 454 APCs and 388 artillery pieces.⁵⁹

Military force of this size in an urban area is bound to be destructive without limits placed upon it. Knowing the Russian forces were under rules of engagement (ROE) to minimize civilian casualties, the Chechens used Russian ROE to their advantage. The reality is that, at least in the short term, "an advantage accrues to the side

with less concern for the safety of the civilian populace."⁶⁰ As the majority of the civilians were ethnic Russian's, the Chechen's used their schools and homes as well as the people themselves as shields.⁶¹ Urban combat stress and the horrors of the Chechen tactics took its toll on the Russians.

Chechen cruelty had a profound effect on the Russian forces. The American's in Somalia knew that capture meant torture or death.⁶² Russian soldiers soon found out the same. The Chechen's executed prisoners, decapitated their bodies and booby trapped the dead. They hung wounded soldiers upside down in front of their defensive positions forcing the Russian's to shoot through their own men. The Russian soldiers bent on revenge, turned the populace against them as they increased the ferocity of their own attacks.⁶³ Each side attempted to gain an advantage using all means available.

Russian forces attempted to use helicopters to air assault forces onto buildings. Chechen forces ambushed the helicopters with snipers and RPG7s forcing the Russian infantry to enter from the ground floor, a much more costly approach. This also forced the Russians to extend their standoff range for helicopter fire support to 3000 meters.⁶⁴ The Chechen's continued to thwart Russian advances by whatever means possible.

Chechen forces fought the Russian's both conventionally and asymmetrically. They used the media's focus on the city center and the Presidential Palace to insure that any Russian bombing was a costly action.⁶⁵ When the Russian's began to achieve progress in May 1995, the Chechen's initiated attacks against targets in Russia itself, scoring a major propaganda victory.⁶⁶

As the Russian military attempted to make headway in the quagmire of Chechnya, the Chechen's showed the world that parity is possible against a more powerful foe in the

urban environment. Using off-the-shelf commercial communication systems both sides adapted advanced technology to the battlefield. The Chechens made full use of cellular telephones, Motorola radios, video cameras, and the Internet. Knowing the impact of the media, they improvised television stations to broadcast their cause.⁶⁷ In addition to using technology to assist them in their fight, Chechen forces used urban congestion against the Russian's.

Small, mobile ambush units of 15 to 20 troops would engage Russian troops and armor forces, inflict damage, and quickly withdraw. Chechen forces used tiered ambushes within buildings to separate Russian units between floors, and then hugged them to negate their supporting fires.⁶⁸ Other tactics such as the use of snipers echoes a trend seen throughout history and in all recent urban combat. Crude chemical weapons (chlorine mines) remotely detonated by radio portend a different trend.⁶⁹ One asymmetrical approach used by the Chechen's was to attack logistics units.⁷⁰

This has great significance for U.S. planners. Future opponents are likely to use asymmetrical tactics to offset U.S. forces technical and force superiority. As the U.S. military plans its Force Projection strategy relying on split based logistics and Host Nation support, it must properly plan for protecting its lines of communication. This protection comes in part with a force package properly suited to the environment. The Russian's discovered this in Chechnya.

Russian military planners soon realized that units organized for mechanized warfare and open areas are inadequate for urban combat. Falling back on lessons learned from previous urban combat, Russian forces adopted specially configured assault teams. These assault teams incorporated combined arms forces with greater firepower and

engineer assets. Firepower included using artillery and rockets in direct fire modes at ranges of 150-200 meters. Air defense artillery guns, because of their elevation abilities, were effective against targets in multi story buildings.⁷¹

Advanced technology was also used to good effect. The Russian's used Remotely Piloted Vehicles (RPVs) extensively. They also used Precision Guided Munitions (PGMs) for accuracy within the urban environment.⁷² Similar to the American's airborne video feeds in Somalia, the Russian RPVs provided real time imagery to their Command Posts (CPs). This real time intelligence from Chechen controlled areas was directly available to artillery command vehicles.⁷³ However, the urban environment also had a negative effect on technology.

Urban structures within Grozny caused the Russian's to experience tactical communications difficulty. Establishing ground based and aircraft based relay stations corrected the problem.⁷⁴ Communications difficulty in the urban environment and methods to overcome the problem is an issue U.S. military planners need to confront. This is one lesson of many U.S. military forces can learn from Russian operations in Grozny, the largest and most violent battle since WWII.⁷⁵

Principal among these lessons is maintaining secure lines of communication. Russian operations to attack the center of gravity, Grozny, proved fatal without first securing a foothold from which to launch subsequent operations. By not having secure lines of communications from which to withdraw, the initial Russian attack forces were surrounded and destroyed.

After initial failures to clear Grozny, the Russian's changed their tactics. Just as the 10th Mountain Division (L) leadership realized the importance of slow movement,

maintaining contact with flank elements, adequate control measures and securing of all buildings before moving on, the Russians came to the same conclusion. "The progress of the forces through the city of Grozny was deliberately organized slowly with great care given to the protection of flanks and the securing of every building in house to house assaults."⁷⁶ This methodical clearance provided the Russian's with tactical success and provided them secure lines of communication from which to operate.

Tactical success and secure lines of communication requires a force package tailored for the operation. Special training and an ability to work with other branches is a requirement for military forces to succeed. The ability of these forces to disperse and mass at the critical time in MOUT is key. In both Somalia and Chechnya, the type of forces used, and their ability to mass and disperse, provide insights on what will be necessary capabilities to achieve success against Third World opponents in 2005-2010.

FORCES

Although many types of forces were present in Somalia and Chechnya, the keys to tactical success were combined arms forces. For the U.S. Military these included Light Infantry, Ranger's, Special Forces, Delta Force Commandos, Task Force 160 Special Operations helicopter forces, and Navy SEALs. After defeat of its initial forces, the Russians reorganized and brought in higher quality forces. These included Naval Infantry regiments, twelve Airborne battalions, Spetsnaz forces and Internal Ministry forces.⁷⁷ None of these forces would have succeeded alone. What was essential to their success and survival was their special training, combined arms formations and advanced technology.

However, technology has its limits. Physically and mentally fit soldiers equipped with the best equipment still suffer in the rigors of urban combat. The Ranger's physically solid to a man, had to shed some of their protective equipment to operate in the heat of Africa.⁷⁸ Although this proved fatal to some, it is a reality that proponents of new technology systems for dismounted soldiers should bear in mind. The rigors of urban combat may offset any gain technology provides.

All types of combat have horrors all their own. In the seemingly endless jungles of an urban environment where every dark corner or supposed noncombatant poses a potential threat, these horrors are multiplied. When third world mercenary armies who disregard every law and protocol of warfare are the enemy, the psychological pressure will take its toll upon forces trained to follow rules of war and ROE. It is only with disciplined and well trained soldiers that urban combat in the 21st century can be waged. Even then, these forces will suffer psychologically, as the Ranger's did in Somalia.⁷⁹ The Russian's in Chechnya, fared no better, and suffered greatly from psychological casualties.⁸⁰

Leadership and training can help overcome this problem. While most of the Ranger's were young, physically fit, disciplined soldiers, in the furor of urban combat some of them froze.⁸¹ Most, naturally looked to their superiors and to the older, more professional Delta Commando's for guidance. "The D-boys all advanced with such authority that some of the Rangers left their chalk groupings and just stayed with them. It was reassuring just to be around the more seasoned men."⁸²

While dismounted forces are essential in urban combat, they are only one part of a combined arms team required to succeed. In both Somalia and Chechnya, a combined

arms force of special forces, dismounted infantry, armor, mortars and helicopter gunships proved necessary for success. In Chechnya, the Russian's used heavily armed, infantry based combat groups. These combat groups or specially configured assault teams, were supported by armor, artillery (tube and rocket) air defense guns, engineers and air support when possible.⁸³ This configuration reflects historical trends and current doctrine.

Combined arms forces used in urban combat in WWII, and stressed in current U.S. Army and USMC urban warfare doctrine are what succeeded in Somalia and Chechnya. The future urban environment of the 21st century will require no less. If history has shown one lesson of urban combat, it is that a combined arms force, and its ability to mass and disperse when required, is necessary to survival and victory.

DISPERSION

As shown in Somalia and Chechnya, an enemy bent on stopping a stronger attacker has the advantage in urban combat. This follows Clausewitz's dictum that "the defensive form of warfare is intrinsically stronger than the offensive."⁸⁴ A defense on congested urban terrain compounds this difficulty. An enemy familiar with the urban terrain, knowing the tactics of the attacker, and armed with modern weaponry, can inflict serious casualties on an attacker. If he also possesses an offensive capability within his defense, this "shield and flashing sword" concept provides him an ability to force the attacker to disperse.⁸⁵

B.H. Liddell Hart alluded to dispersion, in discussing the NATO defense in his article, "The Ratio of Troops to Space," in *Military Review*, in 1960. Hart determined that the number of troops required to defend a given area was declining and would

continue to do so in the future.⁸⁶ The mobile nature of warfare in Europe would allow this phenomenon to continue.⁸⁷

Although the increased urbanization of the Third World will negate much of this mobility, the concept when applied to weaponry itself is still valid. This concept of defending more with less can also be applied to the urban defense. The implication for the attacking force is knowing when it must disperse to avoid concentrated defensive fire and when it must mass to carry the objective.

