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THE FUTURE OF GROUND FIRE SUPPORT SYSTEMS

BY

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USAWC STRATEGY RESEARCH PROJECT

THE FUTURE OF GROUND FIRE SUPPORT SYSTEMS

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ABSTRACT

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Many argue that military operations in Kosovo and Afghanistan, coupled with technology advancements have established a new paradigm for United States military operations. That the recent successes achieved through the employment of air power and smart ballistic and cruise missiles have set a new warfare precedent. The potential of these and future systems, such as armed Unmanned Aerial Vehicles (UAVs) and micro-robotic platforms, signal the demise of at least ground fire support systems if not conventional ground forces.

What's not in doubt is that the world remains a dangerous place full of authoritarian regimes, rogue states and criminal non-state interests whose combined influence will continue to extend the envelope of human suffering. The spectrum of likely operations mandate a need for land forces in joint, combined, and multinational formations for a variety of missions, extending from humanitarian assistance and disaster relief to peacekeeping, peacemaking, and major theater of wars, too include conflicts involving the potential use of weapons of mass destruction. Major leaps in automation, intelligence, lethality, standoff ranges, stealth and speed, precision weapons, miniaturization, and information dominance will certainly transform the conduct of land warfare, and just as certainly transform fire support systems and tactics. However, these revolutions in military affairs do not necessarily portend the demise of ground fire support systems. In fact, paradoxically they could witness a substantial improvement in terms of ground fire support systems capabilities.

This paper will examine historical precedents and lessons learned relative to ground fire support systems; the role of United States ground forces in the twenty-first century; the operational environment those ground forces might face; the transformation of the Interim and Legacy Army into the Objective Force, its design concept and essential characteristics; the nature of fire support systems needed to support the Objective Force; and close with a review on whether ground fire support systems such as cannon artillery will remain relevant in the twenty-first century.

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THE FUTURE OF GROUND FIRE SUPPORT SYSTEMS

Many argue that military operations in Kosovo and Afghanistan, coupled with technology advancements have established a new paradigm for United States military operations. That the recent successes achieved through the employment of air power and smart ballistic and cruise missiles have set a new warfare precedent. The potential of these and future systems, such as armed Unmanned Aerial Vehicles (UAVs) and micro-robotic platforms, signal the demise of at least ground fire support systems if not conventional ground forces.

What's not in doubt is that the world remains a dangerous place full of authoritarian regimes, rogue states and criminal non-state interests whose combined influence will continue to extend the envelope of human suffering. The spectrum of likely operations mandate a need for land forces in joint, combined, and multinational formations for a variety of missions, extending from humanitarian assistance and disaster relief to peacekeeping, peacemaking, and major theater of wars, too include conflicts involving the potential use of weapons of mass destruction.[1]

It does appear that United States ground forces will find themselves increasingly fighting on a non-linear battlefield with substantially reduced footprints and force to space ratios, and that ground forces may adopt a tactical cycle of fighting that minimizes their exposure while maximizing the impact of "imported" fire support. Major leaps in automation, intelligence, lethality, standoff ranges, stealth and speed, precision weapons, miniaturization, and information dominance will certainly transform the conduct of land warfare, and just as certainly transform fire support systems and tactics.[2]

However, these technological advancements do not necessarily portend the demise of ground fire support systems. In fact, paradoxically they could witness a substantial improvement in terms of ground fire support systems capabilities. The United States must not fall into the trap of concluding that conventional artillery is now obsolete. In a war against an opponent with comparable air power or equalizing air defense capabilities the United States ground forces would have to depend on its ground fire support systems far more than it has in the past decade.

This paper will briefly examine historical precedents and lessons learned relative to ground fire support systems; the role of United States ground forces in the twenty-first century; the operational environment those ground forces might face; the transformation of the United States Army into the Objective Force, its design concept and essential characteristics; the

nature of fire support systems needed to support the Objective Force; and close with a review on whether ground based fire support systems will remain relevant in the twenty-first century.

HISTORICAL PRECEDENTS

At the heart of the ground fire support system debate is the even greater debate concerning the future need for significant ground forces. Is there still a need to field, equip, train and maintain a large ground force to protect United States interests? The results of recent conflicts in Kosovo and Afghanistan have been used to bolster arguments that large-scale conventional ground formations are a thing of the past. That Desert Storm marked the high water mark, and consequently, culmination point for conventional ground warfare as we know it.

In reality the ability of future systems to replace ground support systems in the next twenty-five years is doubtful at best. There are many shortcomings to that premise, to include the overarching requirements to provide: immediate, all weather capability; the ability to respond consistently to forces engaged with the enemy; and the ability to impact ground units dispersed across a non-linear battlefield. One only has to look at the United State's air forces performance in Desert Storm, Kosovo, and Afghanistan to discern the challenges.

