

Urban Warfare: A Soldier's View

Major General Robert H. Scales, U.S. Army, Retired

THE AMERICAN DEFENSE establishment has grown up in a big-war culture where big threats were met with big-ticket programs. Yet, throughout the Cold War era in Korea, Iraq, Afghanistan, and elsewhere real soldiers were compelled to fight unpleasantly real wars against enemies who watched the battles carefully. These enemies learned with each combat encounter that the surest way to gain advantage is to negate American big-war technologies by moving the fight into complex terrain such as jungles, mountains, and most recently, cities. The enemy's plan is simple and effective: lure American forces into terrain where Information-Age knowledge, speed, and precision give way to the more traditional warfighting advantages of mass, will, patience, and the willingness to die.

These enemies realize they will never effectively develop, integrate, and employ sophisticated weapons systems. A tradition of tribalism within Islamic militaries impedes their ability to create large, cohesive, well-bonded, structurally sound fighting organizations. They are willing to accept that they can best achieve success against the United States by fighting in small, relatively untrained groups using Industrial-Age weapons such as rocket-propelled grenades (RPGs) and assault rifles.

In Somalia, Lebanon, and Iraq, the enemy also learned that America's vulnerable center of gravity is dead American soldiers. Thus, killing Americans has gravitated from merely a means to an end to an end itself, and the most efficient killing ground is in cities, where urban clutter allows the enemy to hide. Familiar terrain, the presence of supporting populations, and a useful infrastructure gives the enemy the advantage of sanctuary in the midst of the occupying power, an advantage impossible to achieve in open terrain. He can literally hide in plain sight and become indistinguishable from the indigenous urban masses that shield, protect, and sustain him.

Recent experience also suggests urban warfare will challenge the American military for many decades to come. The complexity of the challenge will only grow as cities in developing countries (the Middle East in particular) continue to gather in the poor and disaffected. Removed from traditional cultural, religious, and social bonds that hold their aggression in check, restless young males will add more human kindling to the growing fires of urban, fundamentalist insurgencies.

A city is the greatest challenge to any tactical force. In cities the red zone—the space separating friendly from enemy forces—compresses. The zone is often thousands of meters in open battle, but only tens of meters in the urban maze of densely aggregated buildings, streets, and back alleys. The traditional advantages of fighting outside the red zone disappear as cities compel soldiers to fight the enemy close. The compartmented nature of the urban jungle fragments forces. Short lines of sight limit the effective ranges of organic weapons and allow the enemy to “hug” U.S. forces, obviating the effective use of precision-guided weapons launched from aerial platforms. Compartmented urban terrain lessens to a significant degree the advantages of superior situational awareness and electronic-communications dominance.

Soldiers and Marines fight and occasionally die in brutal, close, and intimate tactical combat in cities, and every tactical action has strategic consequences. Each time a soldier or Marine dies, the United States loses another bit of strategic initiative, and probabilities for success diminish. Each soldier's death raises public clamor to bring U.S. soldiers and Marines home. Only a fool would conclude the enemy is unaware of these connections.

If dead soldiers are America's most vulnerable center of gravity, putting aside for a moment the humanitarian aspects of the issue, it seems obvious the

Soldiers watch over a traffic control point near the Fallujah suburb of Al Kharma, Iraq.



US Army

welfare of our soldiers should be the number-one priority for defense planners and policymakers. Perhaps it is a number-one priority, but nothing in today's policies, budgets, priorities, and strategic doctrine suggests this is the case.

Let us be clear about who does the dying. Since the end of World War II, four out of five American dead have been infantrymen—not just soldiers and Marines—but infantrymen. Infantrymen constitute less than 5 percent of all servicemen, but they do virtually all the killing and dying. The United States has not suffered a single soldier death from enemy air action since Korea and none from enemy sea action since World War II. The last serious air-to-air combat action was Linebacker II in 1972. The last major ship-to-ship action was in Leyte Gulf in 1944. The last soldier to die in action died yesterday.

Remembering how small, undemanding, and underserved our population of infantrymen really is important. America's treasure-house of close-combat soldiers is only marginally larger than the New York City Police Department. Every Army and Marine infantryman, tanker, and Special Forces soldier gathered in one place would not fill FedEx Stadium. These men (and they are virtually all men) come predominantly from the white middle class with a disproportionately small representation of minorities. While motives to join the warrior ranks vary, the de-

sire of each soldier to prove himself in hazardous circumstances is common. In sum, close-combat soldiers do not choose to join the services for the money or to get an education.