James J. Schneider's article, entitled "The Theory of the Empty Battlefield," concluded that units dispersed to survive the lethality of the weapons of the modern battlefield. This resulted in less casualties. However, in dispersing they began to lose the moral cohesion provided by having comrades close at hand that has always been a sustaining force among soldiers in war.⁸⁸ This concept can also be applied to the urban battlefield. The implication here is that commanders must know how to disperse their forces while providing them the moral cohesion required to sustain the attack.

Knowing that the future urban environment will in many ways resemble the past, the U.S. Army concludes in its current keystone doctrinal manual, FM 100-5 Operations, the following. "Urban operations can occur in any of the geographical environments. They can constrain technological advantages: they impact on battle tempo; they force units to fight in small, decentralized elements..."⁸⁹ The guidance implied is that forces will fight in small, decentralized elements with or without some technological advantage.

History, theory and doctrine combined tell that forces of all sizes will fight dispersed on the future urban battlefield. During the Italian Campaign of WWII, the 2nd Canadian Infantry Brigade, in urban combat against the German First Parachute Division,

had a brigade front of 250 yards.⁹⁰ However, a RAND study indicates that units as small as squads may operate independently with a tank assigned for support.⁹¹ Other factors such as Weapons of Mass Destruction (WMD) must also be considered.

WMD will increase the difficulty of dispersion. MOUT doctrine must anticipate that an opponent will disregard the presence of noncombatants and use asymmetrical tactics including those of mass destruction to inflict casualties on U.S. forces. Historical evidence indicates that when ground forces are organized to disperse, casualty rates in land warfare do not necessarily increase when weapons of greater lethality appear.⁹² Whether this evidence applies to future combat in the urban environment is yet to be determined.

Current U.S. MOUT doctrine does not adequately address WMD. FM 90-10, Military Operations on Urbanized Terrain, written for a Cold War European scenario, identifies that threat forces may use WMD against U.S. forces and admonishes U.S. forces to prepare for it.⁹³ The USMC's recently published Marine Corps Warfighting Publication (MCWP) 3-35.3, Military Operations on Urbanized Terrain, identifies the possible threat of WMD and cautions Marines to prepare for it.⁹⁴ It appears that the implied task is to expect it and task organize accordingly. Inherent in this task organization must be dispersal.

Urban combat in Chechnya showed that future opponents are likely to use chemical weapons to force an attacker to disperse, and are prepared to fight in a chemical environment.⁹⁵ Urban combat in Somalia showed that too much dispersion in an urban environment is a recipe for disaster.⁹⁶ Regardless, a fact of urban warfare is that it will

isolate and separate units. Operations will be reduced to small unit actions, placing a premium on small unit leadership and their ability to communicate.⁹⁷

Urban terrain will also reduce the efficiency of communications systems.⁹⁸

Whatever the size force employed, communication between them is critical. No matter what type communication system is developed for the dismounted soldier, he must feel the presence of his comrades. S.L.A. Marshall held it to be "one of the simplest truths of war that the thing which enables an infantry soldier to keep going with his weapons is the near presence or the presumed presence of a comrade."⁹⁹ Soldiers expected to fight effectively must feel this presence.

"Dispersion on the urban battlefield also precipitates increased requirements for passage of information, which in turn necessitates distribution of individual communication systems down to the Squad Leader level."¹⁰⁰ Efforts to provide this capability are underway. The Army envisions units equipped with enhanced dismounted soldiers that will be able to increase dispersion because of increased communications and optical systems and digital information received from higher.¹⁰¹

Urban environments degrade current technology such as the Global Positioning System (GPS), when soldiers are inside or near tall buildings.¹⁰² New technology such as "the pending introduction of heads up display monitors and wrist borne communications systems will require non-line-of-sight (NLOS) capability if they are to be effective in urban environments."¹⁰³

U.S. Army leadership realizes that commanders and soldiers must develop an expertise for fighting and communicating in the future urban environment.¹⁰⁴ Although new technology will help provide this expertise, care must be taken in its use. It is

certain that "once a force of any size is subdivided into several subunits, the problems of assigning a specific mission to each, and of ensuring proper coordination among all becomes much more difficult."¹⁰⁵ The ability of each soldier in a platoon to call for supporting fire quicker¹⁰⁶ is one example. This is risky business and requires extensive study, especially when these soldiers are operating more dispersed in an urban environment.

Relating the jungle fighting of WWII to the future urban jungles of the 21st century offers an insight to the reality of dispersed fighting. Field Marshall Viscount Slim, who commanded combined forces in Burma against the Japanese stated that, "Dispersed fighting, whether the dispersal is caused by the terrain, the lack of supplies, or by the weapons of the enemy, will have two main requirements-skilled and determined junior leaders and self reliant, physically hard, well disciplined troops."¹⁰⁷

The Friedman's in their book, The Future of War, Power Technology, and American World Dominance In The 21st Century, identify this disciplined soldier of the future as a type of super trooper similar to Special Operations soldiers from around the world. "He will have to master technologies that are esoteric in the extreme-communication theory, sensor technology, and so on. As with the Special Forces, the small size of the unit will require each man to become an expert."¹⁰⁸ This expertise will come through training with the technology and arms required to fight successfully in the urban environment.

Urban combat in Somalia and Chechnya approximate what U.S. forces may encounter in the next decade. Fundamentals of urban combat will still apply in 2005-2010. A combined arms force package able to operate in Third World urban areas is

necessary. The objective must be isolated to accomplish the mission. Forces must be able to operate dispersed. Technology that assists U.S. forces in isolating the objective, and allows them to operate dispersed, while maintaining communications with each other is necessary. U.S. Army doctrine, in part, accounts for these fundamentals.

However, doctrine must also assist U.S. forces in dealing with emerging trends of urban combat. These trends are prevalent today, and will also be prevalent in the 2005-2010 time frame and beyond. The most dangerous of these trends is the increased possibility of the use of WMD against U.S. forces. The other is the increased presence of non-uniformed combatants mixed with noncombatants.

U.S. Army MOUT doctrine requires evaluation based on findings from fighting in Somalia and Chechnya. Fundamentals of urban combat and emerging trends will determine the viability of current MOUT doctrine for use in the future.

SECTION II: MOUT DOCTRINE

"Doctrine is a most important product of an army's attempt to foresee and prepare for the future"¹⁰⁹

FM 90-10 Military Operations on Urbanized Terrain (MOUT), published in 1979 during the Cold War, is out of date with the realities of future urban combat environments. Focused on combat in a European Theater, it fails to properly address the realities of the urban environment of the Third World.¹¹⁰ However, it does emphasize that commanders must understand the impact the environment will have on their forces and weapons.¹¹¹ It stresses that urban combat operations should be avoided if possible, but acknowledges that this is increasingly difficult to do.¹¹²

Understanding the environment is key; it has changed. "Doctrine reflects the time in which it is written," and those times are history.¹¹³ For these reasons, the Army is rewriting FM 90-10, and is searching for an appropriate doctrine.

Criteria for use in evaluating doctrine consist of the four fundamentals, and two emerging trends from the historical study. A combined arms force designed for use in the Third World, is the first of the four fundamentals. The second fundamental, requires that the objective must be isolated to accomplish the mission. The third fundamental, requires forces to operate dispersed. Technology that assists U.S. forces in isolating the objective, and allows them to operate dispersed, while maintaining communications with other forces is the fourth fundamental. The emerging trends include, an increased possibility of the use of WMD against U.S. forces, and the increased presence of non-uniformed combatants mixed with noncombatants.

Combined arms forces are essential to attacking in the urban environment according to FM 90-10.¹¹⁴ This fundamental still applies today and will apply in the future. Planners must determine the proper makeup of these forces for operating in Third World cities. Current weapons systems, designed for fighting in combined arms force packages consisting of infantry, armor, artillery, and attack aviation assets, are inappropriate for use when collateral damage restrictions are placed on U.S. forces. These weapon systems are designed to destroy modern armies on a fluid battlefield, not enemy forces purposely using cities and the civilian populace for protection.

FM 90-10 is generally ill-suited to the world today where political and public pressures render doctrine based on WWII urban tactics increasingly outmoded.¹¹⁵ A force package that provides appropriate firepower to defeat enemies armed with modern weapons in a Third World urban setting is necessary. Weapons systems that provide this capability while also protecting U.S. forces are essential. The tactics designed to use these systems must take into account the mix of noncombatants with combatants, so as to reduce the effects of its weapons systems on innocent people. However, these systems must also be effective enough to help forces isolate the objective.

Isolation of the objective is paramount for success in MOUT.¹¹⁶ FM 90-10 identifies this as the first phase of an attack.¹¹⁷ Combat in Somalia and Chechnya reinforce the importance of isolating the objective prior to an attack. Failure to do so can lead to mission failure. A way must be found to isolate objectives in Third World urban areas that use tactics other than those found in FM 90-10. Forces with the means to mass and disperse as required may offer a solution.

"Operating from, within, or through urban areas isolates and separates units."¹¹⁸

FM 90-10, points out that this will result in forces fighting dispersed in a series of small unit battles.¹¹⁹ While this will not change in future urban combat, doctrine must determine the best way for U.S. forces to conduct these small battles in third World urban areas. FM 90-10 does not adequately discuss how to mass and disperse forces in the future urban environment. New doctrine must take into account these small dispersed units operating among an enlarged population, that includes an innocent populace mixed with combatants. Technology, backed by appropriate doctrine may offer a solution to this problem.