CONTEMPORARY MILITARY OPERATIONS

The Gulf War was one of the largest and most successful military operations in recent history. It was a war in which many of the advances in American weaponry, equipment, and doctrine were proven in the deserts of Kuwait and Iraq. It was an unprecedented victory over an extremely large Army, modernly equipped and experienced in desert warfare. And despite the fact that the Iraqi Air Force was equipped with some of the most modern aircraft in the world, air supremacy was never in doubt. It was also a conflict in which the United States and its allies had over six months to build-up forces.

The Desert Storm air campaign went five weeks before the ground attack began. In the aftermath it became obvious that air power fell short in its predictions of destroying fifty percent of Iraqi armor and artillery by the time of the ground attack. Significant Iraqi armored forces, including the vaunted Republican Guard, had survived the air campaign. There was no question that allied air power had a significant impact on the outcome of the war. When the ground attack began the Iraqi army could not see, could not talk, could not re-supply itself, and was essentially "dead in the water." However, this was a scenario in which the United States had over six months to build-up combat power, five weeks of an uncontested air campaign, all against a third world, overmatched military, albeit large and fairly modern.

In Kosovo, what essentially was a small scale contingency (SSC), a Major Theater of War (MTW) worth of air power was directed against a third world's military. From the start, allied air forces had air supremacy. In the wake of a seventy-eight day bombing campaign some air enthusiasts boasted that air power alone had defeated an enemy land army. There is no doubt that numerous successes were achieved through the use of platforms such as the B-2 bomber and weapons such as the Joint Direct Attack Munition (JDAM), and that ultimately the enemy capitulated through the application of air power.

However, NATO authorities desire to defeat the Serbian Third Army as a means of stopping ethnic cleansing actually fell short of expectations. The exorbitant claims of results achieved against dispersed ground forces proved to be false. In the end it appeared that the targeting of critical infrastructure targets alone achieved the desired endstate. The spectacular claims of air power enthusiasts could not erase the cold, hard facts. The Kosovo air campaign did not decimate or defeat the ground forces in the field, and did not stop the ethnic cleansing in Kosovo. In fact, the air strikes did very little to damage Serb forces in Kosovo.[3]

In Afghanistan, another small scale contingency (SSC), America's uncontested naval and global reach air power was directed against an even more primitive military. Once again, American air forces exercised complete supremacy. American Special Forces (SF) personnel on the ground successfully directed air power against Taliban units and infrastructure. That air power coupled with coalition ground forces, such as the Northern and Eastern Alliances, were able to rout Taliban forces quickly and effect a regime change. Once again, air platforms and smart weapons proved themselves as a vehicle for decisively impacting operations, but once again, they alone were not able to achieve the ultimate United States objective, the destruction of terrorist networks, ground forces and material.

Although the campaign in Afghanistan is on-going, a couple lessons can be distilled from the operations conducted to date. First, the United States desire to destroy Taliban and terrorist ground forces and leadership could not be accomplished through air power alone. Ultimately, it required the employment of American and coalition ground forces to seize and control key terrain, and to close with and destroy enemy ground forces. That battle continues to be fought, but there is no doubt that it is through ground operations that the United States will be able to guarantee the destruction of enemy ground forces. Secondly, the battle of Gardez (Operation Anaconda) in March 2002 highlighted one of the legacy shortcomings of air power, its susceptibility to adverse weather conditions. The extreme winter like conditions encountered during the battle adversely impacted the United States air forces ability to influence the fight. Conditions which do not impact traditional ground fire support systems.

WORLD WAR II GERMAN OPERATIONS

A more distant historical precedent to study in the context of deciding whether future air or spaced based platforms can replace ground based fire support systems is World War II Germany. During the early battles of World War II, the role of German long range artillery was taken over by ground-attack aircraft; particularly Stuka dive bombers flying in close support of armor formations. The system worked well for the Germans during the campaigns in Poland and France. But the system worked mainly because the Germans had air superiority, and both the Poles and French were even weaker in most forms of ground-based fire power.

When the Germans attacked into the Soviet Union in 1941, they encountered a completely different situation. There the vast distances involved in the ground operations tended to dilute the effects of the Germans' superiority in mobility and airpower. At first the *Luftwaffe* could achieve local air superiority where needed, but the scope and duration of the operations proved too great for continuous effective fire support from the air. Weather conditions alone precluded a sustained commitment. The Germans enjoyed tremendous success early in Russia as the Soviets traded space for time. The Germans continued to put more emphasis on their armor and decentralized their artillery even more.