Russian dictator Vladimir Lenin reportedly said that in war "quantity has a quality all its own," inferring that technology, training, and leadership can only do so much to overcome the inherent advantage that mass brings to battle. Close combat has always been manpower-intensive. Technology can make the job safer and more efficient, but the battle and the enemy set the standards for density on the battlefield. As a rule, the more complex the terrain, the greater the number of soldiers required to fight there. Cities are notorious for soaking up great quantities of soldiers.

The small number of close-combat soldiers and Marines in the Armed Forces today is all the more difficult to justify given the fact they have skills that cannot be bought off the street or contracted out. In virtually every conflict since the end of World War II, a shortage of first-rate, professional infantrymen has threatened the success of military campaigns. A protracted campaign drains the supply of "intimate killers," prompting the inevitable response: quicken the training, hasten the building of units, and replace those killed or wounded in combat. The result of such haste and lack of foresight is a tragic increase in needless deaths and maimings.

Comparing the costs for equipping warriors in the services reveals a dichotomy. A first-rate pilot takes several years and at least \$8 million to train, and he fights with a weapon that costs between \$50 and \$150 million. Many infantrymen go into close combat with about 4 month's preparation, and the total cost for equipping them is considerably less than \$100 thousand. Yet, infantrymen die every day, while fighter pilots are rarely seriously threatened. Today there are fewer Marine and Army infantry squads than first-line fighter aircraft in active service.

This state of affairs has been accepted because of a belief that distant fires and strategic intelligence so attrit an enemy that a close fight between opposing close-combat forces would be uneven and anticlimactic. However, recent experience conclusively proves this premise no longer holds. Science is not responsible for shaping the premise; the enemy is. He has adapted his style of war to draw us in close to the point on the battlefield where big science yields to small science. He has developed an operational fighting doctrine that greatly reduces his vulnerability to being killed from great distances. His effectiveness begins at the point of contact and diminishes quickly beyond the red zone.

To gain a fresh perspective on the Nation's military needs, we must look at warfare from the bottom up (metaphorically at least) by walking point in Baghdad or Fallujah in the company of those soldiers and Marines who do most of the dying. By thinking about their tasks from the ground up we can better appreciate what they consider important. By watching close-combat soldiers in action, we can connect what they do at the tactical level to strategic essentials. What should we do to allow close-combat soldiers and Marines to succeed in today's new, dangerous, and obscure era of warfare? How can we put American technology, intellect, and organizational abilities to work to ensure the safety and success of the young people who perform these difficult jobs?



US Marine Corps

Marines and sailors tend wounded Marines in Fallujah, November 2004.

Initiatives for Close Combat

Several initiatives are likely to help close-combat soldiers win and survive in direct tactical engagements. The key word is "direct." Remember the statistics cited above and focus on who does the real fighting and killing. We begin at the intimate, visceral level where direct killing takes place and the science of war gives way to myth, anecdote, and supposition. Gradually, we will elevate our aim and evaluate less-direct factors. We must keep in mind that the farther we move from the firing line, the less relevant systems are to the warrior's needs and the more expensive they become.

Knowledge of the enemy. In urban operations, the one commodity a close-combat soldier or Marine demands most is knowledge of the enemy waiting around the street corner in ambush. Strategic systems such as orbiting satellites, high-flying drones, and aircraft can sometimes pick up the presence of such an intimate, immediate threat but they have no means for getting information to the soldier in time for him to act on it. The close-combat soldier must find the enemy the old-fashioned way—by exposing himself to fire to flush out, spot, fix, and kill the enemy.

The close-combat soldier gets advance warning principally through reconnaissance by scouts who put "eyes on" the objective to verify the enemy's presence. Occasionally, back-alley payoffs to snitches and spies augment reconnaissance. Crowded cities compound the difficulties in finding an enemy who



US Army

Stryker Brigade soldiers prepare to enter and clear a house during a joint operation with the Iraqi National Guard.

hides in plain sight by blending in with the population. Often, the enemy uses civilians as shields and, on occasion, sacrifices them to American firepower to gain a psychological advantage.

While technology can help the soldier find the enemy in the close fight, soldiers have long sought a device that displays in real time all threats in their proximate area—information from all sources, strategic to tactical, filtered so they receive only information pertaining to the immediate situation. In two-dimensional, urban warfare, the enemy has the information advantage because of his intimate knowledge of the terrain and the help he receives from civilians. Our soldiers will regain the information advantage only by making the fight three-dimensional. Looking down from a low air perch using aerial drones or hovering aircraft can even the odds by allowing the soldier or Marine to see behind street corners and into buildings. The enemy can hide inside urban structures, but aerial dominance robs him of the ability to move about freely and mass.