Technology must be developed that allows U.S. forces to effectively conduct MOUT in the Third World. This technology must assist combined arms forces in isolating the objective. It must also allow dispersed units to operate effectively by providing them communications that will not fail in the urban environment. FM 90-10 is not current with existing technology that may provide a partial solution to these existing problems, or the two emerging trends of Weapons of Mass Destruction (WMD), and non uniformed combatants mixed with noncombatants.

FM 90-10 does not adequately discuss Weapons of Mass Destruction (WMD). It does not discuss the availability of such weapons to Third World nations, or other possible enemies that will operate within the urban environment. Chechen forces used chemical weapons against Russian forces. Future enemies of the U.S. may also use weapons of this nature against U.S. forces. Doctrine must discuss WMD and provide guidance to U.S. forces on how to operate effectively within a contaminated environment.

Future urban combat will find U.S. forces fighting non uniformed combatants mixed with noncombatants. FM 90-10 does not discuss this increasing trend. Combat in Somalia and Chechnya confirm that this will occur. Doctrine must address this trend and provide guidance to U.S. forces on how to deal with it.

FM 90-10-1 An Infantryman's Guide To Combat In Built-Up Areas, was published in May 1993, with Change 1 added in October 1995. FM 90-10-1 identifies that increased population and accelerated growth of Third World cities will impact on U.S. forces conducting MOUT.¹²⁰ FM 90-10-1 also acknowledges that non uniformed threats will exist in the form of terrorists, insurgents, and guerrillas and offers techniques for dealing with these and other Third World threats.¹²¹ FM 90-10-1 discusses the fundamentals and emerging trends that urban combat in Somalia and Chechnya identified, but does not do so adequately.

FM 90-10-1 emphasizes the use of combined arms forces.¹²² However, the discussion resembles that from FM 90-10, and therefore requires an update. "FM 90-10-1 better recognizes the presence of Third World urban shanty town slums, but doesn't adequately address pertinent phenomenon like structures penetrable by modern weapons munitions that pose a threat to noncombatant and friendly soldiers."¹²³ Doctrine must reflect the conditions that U.S. forces will face in future MOUT environments. These conditions include weapons restrictions and the increasing difficulty of isolating the objective.

Isolation of the objective is discussed in FM 90-10-1. The discussion however, centers around the use of direct and indirect weapons.¹²⁴ Combat in Somalia and Chechnya showed that an attacker must be able to isolate the objective. While in certain

situations, the use of modern weapons will allow for isolation of the objective, increasing restrictions on the use of these weapons systems will require a change to FM 90-10-1.

Dispersion of forces is also discussed in FM 90-10-1.¹²⁵ The discussion is centered around the dismounted forces of a mechanized infantry unit. This is not adequate doctrine for other infantry forces whose organization does not include armored vehicles, unless only mechanized forces will conduct MOUT. Regardless, this doctrine is based on WWII era tactics, and does not account for Third World urban environments. FM 90-10-1 requires an update to accurately reflect existing conditions U.S. forces will find in urban areas of the Third World when operating dispersed.

FM 90-10-1 acknowledges that command and control of dispersed forces will be difficult and done at the small unit level.¹²⁶ It does not adequately discuss how these forces will mass and disperse as was required by forces in Somalia and Chechnya. New doctrine needs to address this issue and discuss how existing technology may help.

Technology issues are discussed in FM 90-10-1. The discussion covers Third World opponents possible capabilities that may give them parity with U.S. forces.¹²⁷ It does not discuss how technology can assist U.S. forces against Third World enemies except in the conventional sense of weapons systems and firepower. It identifies that the use of certain technology by U.S. forces to counter threats may not be an option based on restrictive ROE.¹²⁸ However, FM 90-10-1 offers little guidance on how technology can assist U.S. forces in isolating an objective or in communicating better between dispersed forces, issues of great relevance in the future.

Other relevant issues, such as the identified emerging trends are discussed to some extent in FM 90-10-1. WMD are discussed in a cursory manner. FM 90-10-1 directs the reader to the 3 series manuals for a better discussion on WMD.¹²⁹

FM 90-10-1 attempts to provide guidance on dealing with the issue of non uniformed combatants mixed with non combatants by discussing Rules of Engagement (ROE) and different types of MOUT.¹³⁰ It is more of an information section and really doesn't provide substantial guidance to commanders or soldiers.

Marine Corps Warfighting Publication (MCWP) 3-35.3 Military Operations on Urbanized Terrain (MOUT) was published on 15 April 1998. Although a USMC document, it is relevant for the U.S. Army. In many ways it parallels FM 90-10-1, but is more current.

In gathering background information for MCWP 3-35.3, the USMC reviewed twenty two urban battles between 1942 and 1982. It discovered that from WWI through current U.S. military history, "the basic principles of combat in built up areas have essentially remained unchanged in this century."¹³¹ Armies that organized "shock units" or special assault units supported by tanks had the most success.¹³² Characterized by an integrated combined arms team at the battalion level and below, these consisted mostly of infantry, armor, artillery and engineers. It concluded that all combat arms units should train and develop common TTPs for urban combat.¹³³ These observations parallel U.S. Army doctrine.

Analysis of the battles in MCWP 3-35.3 concluded that the attacker able to isolate the defender won all urban battles. In fact, the single most important factor to success in urban combat was the isolation of the urban area. While acknowledging that

today, total isolation of an urban area is probably unrealistic, nonetheless, it emphasizes its necessity in stopping the flow of manpower and materials to the defender.¹³⁴

Combat in Somalia and Chechnya support this finding. U.S. and Russian forces suffered because they were unable to continuously isolate objectives. Doctrine must incorporate the use of technologies that will assist in the isolation of objectives when forces are unable to do it alone. Current doctrine does not offer this assistance.

Another pronounced characteristic in history was dispersed operations at lower tactical echelons including the squad. MCWP 3-35.3 emphasizes the importance of small unit leadership, initiative and skill.¹³⁵ MCWP 3-35.3 identified that prior to the WWII battle of Aachen, U.S. Army squads and fire teams conducted intensive training with Anti Tank and artillery pieces.¹³⁶

Technology that supports these dispersed units in isolating the objective or in enhancing capabilities to operate dispersed is essential. Whether it is better communications equipment or an unobtrusive display system, it is important for U.S. forces destined to fight in the near future. MCWP 3-35.3 emphasizes that U.S. forces must use existing technology to gain an advantage. It identifies several methods to gain this advantage over future opponents.

U.S. forces can demonstrate a powerful military presence using tanks, armored vehicles, heavy automatic weapons, fixed wing aircraft and attack helicopters. U.S. forces can operate at night using night vision devices (although MCWP 3-35.3 acknowledges that the enemy may have access to these devices also).¹³⁷ U.S. forces can use armored vehicles to move forces around the urban battlefield.¹³⁸ These methods may assist forces in addressing emerging trends of MOUT.

MCWP 3-35.3 discusses the issue of WMD.¹³⁹ It provides more updated information on the possible use of WMD by opponents, but provides no new TTPs for MOUT. It identifies that future opponents may use these type weapons against U.S. forces.

MCWP 3-35.3 identifies that future enemies will use the noncombatant population to their advantage. U.S. forces can expect to fight conventional and unconventional enemies in the cities of the Third World.¹⁴⁰ While identifying that addressing these threats will be difficult, MCWP 3-35.3 offers no better solution than U.S. Army doctrine.

A review of U.S.MOUT doctrine shows it will require change to address new conditions on the future battlefields where it will be executed. MOUT doctrine also identifies time tested fundamentals that require adherence to no matter where urban operations are conducted. A further analysis of MOUT doctrine is required to evaluate the effects of MOUT on U.S. infantry forces and their ability to adapt to the changing urban environment.

SECTION III: ANALYSIS

"In any new war to be fought in the future, the American's may be able to follow the old conservative ways, as long as the enemy is disadvantaged in material and technology. If the enemy is not, then the old ways may be a recipe for disaster"¹⁴¹

This monograph established four criteria and two emerging trends for evaluating MOUT doctrine and its effects on U.S. infantry forces. The first of these is a combined arms force able to defeat opponents using tactics similar to those used in Somalia and Chechnya. Second, is a capability that allows forces to isolate the objective. Third, is an ability for forces to fight dispersed, as required by the situation. Fourth, is technology that assists in isolating the objective, and also allows forces to operate dispersed, while maintaining communications with each other. Emerging trends are the possible use of WMD in the urban environment, and the presence of non uniformed combatants mixed with noncombatants.

COMBINED ARMS FORCES

History clearly shows the necessity for U.S. forces to fight using combined arms in urban terrain. Current doctrine also emphasizes this approach and provides TTPs on how to integrate the different branches when fighting in urban terrain. What is lacking is updated doctrine that clearly advocates and enforces a combined arms approach to urban combat in the Third World. This could include restricting the deployment of other infantry forces, until mechanized infantry with its organic armor protection and associated firepower is established. Updated doctrine could also include TTPs based around MOUT in a chemically contaminated environment. This doctrine is essential to

focus higher level commanders on the importance of a combined arms approach to MOUT training.