However, the Russian campaign wore the *Luftwaffe* down quickly, degrading its ability to provide close support. By the time the Germans relearned the lessons of artillery firepower, it was too late for them in the East. In the end, the *Luftwaffe* wore down and spread itself to thin. By the time the Allies landed in France in 1944, the *Luftwaffe* had its hands full defending the skies over Germany and could contribute very little to the ground wars in the East and West. German forces in Russia and in the West did not exist in sufficient strength to counter the overwhelming firepower the Soviets and Allies could mount. German ground fire support systems were never strong enough or mobile enough to respond effectively.[4]

1973 YOM KIPPUR WAR

If the United States ever lost local air superiority, for whatever reason, even temporarily, ground fire support systems will be critical. As unthinkable as such a scenario might sound, one just has to review what happened to Israeli's world class Air Force in 1973, when the Egyptian Air Defense was able to effectively neutralize the Israeli Air Force along the Suez Canal.

The 1973 Yom Kippur War started out like a replay of a 1918 battle and then shifted to France 1940 gone wrong. Like the *Wehrmact* of 1939, the Israeli Defense Force (IDF) regarded tanks and air power as the winning combination, based largely on its successes in the 1967 Six

Day War. The IDF, as a result, had no real combined arms doctrine and their ground based fire support system was a neglected arm.

On 6 October 1973, over two thousand Egyptian guns, along a 170-kilometer front, preceded the successful crossing of the Suez Canal with a fifty minute artillery preparation. The IDF had forty-eight artillery pieces in position to counter Egyptian operations across the Suez. The IDF had no effective counterbattery, no way to strike at the Egyptian crossing operations, and were unable to suppress Egyptian antitank guided missiles (ATGMs) which consequently, were able to quickly destroy IDF armor in sector.

The 1973 war taught the Israelis an important combined arms lesson and the value of ground fire support systems. In 1973 the IDF had a total of three hundred self-propelled (SP) guns and three artillery brigades in their Army. As a consequence of the lessons learned in 1973 the IDF reorganized their ground fire support structure and increased its end-strength to nine hundred and fifty SP guns and fifteen artillery brigades by 1982.[5]

EMERGING OPERATIONAL CHALLENGES

The spectacular success of United States and coalition forces in the Persian Gulf War, Kosovo, and Afghanistan continue to reinforce the general impression that ground forces only need the support of ground-attack aircraft (fixed and rotary) and air superiority to be successful. It would, however, be an error to jump to the conclusion that this is the paradigm for all future conflicts. The United States should not fall into the trap of concluding that ground support systems such as cannon artillery and rockets are becoming obsolete. In a war against an opponent with equalizing air defense capabilities or comparable air power, command, control and communications (C3), and target acquisition systems, the United States would depend on ground fire support systems to support ground operations.

The world environment in which the United States will operate clearly reinforces the importance and need for ground fire support capabilities. One has only to ponder the challenges of North Korea. The North Koreans are believed to have the capability to mass over ten thousand artillery pieces along the 238-kilometer Demilitarized Zone that separates North and South Korea. It is estimated that the North Korean artillery could fire as many as twenty million rounds on the first day of a ground attack. Korea, a theater constrained by terrain and weather demands a fire-centric strategy and heavy forces supported by robust ground fire support systems to counter the adversary's ground based, long range precision strike assets and its ability to mass forces and artillery fires.[6]

The past and current operational environments provide several lessons relative to the issue of ground formations and its fire support requirements. But in deciding about the future of America's ground forces and its fire support requirements one has to first consider the operational environment of the twenty-first century. What are the challenges, and do more substantive threats than Kosovo and Afghanistan face the United States military?

TWENTY-FIRST CENTURY OPERATIONAL ENVIRONMENT

There is consensus that for the next twenty-five years there will not be a conventional military peer competitor capable of sustained, long-term power projection beyond its immediate region.[7] The threat that regional powers will challenge the United States military and seek to prevent the United States from projecting power into their regions is considered the primary challenge the United States military will face in the first decades of the twenty-first century. Although it is an unlikely scenario, there has been evidence of a desire by Russian leadership for a symbolic rapprochement with China as a way of countering "global domination" by the United States and that China will seek to put together alliances that "can defuse hegemonism by the U.S. (sic)."[8]

In the long term, the potential for conflict with a major regional power may grow, with Russia or China surfacing as the most difficult potential opponents. Additionally, rogue states such as Iran, Iraq, Libya, North Korea and Syria probably will continue to attempt to dominate their regions of the world. One or more of these rogue states might seek to challenge the United States military in the near term given their desires for regional dominance and their propensity for aggressive military actions. Samuel Huntington has even suggested that the greatest threat to the United States is an Islamic cultural challenge which could lead to a large scale armed conflict between the West and the Islamic nations, in effect a clash of civilizations.[9] Does the possibility for multiple regional conflicts occurring simultaneously, a two-Major Theater of War (MTW) scenario exist?

A number of critical assessments have discounted the possibility of two MTWs occurring nearly simultaneously. Few can present detailed logic as to why such an occurrence could not happen. Many analysts find the two-MTW construct inconvenient to their recommendations for transformation since readiness for the simultaneous scenarios requires more resources than are available. However, there are historical precedents and strategic logic for a regional opponent to make aggressive moves when conflicts are occurring in other parts of the world. While the United States is responding to the first conflict or contingency, an aggressor might believe that their objectives would be easier to achieve. There is even greater probability that SSCs such as

Kosovo will continue to occur at a near continuous rate. It is almost inevitable that two or more SSCs will occur nearly simultaneously, and possibly overlap with one or MTWs.[10]

It is also fairly certain that America's next opponent will adapt its strategies for confronting the United States military juggernaut to improve any chance of success. The one clear lesson potential enemies drew from the Gulf War was do not fight the United States on its own terms. The United States possesses significant asymmetrical advantages and has consequently become the most studied military force in the history. Potential adversaries carefully watch and analyze the American transformation efforts. They are adopting selected advanced capabilities and innovative strategies to overcome United States military dominance, particularly with respect to ground power.

Respecting the superior power of United States military forces, future adversaries may employ anti-access strategies comprising several integrated lines of action aimed at preventing or limiting American impact on regional crises. Simultaneously, they will seek to thwart United States intervention through strikes against forward operating bases, entry points, command and control nodes, and the forces themselves extending all the way back to the Continental United States (CONUS) base. Anti-access capabilities could include theater ballistic missiles, cruise missiles, long-range rockets and artillery, and other unconventional means. Army war games have repeatedly demonstrated that the longer an enemy can delay effective United States response, the greater his chances for success.

Even with all these expert opinions and informed predictions, there is absolutely no guarantee on what the emerging operational environment has in store, who will be the next threat and when it might happen. One only has to review the United State's track record over the past fifty years in predicting the next conflict to appreciate the daunting challenge the nation faces in preparing for the next war. There will be regional conflicts and possibly simultaneous conflicts, both large and small scale, which will stretch the resources and capabilities of the United States military.

The one thing for certain is that during the last decade the strategic environment has become less stable, more uncertain, and more dangerous. The expected Cold War peace dividend never materialized for the United States. Instead, America found itself involved in a major regional conflict, several small scale contingencies and the ongoing war against global terrorism. Threats to United States security and interests have become more diffuse, harder to anticipate, and more difficult to combat than ever before.

GROUND FORCE LEGACY

This uncertain operational environment sets the stage for United States military forces finding themselves involved in operations ranging from the extremes of humanitarian relief and peacekeeping to regional and even global warfare. The need for a dominant, world class land force remains a valid requirement. While all American forces must be ready to deal with this full spectrum of threats, it is only the Army that possesses the unique ability to place enough "boots on the ground" to interact directly and continuously with local populations.

Only Army forces are capable of decisive land warfare. The ability to close with and destroy enemy forces decisively, occupy territory, and control populations permits the United States to achieve moral dominance over enemy will and destroys their means to resist. T.R. Fehrenbach, in his research on the conduct of the Korean War, said it best nearly forty years ago:

> You may fly over a land forever; you may bomb it, atomize it, pulverize it and wipe it clean of life—but if you desire to defend it, protect it, and keep it for civilization, you must do this on the ground, the way the Roman legions did, by putting your young men into the mud.[11]

In their capacity for human interaction, ground forces are unique. The United States Army provides the human interaction—the basis of our nation's warfighting doctrine and engagement strategy.[12] While it is likely that low-end spectrum operations such as Kosovo and Afghanistan will continue to make up the preponderance of American military operations, it is the threat of a regional or global war that all United States forces must prepare for, and must ultimately be able to win.

For the Army, it is its nonnegotiable contract with the American people to fight and win the Nation's wars. The Army's unique contribution to national security is its prompt, sustained land dominance across the range of military operations and spectrum of conflict. The Army provides the land force dominance essential to shaping the international security environment. The Army's strategic responsiveness, overseas stationing, force projection capability, and unique role as America's decisive ground force will continue to be powerful deterrents to would be challengers. The Army will continue to achieve its deterrent effect through the demonstration of capabilities that make it the world's premier land force.[13]

While many countries do not have substantial air or naval forces, virtually all countries have armies, with several rogue states and potential adversaries fielding armies significantly larger than the United States. The United States Army must be uniquely suited to engage these armies to reassure allies, build trust and confidence, promote regional stability, encourage democratic institutions, deter conflict, and respond to crises. The Army may indeed find itself

increasingly fighting on a non-linear battlefield with a substantially reduced footprint and force to space ratios, however, it will remain the nation's only asset capable of closing with and destroying enemy armies.

UNITED STATES OBJECTIVE FORCE

Given this enduring requirement to have dominant "boots" on the ground the Army has begun its transformation to the Objective Force. The Objective Force will possess unique capabilities and be significantly different from the Army's Legacy and Interim formations. In order to make an informed decision on the fire support requirements for this force, whether there is even a need for ground based systems, one must first understand the basic concept, design and characteristics of the Objective Force.