Future MOUT will require mounted and dismounted infantry. These forces can not be an ad hoc force package like that used in Somalia. It must be a force that is familiar with all of its capabilities from the start of the mission. "In the wars of the future, there is simply no point in deploying highly trained light infantry without mobility and protection."¹⁴² Therefore, the best approach is to deploy a mechanized force first, and use other infantry to support this force. Adequate doctrine that requires these forces to train together in realistic urban terrain is necessary.

"Training is intimately related to doctrine. Without sufficient doctrine, service wide training lacks a basis for commonality in tactics, techniques, procedures and standards."¹⁴³ MOUT doctrine must be thoroughly integrated throughout the force. It must be understood and practiced routinely. "Doctrine must facilitate communication, serve as a basis for Army school curricula, and set the direction for modernization."¹⁴⁴

Force Projection doctrine must incorporate a combined arms force package as the building block of any task organization for future MOUT. It is a mistake to believe that well trained units can adapt to the conditions found in a MOUT environment and during a battle learn urban fighting. This concept is wrong and must be discarded before effective MOUT doctrine can be developed.¹⁴⁵

In his book *Breaking the Phalanx: A New Design for Landpower in the 21st Century*, Douglas A. Macgregor emphasized the importance of a trained and ready combined arms organization for future conflicts. Whether it be Iraq or another Third

World threat, his basic assumption is correct and relevant for forces identified to conduct MOUT in the environment of the 21st century.

"Tactical organizations that have not lived and trained together before they deploy cannot be transformed overnight on the basis of a single exercise into a fighting force that will stand up to future adversaries potentially much more capable than Iraq."¹⁴⁶ This approach was tried in Somalia with predictable results. It must not be allowed to happen again. Viable doctrine can help prevent its reoccurrence. Doctrine must also provide guidance on how to successfully isolate an objective in the MOUT environment.

ISOLATION OF THE OBJECTIVE

Isolation of the objective will determine success or failure in MOUT. To effectively isolate an objective requires a combined arms force. Combat in Somalia and Chechnya provide further credence that fighting Third World enemies does not negate this fundamental. History and doctrine supports this assertion.

FM 90-10 states that the battle to isolate a built up area occurs on the natural terrain adjacent to it. Combined arms forces are necessary for this to occur.¹⁴⁷

FM 90-10-1 takes a more practical view of this requirement recognizing the difficulty of seizing natural terrain in the urban sprawl of the worlds cities. It states that isolating the objective involves seizing dominating terrain to stop enemy reinforcements and supplies.¹⁴⁸ This dominating terrain may be natural terrain or adjacent buildings and structures near the objective. MCWP 3-35-3 identifies isolation of the objective as the single most important factor to success in urban combat.¹⁴⁹

Infantry forces alone cannot isolate an urban objective. In an urban attack force task organization, they are the force for securing a foothold. However, prior to or in

conjunction with securing the foothold, the objective must be isolated. This requires assistance from armor, artillery/mortars, helicopters and possibly fixed wing aircraft.

In the urban sprawl of the Third World many of these supporting arms are hampered by ROE and the presence of noncombatants. Opponents use noncombatants and other means to prevent their own isolation, thereby, placing U.S. forces at a disadvantage. Methods of isolating an objective through technological means is necessary, or U.S. forces must be allowed to use weapons systems that will assuredly cause collateral damage. Failure to do so will result in needless American casualties.

Maintaining total isolation of an objective in the urban sprawl of the Third World may not be possible or practical. However, U.S. forces must stop the enemy force they are attacking from replenishing itself with men and materials. MOUT training and technology must focus on this effort. Isolation of the objective will require forces to operate dispersed.

DISPERSED FIGHTING (SQUAD through BATTALION)

Critical to success in urban combat is the ability to fight dispersed while maintaining contact with units to your front, flanks and rear. Doctrine points out that forces will fight dispersed and operate independently at the small unit level. Urban combat throughout history verifies this fact. Conditions on the urban battlefield of the future will add to its complexity.

Squad leaders who are able to direct tank fire and artillery fire in direct support of their squad, while simultaneously protecting innocent civilians in an adjacent apartment building are a rare commodity indeed. Yet, this is what will be expected of them.

More effort is needed to insure MOUT training supported by relevant doctrine brochures issues of this nature. Communications technology that allows small, dispersed units to direct this fire is required.

In the compartmentalized world of urban combat, it is imperative that soldiers and units know where they and their fellow soldiers are located. Technology that facilitates this while not burdening soldiers in the execution of MOUT tasks is necessary. Initial objectives, intermediate objectives, and final objectives, must be clearly marked and understood by all units involved. Control measures must facilitate navigation and allow units to disperse and mass as required.¹⁵⁰

Conditions may change on the urban battlefield of the 21st Century, but fundamental MOUT principles will not. Soldiers must feel confident that their ability to advance will not be hampered by flank and rear attacks. Technology that provides this confidence and protects soldiers is essential. Non-lethal technology that temporarily incapacitates all persons in the area, or lethal technology that targets enemy combatants is necessary.

TECHNOLOGY SUPPORT FOR THE TACTICAL UNIT

Tactical level units will fight dispersed. Their ability to identify friend from foe in the urban jungle is necessary. "The attacker must understand the relationship between the defender and the population before he plans the attack. Failure to consider this variable ignores an important dynamic of the MOUT battlefield."¹⁵¹ Training and technology both play an important role in determining this relationship. Effective integration of technology to enable specific tactics in this environment is required.

"Too many future technologies neglect the demands urban areas place on soldiers operating in those environments; the specialized character of those systems limits their applicability for use in built up areas."¹⁵² While Land Warrior may be an effective system for integrating dismounted soldiers into the mechanized, digitized force, its potential for use in urban close quarter combat has yet to be determined.¹⁵³

Useful technology for urban combat exists but is available only to Special Forces units. This technology should be available to infantry forces who will do the preponderance of the fighting.¹⁵⁴ Units must be able to talk to each other and to their higher headquarters to operate effectively.¹⁵⁵

The MOUT ACTD is attempting to address some of these concerns. Although the MOUT ACTD will not undertake technology development, it is experimenting with commercial and government off-the-shelf items, as well as mature government research. Effective technology along with supporting TTPs will be determined through experiments ranging from squad through battalion level. Those that demonstrate significant operational effectiveness will become interim capabilities for two years.

These thirty-two technology candidates focus on four areas. The first area of focus is Command, Control, Communications, Computers and Intelligence (C4I). This area includes several technologies. Of these technologies, one is the ability to identify friendly, enemy, and non-combatants in all conditions. The ability for hands free, non-line of sight communications for small unit leaders is another. A night vision light source that allows soldiers/Marines in a building to see at all times is a third. Hand held through wall sensors that will determine if an adjacent room is occupied, and if so, by whom, is a fourth. Fifth, is a hand held target designator capable of transmitting digital

data to fire support systems. The last of the C4I technologies, is a position location device that provides location data inside a building.

Engagement is the second area of focus. These include lethal and non lethal technologies, as well as other enhancing technology. The enhancing technologies include, an ability to detect/disarm booby traps, and the ability to blow a man size hole for entry/exit in any direction through concrete walls. Lethal technology includes, a soft round which will penetrate the human body and then stop, and point munitions for individual soldiers/Marines which will defeat light armored vehicles, breach structures and neutralize bunkers. Non-lethal technology includes, blunt trauma training rounds for use in MOUT training, and grenades that can be used in situations where enemy personnel are mixed with non combatants.

Force Protection is the third area of focus. These technologies are designed to reduce fratricide and protect the individual soldier/Marine. To reduce fratricide, an ability to clearly mark all friendly soldiers for day and night operations is required. Protection for the soldier/Marine will come in a personal protection kit that includes, protection for eyes, breathing, joints, hearing and medical protection. Another protection technology, is a light weight mask for NBC protection compatible with night vision devices.

Mobility is the fourth area of focus. This technology allows for movement within the urban area. It provides the soldier/Marine an ability to get on and up a building both from the ground and from adjacent buildings.¹⁵⁶

Research in these areas by the U.S. Army must continue. U.S. forces require technologies that provide them the capabilities necessary to effectively conduct future

urban combat.¹⁵⁷ Capable technologies resulting from the MOUT ACTD must be funded beyond the two year interim. These technologies must see U.S. forces through the critical window of 2005-2010, until JV2010 technology and doctrine are brought on line. Other research must focus on areas beyond the scope of the MOUT ACTD, such as the threat presented by two emerging trends found in the Third World urban environment.

EMERGING TRENDS

Weapons of Mass Destruction (WMD) are a possible component of any Third World opponent's arsenal. Whether chemical, biological, or nuclear, it is important for U.S. Army MOUT doctrine to address this threat. Current MOUT doctrine does not adequately address operations in this possible environment. Doctrine must be written that provides guidance for U.S. forces who will operate under this threat. Doctrine should include TTPs on how to organize forces for an attack in areas subject to the use of WMD, and on how to protect forces against WMD. Guidance should also provide units with methods to address mass casualties among U.S. forces as well as among non-combatants.

Noncombatants will be significant on future urban battlefields. They will increase the complexity of MOUT. Uniformed and non uniformed enemies will mix with noncombatants. Both FM 90-10-1 and MCWP 3-35.3 provide some guidance for handling noncombatants in urban combat. This mostly centers around the use of Rules of Engagement (ROE). However, combat in Somalia and Chechnya proved that forces need more assistance in addressing this threat. Current doctrine is inadequate in providing this assistance.