OBJECTIVE FORCE CONCEPT

The concept for the Objective Force is to field a full spectrum force: organized, manned, equipped and trained to be more strategically responsive, deployable, agile, versatile, lethal, survivable and sustainable across the entire spectrum of military operations. Objective Force units will conduct operational maneuver from strategic distances, creating diverse dilemmas for adversaries by arriving at multiple points of entry, improved and unimproved. Objective Force units will dominate land operations, providing the decisive complement to national air, sea and space operations. They will control ground and be capable of defeating opponents in their protective sanctuaries or forcing them into the open where they can be destroyed with joint fires.[14]

The hallmarks of Objective Force operations will be developing situations out of contact; maneuvering to positions of advantage; engaging enemy forces beyond the range of their weapons; destroying them with precision fires and maneuver; and tactically assaulting enemy capabilities or locations at times and places of its choosing. Objective Force units will possess the means to arrive on scene immediately capable of conducting simultaneous, distributed and continuous combined arms, air-ground operations, day and night in open, close, complex, and all other terrain conditions throughout the battlespace.

As necessary, Objective Force units will conduct forcible entry, overwhelm aggressor anti-access capabilities, and rapidly impose their will on the enemy. The psychological impact produced by the power and precision of Objective Force units should serve to deter hostile acts, both prior to deployment and during the stability phases of operations.[15]

OBJECTIVE FORCE CHARACTERISTICS

The seven characteristics of the Objective Force are: responsiveness, deployability, agility, versatility, lethality, survivability and sustainability. The Objective Force's unprecedented level of responsiveness will increase strategic options and facilitate shutting crises down before they cross irreversible thresholds. Organized into smaller but more capable formations, the Objective Force responsiveness will be further enhanced by its ability to fight immediately upon arrival, compelling the adversary to abandon his plans and respond immediately. Consequently, ground units must be deployable and capable of rapidly concentrating combat power in an operational area.

The Army goal to deploy a brigade combat team anywhere in the world in ninety-six hours after liftoff, a division on the ground in one hundred and twenty hours, and five divisions in theater in thirty days, will drive system and capability parameters. Systems must be transportable, logistics must be focused and flexible, and a culture that accepts deployment readiness as a way of life must be sustained. Objective Force units are also expected to possess the mental and physical agility to transition among the various types of operations.

Agile forces will require the ability to transition from stability or support operations to warfighting and back again. The Objective Force will be designed for full spectrum success while optimized for major theater war. The force design means that formations will possess the inherent versatility to operate effectively anywhere on the spectrum of military operations without substantial augmentation to perform diverse missions within a single campaign. Objective Force units will possess superior tactical mobility. Platforms will negotiate all surfaces, road, off-road, trails, water crossings, and narrow gaps.

The elements of lethal combat power will be fires, maneuver, leadership, protection, and information. When the Objective Force deploys, every element in the warfighting formation will be capable of generating combat power and contributing decisively to the fight. Its lethality will exceed that of today's conventional heavy forces. Through technological improvements in weaponry and munitions, the Objective Force is expected to have the capability to destroy enemy formations at longer ranges, with smaller calibers and greater precision and more devastating target effects. Key enablers include organic line of sight, beyond line of sight, and non-line of sight fires. These fires must be able to overmatch the enemy in all conditions and environments, and be based on a one shot – one kill, disciplines and designs.[16]

The Objective Force will take advantage of technologies that provide maximum protection at the individual soldier level, on or off platforms. Objective Force survivability will be linked to its inherently offensive orientation, as well as its speed and lethality. By seizing the

initiative and seeing, understanding, and acting first, the Objective Force will enhance its own survivability through action and its retention of the initiative. The Army will aggressively reduce its logistics footprint and replenishment demand.

This means that the Objective Force will deploy fewer vehicles and leverage combat service support reach capabilities that allow commanders to reduce stockpiles in theater while relying on technology to provide sustained velocity management and real-time tracking of supplies and equipment. Objective Force design parameters will seek to achieve maintenance efficiencies through more reliable systems and commonality across joint formations, in chasses, repair parts, fuel, munitions and components.

LEVELS OF OBJECTIVE FORCE OPERATIONS

Doctrinally, the United States has always described three levels of operations and warfare --the strategic, operational and tactical level. Each level recognized the tension between risk and opportunity that existed at that level. Historically, each level has been distinct in its mission focus and objectives while acknowledging the framework of the higher commander's intent. The power of future network centric systems will provide common situational understanding, thus compressing the strategic, operational, and tactical echelons. The expanded battlespace and reach of tactical units, provided by the capability to see and understand the enemy in a holistic sense, will enable tactical echelons to employ strategic and operational assets with decisive effects.