SECTION IV: CONCLUSION and RECOMMENDATIONS

*"Doctrine and/or TTP needs consolidation. We went to a wide variety of manual's, TC's, pubs, and white papers to get TTP for training and in some cases execution of our required tasks."*¹⁵⁸

MOUT doctrine must change to reflect the current realities of the worlds urban areas and the impact it will have on military operations in the next decade. That impact includes a burgeoning population with a commensurate urban sprawl. Within this urban environment, U.S. forces will face enemies that include conventional armies equipped with modern weapons and sophisticated technology, as well as unconventional forces who will use whatever means necessary to inflict casualties among U.S. forces.

In all probability, U.S. forces will operate under a United Nations mandate but must still be prepared to go it alone if required. In either situation, U.S. forces will operate under restrictive ROE that will limit their offensive capability and increase the likelihood of casualties, unless technological means are developed that facilitate fundamental MOUT requirements, such as isolating an objective.

Ongoing experimentation with new weapons and technology must focus on the urban environment soldiers will likely encounter and not one designed to facilitate the experiment. Doctrine must be written that incorporates new TTPs resulting from advanced technology development. "However, weapons development is only one corner of a triangle, of which the other two are a tactical doctrine for using the weapon, and the training of the combatants, individually and collectively to use it."¹⁵⁹

FM 90-10 needs to reflect MOUT at the Brigade through Corps level as Joint and Combined in nature. It should emphasize the importance of tailoring combined arms force packages for Force Projection operations at the brigade and battalion level.

Inherent within this force package must be the proper supporting arms to insure success in Third World urban areas.

FM 90-10-1 needs updating to reflect recent urban combat operations from Somalia and Chechnya, and its effects on attacking forces. These effects include small units fighting dispersed in combined arms organizations, amidst a host of uniformed and non uniformed combatants, and noncombatants. FM 90-10-1 also needs to provide guidance on how forces will effectively operate more dispersed than in the past when WMD are present. MOUT doctrine must look to the future and anticipate the environment in which U.S. forces will operate.

Urban expansion, and its associated problems within the Third World, will inevitably find U.S. forces involved as peacekeepers or peacemakers in 2005-2010 and beyond. Part of this involvement will in all probability require U.S. forces to conduct MOUT against well armed opponents mixed with the civilian population. Recognition of this probability makes it incumbent upon U.S. Army leadership to provide its forces with the necessary tools for success. Those tools include a viable doctrine, supported by technology that allows U.S. forces to effectively accomplish their mission, at least cost to themselves, and the civilian populace.

END NOTES

¹Paul H. Herbert, "Deciding What Has to be Done: General William E. Depuy and the 1976 Edition of FM 100-5, Operations," Leavenworth Papers #16, (Ft. Leavenworth, KS: Combat Studies Institute, July 1988), p.102.

²Defense Intelligence Reference Document. The Urban Century: Developing World Urban Trends and Possible Factors Affecting Military Operations. (Department of Defense Intelligence Production Program, November 1997), p. 1.

³Department of the Army, TRADOC Pamphlet 525-5. "Force XXI Operations: A Concept for the Evolution of Full Dimensional Operations for the Strategic Army of the Early Twenty-First Century." (Fort Monroe, VA.: Army Training and Doctrine Command, 1994), pp.2-3.

⁴Marine Corps Warfighting Publication (MCWP) 3-35.3, "Military Operations on Urbanized Terrain (MOUT), (April 1998), pp.2-3.

⁵Department of the Army, FM 100-5 Operations, Revised Final Draft, 1998.

⁶Rod Paschall, LIC 2010: Special Operations & Unconventional Warfare In the Next Century, (McLean, VA: Brassey's Inc., 1990), p.33.

⁷Marine Corps Warfighting Publication (MCWP) 3-35.3, "Military Operations on Urbanized Terrain (MOUT), (April 1998), p.H-7.

⁸ *Ibid.*, 1-2.

⁹Robert H. Sulzen, "Research Report 1716, Selected Training Practices for Military Operations in Urban Terrain (MOUT)." (Alexandria, VA: U.S. Army Research Institute, 1997), p.14.

¹⁰ MOUT ACTD, "Military Operation in Urban Terrain Advanced Concept Technology Demonstration," 22 September 1998; available from <http://yorktown.dc.isx.com/mout/>; Internet.

¹¹ Henry H. Shelton, Chairman, Joint Chiefs of Staff, "A Word from the New Chairman," Joint Force Quarterly, (Institute for National Strategic Studies, National Defense University, Autumn/Winter 1997-98), p. 6.

¹² Robert H. Sulzen, "Research Report 1716, Selected Training Practices for Military Operations in Urban Terrain (MOUT)." (Alexandria, VA, U.S. Army Research Institute, 1997), p.10.

¹³ Russell Glenn, "Combat In Hell: A Consideration of constrained Urban Warfare," (RAND, 1996), p.vii.

¹⁴Paul H. Herbert, "Deciding What Has to be Done: General William E. Depuy and the 1976 Edition of FM 100-5, Operations," Leavenworth Papers #16, (Ft. Leavenworth, KS: Combat Studies Institute, July 1988), p.107.

¹⁵ US Army Forces, Somalia. 10th Mountain Division (LI), After Action Report Executive Summary, 4 May 1993. DRAFT: p.2.

¹⁶James A. Winnefeld et. Al., "Intervention in Intrastate Conflict: Implications for the Army in the Post cold War Era," (Santa Monica, CA: RAND, 1995), p. 42.

¹⁷ US Army Forces, Somalia. 10th Mountain Division (LI), After Action Report Executive Summary, 4 May 1993. DRAFT. p.34.

¹⁸ U.S. Army, FM 90-10 Military Operations on Urbanized Terrain (MOUT), (Washington, DC: Department of the Army, 15 August 1979), p. 1-2.

¹⁹ Russell Glenn, "Marching Under Darkening Skies: The American Military and the Impending Urban Operations Threat-A Status Check." DRAFT (RAND March 1998), p.8.

²⁰ William C. David, LTC, "Preparing a Battalion for Combat: Maneuver Live-fire Training," Infantry (September-October 1995), p.27.

²¹ US Army Forces, Somalia. 10th Mountain Division (LI), After Action Report Executive Summary, 4 May 1993. DRAFT. p.34.

²² U.S. Army, FM 90-10 Military Operations on Urbanized Terrain (MOUT), (Washington, DC: Department of the Army, 15 August 1979), p. 2-13.

²³ Ibid., 2-14.

²⁴ Mark Bowden, "Blackhawk Down," [story on-line](Philadelphia Enquirer, 1997, accessed May 1998), Internet. p.3.

²⁵ Ibid., 5.

²⁶ Ibid., 47.

²⁷ Ibid., 16.

²⁸ Ibid., 47.

²⁹ Russell Glenn, "Combat In Hell: A Consideration of constrained Urban Warfare," (RAND, 1996), p. 14.

³⁰ Ibid., 23.

³¹ Ibid., 5.

³² Mark Bowden, "Blackhawk Down," [story on-line](Philadelphia Enquirer, 1997, accessed May 1998), Internet. 16.

³³ Russell Glenn, "Combat In Hell: A Consideration of constrained Urban Warfare," (RAND, 1996), p. 39.

³⁴ Mark Bowden, "Blackhawk Down," [story on-line](Philadelphia Enquirer, 1997, accessed May 1998), Internet. 13.

³⁵ Ibid., 10.

³⁶ Ibid., 26-27.

³⁷ Ibid., 12.

³⁸ Quick Reaction Force, Falcon Brigade, 10th Mountain Division. Summary of Combat Operations on 3 October 1993. Unsigned document. p.3.

³⁹ Ibid., 4.

⁴⁰ Mark Bowden, "Blackhawk Down," [story on-line](Philadelphia Enquirer, 1997, accessed May 1998), Internet. p.1.

⁴¹ Quick Reaction Force, Falcon Brigade, 10th Mountain Division. Summary of Combat Operations on 3 October 1993. Unsigned document. p.4.

⁴² Ibid., 5-7.

⁴³ Ibid., 5.

⁴⁴ U.S. Army, FM 90-10 Military Operations on Urbanized Terrain (MOUT), (Washington, DC: Department of the Army, 15 August 1979), p. 2-14.

⁴⁵ Andrei Raevsky, "Chechnya: Russian Military Performance in Chechnya: An Initial Evaluation." The Journal of Slavic Military Studies. (volume 8, December 1995 Number 4), p.682.

⁴⁶ Ibid.

⁴⁷ Ibid., 683.

⁴⁸ Ibid., 683-684.

⁴⁹ Marine Corps Warfighting Publication (MCWP) 3-35.3, "Military Operations on Urbanized Terrain (MOUT), (April 1998), p. J-8.

⁵⁰ Ibid., J-3.

⁵¹ Ibid., J-4.

⁵² Ibid., J-1.

⁵³ Ibid.

⁵⁴ U.S. Army, FM 100-5 Operations, (Washington, DC: Department of the Army, 14 June 1993), p.6-7.

⁵⁵ Marine Corps Warfighting Publication (MCWP) 3-35.3, "Military Operations on Urbanized Terrain (MOUT), (April 1998), p. J-1.

⁵⁶ Andrei Raevsky, "Chechnya: Russian Military Performance in Chechnya: An Initial Evaluation." The Journal of Slavic Military Studies. (volume 8, December 1995 Number 4), p.689, note 39.

⁵⁷ Ibid., 685.