This reality is elevating the importance of the tactical level of war to operational and strategic outcomes. Ultimately, all Objective Force decisive operations are based on tactical success in close combat. In combat, the capability of the Objective Force to seize and control key terrain and to close with and destroy enemy forces is critical. Close combat has one purpose, the decisive defeat or destruction of enemy forces to resolve the outcome of battles and engagements.

> "Without tactical success, a campaign cannot achieve its operational goals. An essential element of operational art, therefore, is the ability to recognize what is possible at the tactical level ..."[17]

In this sense, close combat tactical actions will become the fundamental building blocks for operational success and strategic victory. The Army's ability to dominate the tactical level of war – the short sword warfight – upon which operational and strategic success is built, will be the key to success on the twenty-first century battlefields. Recognizing what is possible at the tactical level has been the subject of years of intense Army study and wargaming.

Consequently Objective Force units will be optimized to win on the offensive, to initiate combat on their terms, to gain and retain the initiative, build momentum quickly and win decisively.

In summary, the Objective Force will be more strategically responsive and dominant at every point on the spectrum of military operations. It will provide the nation an array of more deployable, more agile, more versatile, more lethal, more survivable, and more sustainable formations. Objective Force units will develop situations out of contact; maneuver to positions of advantage; engage enemy forces beyond the range of their weapons; destroying them with precision fires and maneuver. They will possess the means to arrive on scene immediately capable of conducting combined arms, air-ground operations, day and night in open, close, complex, and all terrain conditions. They will be able to seize and control key terrain and to close with and destroy enemy forces. Every element in the warfighting formations will be capable of generating combat power and contributing decisively to the fight. Its lethality will exceed that of today's conventional heavy forces.

OBJECTIVE FORCE FIRE SUPPORT REQUIREMENTS

These demanding capabilities should enable the Objective Force to initiate combat on its terms, to gain and retain the initiative, build momentum quickly, close with the enemy and win decisively. What are the objective force fire support requirements given the unique capabilities of maneuver units? The core requirements, whether approached from the tactical, operational or strategic level of war, remains providing forces with immediate, responsive, accurate, sustained and effective fires.

FIRE SUPPORT TASKS

In providing supporting fires to the Objective Force the fire support system must be able to accomplish at least three essential tasks. They must be able to: support forces in contact with immediate, responsive, accurate and effective fires; they must provide sustained fire support; and they must be capable of supporting the force commander's battle plan. These three fire support tasks should serve as the foundation of twenty-first century fire support systems.

These fires must be capable of effectively engaging enemy units, weapons, or positions that are threatening or can threaten the force in either the attack or the defense. They must allow the commander to multiply combat power effects rapidly and shift fires quickly on the battlefield. They must be lethal, all weather, immediately available, capable of interdicting enemy forces, and inflicting damage well beyond direct-fire ranges. They also include the capability of providing effective counterfires.

Objective Force fire support systems must be able to attack enemy indirect-fire systems, to include mortar, artillery, air defense, missile and rocket systems, observation posts and command and control facilities. Effective counterfire will facilitate freedom of action for supported maneuver forces. The traditional counterfire role, normally reactive and the responsibility of general support and general support reinforcing units, is transitioning from what has been largely a reactive process into "proactive counterfire."

The process must evolve into a fully integrated offensive counterstrike system to shield the Objective Force and enable its freedom of action. Additionally, the Objective Force fire support system must be capable of providing interdiction fires to disrupt, delay, and destroy enemy forces that, because of range limitations or intervening terrain, cannot fire their direct weapon systems on friendly forces. Interdiction fires will create "windows" for Objective Force ground unit's dominant offensive maneuver.

Field Artillery systems have traditionally provided lethal and non-lethal close support fires to maneuver forces, counterfire, and interdiction fires. They have been designed to neutralize, canalize, or destroy enemy attack formations or defenses; obscure the enemy's vision or otherwise inhibit his ability to acquire and attack friendly targets; and destroy targets deep in the enemy rear with long-range rocket or missile fires. This is not to minimize the role or contribution of other systems used to support American ground forces. Aviation, naval gunfire and air support fires have traditionally played a major role in United States military operations, and will continue to play a significant role in providing fires to twenty-first century ground forces.

In fact, in environments such as Kosovo and Afghanistan, air may again be the primary fires system, or only system, used to support ground forces. However, environments such as Kosovo and Afghanistan are unique in that they are SSCs against third world militaries that possess no real air, air defense or ground threat to United States forces. Even in Kosovo, the need for ground fire support systems to support army aviation assets was recognized in the organization of Task Force (TF) Hawk. An integral component of TF Hawk was a multiple launched rocket system (MLRS) capability, and even though never employed, it was an acknowledgment of the need for ground fire support systems in an environment where there was complete and total coalition air superiority.