⁵⁸ Ibid., 684.

⁵⁹ Ibid., 682.

⁶⁰ Marine Corps Warfighting Publication (MCWP) 3-35.3, "Military Operations on Urbanized Terrain (MOUT), (April 1998), p. J-3.

⁶¹ Ibid., J-3.

⁶² Mark Bowden, "Blackhawk Down," [story on-line](Philadelphia Enquirer, 1997, accessed May 1998), Internet. p.22.

⁶³ Marine Corps Warfighting Publication (MCWP) 3-35.3, "Military Operations on Urbanized Terrain (MOUT), (April 1998), p. J-1.

⁶⁴ Ibid., J-6.

⁶⁵ Andrei Raevsky, "Chechnya: Russian Military Performance in Chechnya: An Initial Evaluation." The Journal of Slavic Military Studies. (volume 8, December 1995 Number 4), p.689, note 39.

⁶⁶ Marine Corps Warfighting Publication (MCWP) 3-35.3, "Military Operations on Urbanized Terrain (MOUT), (April 1998), p. J-2.

⁶⁷ Ibid., J-3.

⁶⁸ Ibid., J-5 to J-7.

⁶⁹ Ibid., J-8.

⁷⁰ Ibid., J-7.

⁷¹ Ibid., J-5.

⁷² Ibid., J4-J5.

⁷³ Andrei Raevsky, "Chechnya: Russian Military Performance in Chechnya: An Initial Evaluation." The Journal of Slavic Military Studies. (volume 8, December 1995 Number 4), p.686.

⁷⁴ Marine Corps Warfighting Publication (MCWP) 3-35.3, "Military Operations on Urbanized Terrain (MOUT), (April 1998), p. J-3.

⁷⁵ Andrei Raevsky, "Chechnya: Russian Military Performance in Chechnya: An Initial Evaluation." The Journal of Slavic Military Studies. (volume 8, December 1995 Number 4), p.687.

⁷⁶ Ibid., p.685.

⁷⁷ Ibid.

⁷⁸ Mark Bowden, "Blackhawk Down," [story on-line](Philadelphia Enquirer, 1997, accessed May 1998), Internet. p.28.

⁷⁹ Ibid., p.24.

⁸⁰ Marine Corps Warfighting Publication (MCWP) 3-35.3, "Military Operations on Urbanized Terrain (MOUT), (April 1998), p. J-5.

⁸¹ Mark Bowden, "Blackhawk Down," [story on-line](Philadelphia Enquirer, 1997, accessed May 1998), Internet. p.28.

⁸² Ibid., 44.

⁸³ Marine Corps Warfighting Publication (MCWP) 3-35.3, "Military Operations on Urbanized Terrain (MOUT), (April 1998), p. J-5.

⁸⁴ Carl Von Clausewitz, On War. Edited and Translated by Howard and Paret. (Princeton, NJ, Princeton University Press, 1984), p. 358.

⁸⁵ Ibid., 357, 370.

⁸⁶ B.H. Liddell Hart, "The Ratio of Troops to Space," Military Review. (Volume XL, April 1960, Number 1), p. 3.

⁸⁷ Ibid.

⁸⁸ James J. Schneider, "The Theory of the Empty Battlefield," Journal of the Royal United Services Institute For Defence Studies, (Whitehall, London, Volume 132 No.3 September 1987), p. 44.

⁸⁹ U.S. Army, FM 100-5 Operations, (Washington, DC: Department of the Army, 14 June 1993), p. 14-4.

⁹⁰ John A. English, On Infantry. (New York, NY, Praeger Publishers, 1984), p. 136.

⁹¹ Russell Glenn, "Combat In Hell: A Consideration of constrained Urban Warfare," (RAND, 1996), p. 22.

⁹² Douglas A. Macgregor, Breaking the Phalanx: A New Design for Land Power in the 21st Century. (Westport, CT, Praeger Publishers, 1997), p. 127.

⁹³ U.S. Army, FM 90-10 Military Operations on Urbanized Terrain (MOUT), (Washington, DC: Department of the Army, 15 August 1979), p. 4-7.

-
- ⁹⁴ Marine Corps Warfighting Publication (MCWP) 3-35.3, "Military Operations on Urbanized Terrain (MOUT), (April 1998), p. G-1.
- ⁹⁵ *Ibid.*, J-5 to J-8.
- ⁹⁶ Mark Bowden, "Blackhawk Down," [story on-line](Philadelphia Enquirer, 1997, accessed May 1998), Internet. p.48.
- ⁹⁷ Marine Corps Warfighting Publication (MCWP) 3-35.3, "Military Operations on Urbanized Terrain (MOUT), (April 1998), p. 2-1.
- ⁹⁸ Russell Glenn, "Denying the Widow-Maker: The Rand-DBBL MOUT Conference, February 24-25, 1998, Summary of Proceedings," DRAFT. (May 1998), p. 11.
- ⁹⁹ S.L.A. Marshall, Men Against Fire: The Problem of Battle Command In Future War. (Gloucester, MA, reprinted, 1978, from original of 1947), p.42.
- ¹⁰⁰ Russell Glenn, "Combat In Hell: A Consideration of constrained Urban Warfare," (RAND, 1996), p. 29.
- ¹⁰¹ Vernon E. Shisler and Harry D. Winters, "The Future NATO Soldier," Army. (July,1998), p. 39.
- ¹⁰² Russell Glenn, "Combat In Hell: A Consideration of constrained Urban Warfare," (RAND, 1996), p. 29.
- ¹⁰³ *Ibid.*
- ¹⁰⁴ Vernon E. Shisler and Harry D. Winters, "The Future NATO Soldier," Army. (July,1998), p. 39.
- ¹⁰⁵ Martin Van Creveld, Command In War. (Cambridge, Mass, Harvard University Press, 1985), p. 6.
- ¹⁰⁶ Vernon E. Shisler and Harry D. Winters, "The Future NATO Soldier," Army. (July,1998), p. 39.
- ¹⁰⁷ Field-Marshal Viscount Slim, Defeat Into Victory. (Cavaye Place, London, PAPERMAC, 1956, paperback 1986.), p. 549.
- ¹⁰⁸ George and Meredith Friedman, The Future of War, Power Technology, and

American World Dominance In The 21st Century. (New York, NY: Crown Publishers, 1996), p.392.

¹⁰⁹ Paul H. Herbert, "Deciding What Has to be Done: General William E. Depuy and the 1976 Edition of FM 100-5, Operations," Leavenworth Papers #16, (Ft. Leavenworth, KS: Combat Studies Institute, July 1988), p.107.

¹¹⁰ U.S. Army, FM 90-10 Military Operations on Urbanized Terrain (MOUT), (Washington, DC: Department of the Army, 15 August 1979), p.1-2.

¹¹¹ Ibid.1-12.

¹¹² Ibid.1-1.

¹¹³ Paul H. Herbert, "Deciding What Has to be Done: General William E. Depuy and the 1976 Edition of FM 100-5, Operations," Leavenworth Papers #16, (Ft. Leavenworth, KS: Combat Studies Institute, July 1988), p.5.

¹¹⁴ U.S. Army, FM 90-10 Military Operations on Urbanized Terrain (MOUT), (Washington, DC: Department of the Army, 15 August 1979), pp 2-13 - 2-17.

¹¹⁵ Russell Glenn, "Combat In Hell: A Consideration of constrained Urban Warfare," (RAND, 1996), p. vii.

¹¹⁶ U.S. Army, FM 90-10 Military Operations on Urbanized Terrain (MOUT), (Washington, DC: Department of the Army, 15 August 1979), p. 2-13.

¹¹⁷ Ibid.

¹¹⁸ Ibid., 1-11.

¹¹⁹ Ibid.

¹²⁰ U.S. Army, FM 90-10-1 An Infantryman's Guide To Combat In Built-Up Areas (Washington, DC: Department of the Army, 12 May 1993, with C1 3 October 1995), p. 1-1

¹²¹ Ibid., vii.

¹²² Ibid., N-1.

¹²³ Russell Glenn, "Marching Under Darkening Skies: The American Military and the Impending Urban Operations Threat-A Status Check." DRAFT (RAND March 1998), p.9.

¹²⁴ U.S. Army, FM 90-10-1 An Infantryman's Guide To Combat In Built-Up Areas (Washington, DC: Department of the Army, 12 May 1993, with C1 3 October 1995), p. 3-17.

¹²⁵ Ibid., B-1.

¹²⁶ Ibid., pp. 3-11-3-21.

¹²⁷ Ibid., 2-10.

¹²⁸ Ibid., 3-2 - 3-3.

¹²⁹ Ibid., A-1.

¹³⁰ Ibid., G-1.

¹³¹ Marine Corps Warfighting Publication (MCWP) 3-35.3, "Military Operations on Urbanized Terrain (MOUT), (April 1998), p.1-8.

¹³² Ibid., 1-13 - 1-16.

¹³³ Ibid., 1-16.

¹³⁴ Ibid., 1-17 - 1-18.

¹³⁵ Ibid., 2-1.

¹³⁶ Ibid., 1-13 -1-16.

¹³⁷ Ibid., H-7.

¹³⁸ Ibid., 7-2.

¹³⁹ Ibid., G-1.

¹⁴⁰ Ibid., 2-3.

¹⁴¹ John A. Warden III, Colonel, USAF, The Air Campaign: Planning for Combat. (Brassey's, London 1989), p. 116.

¹⁴² Douglas A. Macgregor, Breaking the Phalanx: A New Design for Landpower in the 21st Century. (Praeger Publishers, Westport, CT 1997), p. 77.

¹⁴³ Russell Glenn, "Marching Under Darkening Skies: The American Military and the Impending Urban Operations Threat-A Status Check." DRAFT (RAND March 1998), p.11.

¹⁴⁴ Steven P. Goligowski, Major, Future Combat In Urban Terrain: Is FM 90-10 Still Relevant? (SAMS Monograph, USACGSC School of Advanced Military Studies, Fort Leavenworth, KS, 1995), p. 20.

¹⁴⁵ Ibid., p. 10.

¹⁴⁶ Douglas A. Macgregor, Breaking the Phalanx: A New Design for Landpower in the 21st Century. (Praeger Publishers, Westport, CT 1997), p.230.

¹⁴⁷ U.S. Army, FM 90-10 Military Operations on Urbanized Terrain (MOUT), (Washington, DC: Department of the Army, 15 August 1979), p. 2-13.

¹⁴⁸ U.S. Army, FM 90-10-1 An Infantryman's Guide To Combat In Built-Up Areas (Washington, DC: Department of the Army, 12 May 1993, with C1 3 October 1995), p.3-4.

¹⁴⁹ Marine Corps Warfighting Publication (MCWP) 3-35.3, "Military Operations on Urbanized Terrain (MOUT), (April 1998), p.1-17.

¹⁵⁰ U.S. Army, FM 90-10-1 An Infantryman's Guide To Combat In Built-Up Areas (Washington, DC: Department of the Army, 12 May 1993, with C1 3 October 1995), pp. 3-9 - 3-11.

¹⁵¹ Steven P. Goligowski, Major, Future Combat In Urban Terrain: Is FM 90-10 Still Relevant? (SAMS Monograph, USACGSC School of Advanced Military Studies, Fort Leavenworth, KS, 1995), p. 20.

¹⁵² Russell Glenn, "Marching Under Darkening Skies: The American Military and the Impending Urban Operations Threat-A Status Check." DRAFT (RAND March 1998), p.17.

¹⁵³ United States Army, Weapons Systems Handbook 1998. (Washington, DC, U.S. Government Printing Office, 1998), p. 123

¹⁵⁴ Russell Glenn, "Combat In Hell: A Consideration of constrained Urban Warfare," (RAND, 1996), p.x.

¹⁵⁵ U.S. Army, FM 90-10-1 An Infantryman's Guide To Combat In Built-Up Areas (Washington, DC: Department of the Army, 12 May 1993, with C1 3 October 1995), p. 1-6.

¹⁵⁶ MOUT ACTD, "Military Operation in Urban Terrain Advanced Concept Technology Demonstration," 22 September 1998; available from <http://yorktown.dc.isx.com/mout/>; Internet.

¹⁵⁷ Russell Glenn, "Combat In Hell: A Consideration of constrained Urban Warfare," (RAND, 1996), p. vii.

¹⁵⁸ Tony Cuculo, LTC, "MOUT In Bosnia: Experiences of a Heavy Task Force, December '95 to December '96." Quote from Russell Glenn's, "Denying the Widow-Maker: The RAND-DBBL MOUT Conference, February 24-25, 1998 Summary of Proceedings", DRAFT, (RAND, May 1998), p. G-9.

¹⁵⁹ Christopher Bellamy, The Evolution of Modern Land Warfare: Theory and Practice. (Rutledge, 1990), p. 30.

BIBLIOGRAPHY

Books

- Bacevich, A.J. The Pentomic Era: The U.S. Army Between Korea and Vietnam. Washington, DC: National Defense University Press, 1986.
- Bellamy, Chris. The Future of Land Warfare. New York: St Martins Press, 1987.
- Bellamy, Christopher. The Evolution of Modern Land Warfare: Theory and Practice. London: Routledge, 1990.
- Bond, Brian. The Pursuit Of Victory: From Napoleon to Saddam Hussein. New York: Oxford University Press, 1996.
- Clausewitz, Carl Von. On War. Princeton, New Jersey: Princeton University Press, 1976.
- Chuikov, Vasil I. The Battle For Stalingrad. New York: Holt, Rinehart and Winston, Inc., 1964.
- Donnelly, Thomas. Operation Just Cause: The Storming of Panama. New York: Lexington Books, 1991.
- Du Picq, Ardant. Battle Studies. in Roots of Strategy. Book 2. Harrisburg, PA: Stackpole Books, 1987.
- English, John A. On Infantry. New York: Praeger Publishers, 1984.
- Friedman, George and Meredith. The Future Of War: Power, Technology, and American World Dominance In The 21st Century. New York: Crown Publishers, Inc, 1996.
- Grossman, Dave. On Killing. Boston: Little, Brown and Company, 1996.
- Huntington, Samuel P. The Soldier And The State: The Theory and Politics of Civil-Military Relations. Cambridge, Massachusetts: The Belknap Press Of Harvard University Press, 1957.
- Kagan, Donald. On the Origins of War and the Preservation of Peace. New York: Doubleday, 1995.
- Kaplan, Robert D. To The Ends Of The Earth. New York: Random House, Inc, 1996.
- Marshall, S.L.A. Men Against Fire. Gloucester, MA: Peter Smith, 1978 reprint.

- MacGregor, Douglas A. Breaking The Phalynx: A New Design for Land Power in the 21st Century. Westport, CT: Praeger Publishers, 1997.
- Paschall, Rod, LIC 2010: Special Operations & Unconventional Warfare In the Next Century. McLean, VA: Brassey's Inc., 1990.
- Senge, Peter M. The Fifth Discipline: The Art & Practice of The Learning Organization. New York: Doubleday, 1990.
- Slim, William J. Field-Marshal Viscount. Defeat Into Victory. London: PAPERMAC, 1986.
- Sun Tzu. The Art of War. Translated by Sawyer. Boulder: Westview Press, 1994.
- Van Creveld, Martin. Command In War. Cambridge, Mass: Harvard University Press, 1985.
- Waldrop, M. Mitchell. Complexity: The Emerging Science At The Edge Of Order And Chaos. New York: Simon and Schuster, 1992.
- Warden, John A. III, The Air Campaign: Planning for Combat. Washington: Brassey's, 1989.
- Weigley, Russell F. The American Way of War: A History of United States Military Strategy and Policy. Bloomington: Indiana University Press, 1973.

Periodicals and Articles

- Auster, Bruce B. "An inside look at Terror Inc". U.S. News & World Report, Vol. 125, 15, (October 19, 1998), 34-37.
- AUSA News. "Soldiers test urban combat techniques." (August 1998), 3.
- Coats, Dan, "Joint Experimentation-Unlocking the Promise of the Future." Joint Forces Quarterly, (Autumn/Winter 1997-98/Number 17). 13-19.
- Crossette, Barbara. "Security Council Debates Rapid Increase In Child Soldiers." New York Times. (June 30, 1998).
- Defense 97, "The 21st Century Warrior". Issue 6. (1997). 6-11.
- David, LTC William C. "Preparing A Battalion For Combat: Marksmanship." Infantry. Vol. 85, 4, (July-August 1995), 27-30.

- David, LTC William C. "Preparing A Battalion For Combat: Maneuver Live Fire Training." Infantry. Vol. 85, 5, (September-October 1995), 23-27.
- Dunlap, Charles J. Jr., "Joint Vision 2010: A Red Team Assessment." Joint Forces Quarterly, (Autumn/Winter 1997-98/Number 17). 47-49.
- Gourley, Scott R., "Soldier Armed: Objective Individual Combat Weapon." Army. (July 1998). 51-52.
- Hoffman, F.G., "Joint Vision 2010-A Marine Perspective." Joint Forces Quarterly, (Autumn/Winter 1997-98/Number 17). 32-38.
- Landay, Jonathan S., "High-tech foot soldiers," Christian Science Monitor, (July 5, 1998).
- Liddell Hart, B.H. "The Ratio of Troops to Space." Military Review. Vol. XL, 1 (April 1960), 3-14.
- Lynch, David J. "Kosovo could dwarf other Balkan conflicts." USA Today. (June 30, 1998), 6.
- Montgomery, Rick and Canon, Scott. "'War of future' confronts U.S." The Kansas City Star. (August 23, 1998).
- Peterson, Donna., "Flexibility is key change," Army Times, (June 22, 1998).
- Reimer, Dennis J. "Leaping Ahead to the 21st Century." Joint Forces Quarterly, (Autumn/Winter 1997-98/Number 17). 20-24.
- Russell, LTC Theodore S. and Worrell, Major Harold H. Jr. "Focus on Light Force XXI: AWE Warrior Focus." Field Artillery. (May-June 1996), 36-39.
- Schneider, James J. "What If We Fight Tonight? Advanced Military Education for the XXIst Century." Reprinted in the SAMS Syllabus AY 98-99. AMSP Course 1, Foundation of Military Theory. Fort Leavenworth, KS: School of Advanced Military Studies, 1995.
- Schneider, James J. "The Theory of the Empty Battlefield," Journal of the Royal United Services Institute For Defence Studies, Vol. 132, 3 (September 1987), 37-44.
- Shelton, Henry H., "A Word from the New Chairman." Joint Forces Quarterly, (Autumn/Winter 1997-98/Number 17). 6-8.
- Shisler, Vernon E. and Winters, Harry D. "The Future NATO Soldier," Army. (July 1998), 36-39.