While these type SSCs present unique strategic and operational challenges to American leadership and military operations, they are not environments which pose a serious challenge to the asymmetrical and superior capability of the American military. As discussed earlier, the worst case scenarios of the twenty-first century are against regional powers that pose a serious

military challenge to American and coalition air and ground forces. In those situations, systems such as air power may not be able, at least initially, to provide critical supporting fires to Object Force ground units.

REVOLUTION IN MILITARY AFFAIRS

A question often raised is whether we have reached a point in military technology that allows or even mandates a transition from traditional ground based systems to air and space based systems? What will be the impact of technology advancements on military affairs? Can historical precedents and lessons learned serve as a guide in determining the future of ground fire support systems?

A number of advances in military technology are frequently cited as evidence that a Revolution in Military Affairs (RMA) is under way and that these advances will have a tremendous effect on warfighting.[18] Some proponents claim that new intelligence, surveillance, and reconnaissance (ISR) technology and battle management systems will dispel the fog of war. Other's claim significant advancements will be made with precision and extended range weapons, mobility, stealth, strike capability, lethality, and automated systems.

The combination of smart long range ballistic and cruise missiles will dramatically increase the reach and tempo of military operations, and eventually will demonstrate the capability to attack mobile targets with an effectiveness approaching that of manned aircraft. The advent of stealthy, loitering, precision-guided munition-capable, uninhabited combat air vehicles (UCAVs) and follow-on micro-robotic UAVs will provide significant fire support to ground formations.[19]

Critics concede that the advances in military technology have and will continue to increase the striking power of modern militaries. There are even predictions that these advancements may push modern warfare away from the bloody killing fields of ground combat. However, the experts are divided on whether such advances will actually change the fundamental concept of warfare, and believe that ultimately victory will still require closing with the enemy and occupying territories or destroying centers of gravity.[20] As uncertain a guide as the past may be, it at least provides a framework in which to make informed decisions, and one of the obvious lessons from history is that technology, while an important contributor is rarely, if ever, the most important component of change.[21]

What fruits will develop from the RMA tree is yet to be seen. There is no doubt that they will eventually lead to even smarter, stealthier weapon systems that are more lethal and possess ever increasing ranges. These advancements will apply equally to the air, ground and

sea forces of the United States military. But the one constant is that victory will still require closing with and destroying the enemy. The Objective Force will need fire support systems that are all weather, responsive, accurate and effective; and immediately available to the ground force upon entry into a theater. There may be no waiting period to permit air superiority to be established. That is not to say that the ground fire support systems do not need to transform. In fact, for ground fire support systems to be relevant they must transform.

GROUND FIRE SUPPORT TRANSFORMATION

Transformation of the ground fire support system is needed to support the ground forces in future conflicts. Transforming ground fire support systems will require the adaptation of units, equipment and tactics to the future operating environments. It necessitates the continued development of fires and effects capabilities for the Interim force and ultimately the accelerated design and fielding of dominant fires organizations to support the Objective Force.

Future ground fire support organizations must be able to deliver lethal, overmatching fires and potent enabling effects on demand. They must be able to understand the importance of effects and the significance of being able to deliver them rather than simply to coordinate them. The challenge ahead is to be ready today while preparing to meet the demands of the future. It means investing the best professional and intellectual effort in developing leaders to deal with the complexities of today's world and the diverse challenges of tomorrow's battlefield.[22]

The Army's Field Artillery community is decisively engaged in transforming fires on every axis of the Army transformation. By 2030 the Field Artillery is predicted to have undergone fundamental operational and organizational changes. There may or may not be direct support artillery battalions. There may be something potentially more dynamic such as batteries tailored to support Future Combat System (FCS) battalions. Or something that works much like Direct Support on two levels—one for FCS equipped combat battalions with batteries in command or support relationships and one for the brigade from a more multi-functional "fires battalion," or the brigade may receive its support from fires units organized above brigade.[23]

It also means developing new tactics, techniques and procedures (TTPs) for responsive lethal fires that minimize collateral damage; counter the enemy's use of urban environments as a sanctuary; that can target and destroy small, dispersed formations that move less often; and can preemptively attack the enemy's precision strike capabilities that have considerable standoff range. The Field Artillery community must take advantage of emerging technologies to develop these new capabilities required by the Objective Force in the twenty-first century.[24]

Ultimately, it means designing a twenty-first century fire support system capable of supporting forces in contact with dominant, immediate, responsive, accurate and effective fires; providing sustained fire support; and capable of providing uninterrupted fires in support of the force commander's battle plan. Despite the magnificent results and capabilities of systems such as air power, the doctrine and concept of ground fire support systems is not only alive and well, but paramount to the concept, design and success of the Army's Objective Force. The United States must not fall into the trap of concluding that conventional artillery is obsolete.

While the predictions for the demise of conventional ground formations may happen at some point in the distant future, it is unlikely they will disappear any time soon. History is full of lessons learned regarding that false premise, and the future operational challenges are many, diverse and significant. The threat of peer and regional competitors and the enduring mission of winning the nation's wars validate the strategic purpose and requirement for dominant United States land forces, and supporting ground-based fire support systems.

In a war against an opponent with comparable air power or equalizing air defense capabilities the United States ground forces would have to depend on its ground fire support systems far more than it has in the past decade. The Objective Force's requirement to be able to arrive on scene immediately capable of conducting simultaneous, distributed and continuous combined arms, air-ground operations, day and night in open, close, complex, and all other terrain conditions throughout the battlespace in all threat environments mandates that the Objective Force possess organic dominant ground fire support systems.

Major leaps in automation, intelligence, lethality, stand-off ranges, stealth and speed, precision weapons, miniaturization, and information dominance will certainly transform the conduct of land warfare, and just as certainly transform fire support systems and tactics. There is no argument that in the twenty-first century Army aviation forces and naval and air forces will remain an integral variable in the fire support equation. The key of course remains achieving the desired effects, regardless of the means used to achieve those effects. Air powers ability to provide decisive close air support to ground units, their ability to strike quickly over long distances with interdiction fires to shape the battlefield are indispensable and will continue to be an essential ingredient to success on the battlefield.

However, to leverage and exploit the capabilities of future ground formations, and to be successful on all potential twenty-first century battlefields, American land forces will continue to require ground fire support systems that are all weather, responsive, accurate, effective, and instantly available to the ground force upon entry into a theater. The requirement to close with and destroy enemy armies decisively, requires immediately available close support and shaping

fires that can strike at the heart of enemy ground forces, even in an environment where an opponent may exercise equalizing air defense or air power capabilities. It is clear dominant ground fire support systems will continue to be a major player in the combined arms team well into the twenty-first century.

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ENDNOTES

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[2] "The Future of Land Forces," Center for Strategic and Budgetary Assessments, (Washington, D.C. April 1999), pp. 1-4.

[3] Earl H. Tilford, Jr., "Operation Allied Force and the Role of Air Power," Parameters, (Carlisle Barracks, Winter 1999-2000), pp. 24-38.

[4] David T. Zabecki, Steel Wind, (Connecticut: Prager, 1994), pp. 108-109.

[5] Dr. George Gawrych, "Israeli Defensive Measures Against Concentrated Artillery", Combat Studies Institute Report No. 13, U.S. Army Command and General Staff College, (Fort Leavenworth, Kansas 1985), pp.131-38.

[6] Zabecki, p. 145.

[7] Michele A. Flournoy, QDR 2001 Strategy-Driven Choices For America's Security, (Washington D.C.: National Defense University Press April 2001), p. 30.

[8] Jennifer Anderson, "Alliances Can Defuse Hegemonism by U.S." South China Morning Post, (Beijing: Agence France-Presse 8 March 2000), p. 7.

[9] Samuel P. Huntington, The Clash of Civilizations and the Remaking of World Order, (New York: Simon and Schuster, 1996), pp. 1-49.

[10] Flournoy, p. 45.

[11] T.R. Fehrenbach, This Kind of War: A Study in Unpreparedness, (New York: MacMillian Press 1963) pp. 1-100.

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[13] Ibid, pp. 26-28.

[14] U.S. Department of the Army, "Concepts for the Objective Force," (Washington D.C.: Headquarters Department of the Army, 2002), p. 1.

[15] Ibid, pp. 2-5.

[16] Ibid, pp. 9-14.

[17] U.S. Department of the Army, "Operations" Field Manual No. 3, (Washington D.C.: 14 June 2001), pp. 2-4.

[18] Eliot A. Cohen, "A Revolution in Warfare," Foreign Affairs, 75, No.2, (New York: March/April 1996), pp. 1-10.

[19] "The Future of Land Forces," Center for Strategic and Budgetary Assessments, pp. 1-5.

[20] Kenneth F. McKenzie, Jr., "Beyond Luddities and Magicians: Examining the MTR," Parameters 25, No. 2 (Carlisle Barracks, Summer 1995), pp. 15-21.

[21] Williamson Murray. "Army Transformation: A View from the Army War College", Strategic Studies Institute, (Carlisle Barracks, U.S. Army War College July 2001), p. 6.

[22] MG Michael D. Maples, "Transformation—The Way Ahead", Field Artillery Journal, (Fort Sill, Oklahoma Nov-Dec 2001), p. 1.

[23] BG William F. Engel, "Transforming Fires for the Objective Force", Field Artillery Journal, (Fort Sill, Oklahoma Nov-Dec 2001), pp 9-12.

[24] Ibid, p. 11.

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