- Speyer, Arthur. "Russia Develops Armored Personnel Carrier for Urban Warfare." Marine Corps Intelligence Activity, Note 1141-001-98. (June 1998), 1-3.
- Steele Dennis., "The Army XXI Heavy Division-First Blueprint of the Future Army," Army. Vol. 48, 7, (July 1998). 33-35.
- Stix, Gary. "Fighting Future Wars." Scientific American. (December 1995).
- The Kansas City Star. "Russians combine jet and flamethrower." (October 3, 1998).
- United States Army. Weapon Systems Handbook 1998, 123.
- U.S. News & World Report. "Bin Laden plot gets thicker." (October 5, 1998), 12.

Thesis, Monographs and Reports

- Bongi, Major David J. "Preparing For Peacekeeping Operations Through Battle Focused Training." Fort Leavenworth, KS: School of Advanced Military Studies, 1994.
- Boynnton, Major Frank R. "Power Projection Operations And Urban Combat: An Avoidable Combination?" Fort Leavenworth, KS: School of Advanced Military Studies, 1996.
- Brooks, LTC Johnny W. "Army Contingency Forces: What Should They Be?" Fort Leavenworth, KS: School of Advanced Military Studies, 1992.
- Crenshaw, Major Charles I. III. "Volume of Fire as an Effective Measurement of Infantry Performance In Battle - The Impact on the U.S. Army Decision to Organize Five New Light Infantry Divisions." Fort Leavenworth, KS: School of Advanced Military Studies, 1986.
- Davis, Major Lauren Steve, Jr, "The Light Infantry Division Regionally Focused For Low Intensity Conflict." Fort Leavenworth, KS: School of Advanced Military Studies, 1990.
- Glenn, Russell W., "Combat In Hell: A Consideration of Constrained Urban Warfare." Santa Monica, CA., Arroyo Center National Defense Research Institute, RAND, 1996.
- Glenn, Russell W., "Denying the Widow-Maker: The RAND-DBBL MOUT Conference, February 24-25, 1998, Summary of Proceedings." Santa Monica, CA., Arroyo Center National Defense Research Institute, RAND, May 1998. DRAFT.

- Glenn, Russell W., "Marching Under Darkening Skies: The American Military and the Impending Urban Operations Threat-A Status Check." Santa Monica, CA., Arroyo Center National Defense Research Institute, RAND, March 1998. DRAFT.
- Goligowski, Major Steven P. "Future Combat In Urban Terrain: Is FM 90-10 Still Relevant?" Fort Leavenworth, KS: School of Advanced Military Studies, 1995.
- Herbert, Major Paul H. "Deciding What Has to Be Done: General William E. Depuy and the 1976 Edition of FM 100-5." Leavenworth Papers, 16. Fort Leavenworth, KS: U.S. Army Command and General Staff College, 1988.
- Heritage, Major Gregory. "Tactical Methods For Combatting Insurgencies." Fort Leavenworth, KS: School of Advanced Military Studies, 1993.
- Hutchings, Major Eric D. "Leadership at the Short End of the Bayonet: The Direction of Leader Training at the U.S. Army Ranger School." Fort Leavenworth, KS: School of Advanced Military Studies, 1991.
- Kula, Major Thomas W. "The Assault of a Fortified Position: Challenge for the Light Infantry Forces." Fort Leavenworth, KS: School of Advanced Military Studies 1994.
- Lapham, Major Curtis A. "Colossus On Main Street: Tactical Considerations Of Heavy Armor And Future MOUT Doctrine." Fort Leavenworth, KS: School of Advanced Military Studies 1997.
- Morrison, Tau, Jennifer and Bruce Hoffman. "The Urbanization of Insurgency: The Potential Challenge to U.S. Army Operations." Santa Monica, CA., Arroyo Center National Defense Research Institute, RAND, 1994.
- Mosher, Major Alan M. "Light Armor MOUT Doctrine: Imperative Change or Business as Usual?" Fort Leavenworth, KS: School of Advanced Military Studies 1994.
- Nelson, LTC Victor L. "Power Projection Of An Army Corps By C+75-On Target Or Wishful Thinking?" Fort Leavenworth, KS: School of Advanced Military Studies 1998.
- Nelson, Major Bradley K. "Operations Other Than War: Albatross or Twenty-Four Hour Flu on Readiness?" Fort Leavenworth, KS: School of Advanced Military Studies 1998.
- Preysler, Major Charles A. "Going Down Town: The Need For Precision MOUT." Fort Leavenworth, KS: School of Advanced Military Studies 1994.
- Raevsky, Andrei. "Chechnya: Russian Military Performance in Chechnya: An Initial Evaluation." The Journal of Slavic Military Studies. Vol. 8, 4. (December 1995)

Richmond, Major Melvin E. Jr. Corps Stay Behind Force: A Role for the Light Infantry Division On the Central European Battlefield." Fort Leavenworth, KS: School of Advanced Military Studies, 1987.

Schneider, James J. Vulcan's Anvil: "The American Civil War and the Emergence of Operational Art." Theoretical Paper No. 4. Fort Leavenworth, KS: School of Advanced Military Studies, (16 June 1991).

Spiszer, Major John M. "The Light Infantry Company And Tactical Mobility: A Step In Which Direction?" Fort Leavenworth, KS: School of Advanced Military Studies, 1998.

Sulzen, Robert H. Research Report 1716. "Selected Training Practices for Military Operations in Urban Terrain (MOUT)." Alexandria, VA. U.S. Army Research Institute, 1997.

TF Griffin: "A Force for 2015 and Beyond." TRADOC Analysis Center Support of the 1996 Defense Science Board Summer Study, Task Force Griffin. Final Briefing Report. Fort Leavenworth, KS: TRADOC Analysis Center, 1996.

The Urban Century: "Developing World Urban Trends and Possible Factors Affecting Military Operations." Quantico, VA. Defense Intelligence Reference Document: MCIA-1586-003-97, 1997.

Thomas, Timothy L. and Grau, Lester W. "A Russian View of Future War: Theory and Direction." The Journal of Slavic Military Studies. Vol. 9, 3. (September 1996)

TRADOC Pam 525-5. Force XXI Operations: "A Concept for the Evolution of Full- Dimensional Operations for the Strategic Army of the Early Twenty-First Century." Dept. of the Army, HQ's TRADOC, 1994.

Van Drie, Major Mark. "A Light Infantry Division for Airland Battle - Future." Fort Leavenworth, KS: School of Advanced Military Studies 1990.

Wass de Czege, COL Huba. "NATO Interim Report: Employment Concepts For Light Infantry In Europe." Fort Leavenworth, KS: U.S. Army Command and General Staff College, 1988.

Webb, Major Thomas D. "Empty Battlefield XXI: Revolutionary Tactics For The Force XXI Light Infantry Unit." Fort Leavenworth, KS: School of Advanced Military Studies, 1997.

Winnefeld, James A. et.al. "Intervention in Intrastate Conflict: Implications for the Army in the Post Cold War Era." Santa Monica, CA., Arroyo Center National Defense Research Institute, RAND, 1995.

Wunderle, Major William D. "Forced In, Left Out: The Airborne Division In Future Forcible Entry Operations." Fort Leavenworth, KS: School of Advanced Military Studies, 1998.

Government Documents

U.S. Department of the Army. FM 100-7 Decisive Force: The Army in Theater Operations. Washington, D.C.: Government Printing Office, 1995.

U.S. Department of the Army. FM 90-10 Military Operations on Urbanized Terrain (MOUT). Washington, D.C.: Government Printing Office, 1979.

U.S. Department of the Army. FM 90-10-1, C1, An Infantryman's Guide To Combat In Built-Up Areas. Washington, D.C.: Government Printing Office, 1993.

Marine Corps Warfighting Publication (MCWP) 3-35.3. Military Operations on Urbanized Terrain (MOUT). 15 April 1998.

Other

Bowden, Mark. "Blackhawk Down." [story on-line] (Philadelphia Inquirer, 1997, accessed May 1998), Internet.

Fontaine, Yves J. "Strategic Logistics for Intervention Forces." Parameters. (Winter 1997-98). 42-59. Available at <http://carlisle-www.army.mil/usawc/parameters/97/winter/fontaine.htm>.

MOUT ACTD: Military Operation in Urban Terrain Advanced Concept Technology Demonstration. (September 22, 1998). 1-2. Available at <http://yorktown.dc.isx.com/mout/>

MOUT ACTD: Operational Requirements. (September 22, 1998). 1-4. Available at <http://mout.actd.org/req.html>

Operation Restore Hope. US Army Forces, Somalia. United Task Force, Somalia 10th Mountain Division (LI), After Action Report, Executive Summary, DRAFT.

Unsigned Document. Casper, COL, Lawrence E. Quick Reaction Force, Falcon Brigade, 10th Mountain Division, Summary Of Combat Operations On 3 October 1993.

Winkler, Charles M. and Patrick, Charles R. How They Fight: Armies of the World: "Croatian and Serbian Tactics in 1991 Fighting in Former Yugoslavia." (September 11, 1998), 1-5. available at http://intelink-s.ngic.army.mil/products/ngic.studies/hf/htfl2/patrick_3.html