Astronomers learned the value of linking radio telescopes into a cohesive array to gain a greater resolution of objects than that achieved by individual telescopes. The technique applies to tactical warfare as well. Available technology can link soldiers so each is a sensor in a field of sensors that collectively becomes an expansive sensor array. Such a

field's detailed ground's-eye view of the battlefield would yield a resolution and definition of the enemy unprecedented in modern warfare.

Maintaining contact. Colonels and generals rely on sophisticated command and control systems to help orchestrate the battle, but soldiers and Marines in close-combat units still require some system to help them maintain contact with each other and their superiors. The urban battlefield is lonely and intimidating. Enemies appear everywhere, often in unforeseen circumstances, and buddies within a squadron are often out of touch with each other. Rifle squads must rely on eye contact, hand-and-arm signals, and shouted commands. These soldiers should have a system of virtual touch to give them the confidence to fight effectively without having to gather in vulnerable groups.

Leaders at the squad level should also be able to see their soldiers virtually. Individual monitors attached to every soldier could keep a leader informed of each soldier's position. Combat polygraphs relaying biofeedback information could provide information about a soldier's physical and emotional condition and help squad leader decide which soldiers are best prepared emotionally to perform specific combat tasks. Collectively, data would tell higher commanders when a small unit reached its emotional, physical, and psychological point of exhaustion.

In a perfect world, soldiers or Marines walking point should be able to read their commander's tactical intent. If we expect tactical leaders to make strategic decisions when alone, they should be given a window on their commanders' decisionmaking processes. The essence of indirect leadership is the ability of subordinates to observe and become part of the decisionmaking process as plans develop and change. A device that allows soldiers to listen to and add to command and staff discussions would give them a window on their leaders' thinking and help them understand the intent and logic behind orders.

Signature reduction. During the Persian Gulf War, close-combat soldiers succeeded in large measure because they "owned the night." Light-intensification and infrared night-vision devices allowed soldiers to consistently engage the enemy without being seen. Recent experiences in Afghanistan and Iraq suggest the American advantage in fighting at night is eroding, particularly in urban combat. Middle Eastern cities are dense and cluttered. Streets and dwellings are often brightly lit, eliminating any advantage accrued from wearing night-vision devices. Light-intensification technologies are now available worldwide. Even the poorest insurgent can avail himself of these devices by buying or stealing them. In the future, we must own more than just the night. Small units should be able to hold the spectral advantage across a much broader span of the sensor spectrum from visible light to infrared, and they must own it absolutely—even when urban noise, light, and closeness degrade these advantages.

Close-in killing. The closer technology moves to the firing line, the less useful it becomes. The last mile of the battlefield has always been a place of mystery, folklore, and misunderstanding. Historically, our enemies have (proportionately at least) paid greater attention to their soldiers' effectiveness when fighting close. American close-combat weapons, principally small arms and antitank guns and missiles, have sometimes been inferior to the enemy's. The last original U.S. Government design for a small arm was the 1903 Springfield rifle, which was essentially a knock-off of the German Mauser designed 7 years earlier. All other American small arms were either designed by private citizens or purchased abroad. With the possible exception of night-vision devices, Global Positioning Systems, and shoulder-fired missiles, an American infantryman has no appreciable technological advantage in a close battle against even the poorest, most primitive enemy.

We must give our soldiers the same overwhelming dominance in killing the enemy inside the red zone

that airmen, sailors, and Marines have. Weapons on tanks and other armored vehicles are effective from about 50 to 200 meters—the ranges most likely to be encountered in the urban fight. The challenge is to give that lethality to dismounted soldiers, who are the ones most likely to engage in firefights. The U.S. military needs new small arms that are highly lethal and easy to wield inside urban spaces. Soldiers and Marines need the ability to shoot first in surprise engagements using some form of reflective sighting. They need a system that can kill the enemy behind walls or around corners. A soldier-portable weapon that can detonate over the enemy's heads would be helpful, as would a light, wall-buster weapon that kills an enemy inside urban structures.

Protection. Too many soldiers and Marines die needlessly because they enter tactical fights without adequate protection. What threatens them the most? Since the end of World War II, the greatest killers of American close-combat soldiers have been mortars and small arms. In the Global War on Terrorism (GWOT), the weapons most feared are RPGs and roadside bombs. The RPG is a simple, diabolical weapon the Germans developed during World War II and the Soviets adapted to give infantrymen a chance against enemy armor. As its name implies, the RPG is nothing more than a grenade detonated by a piezoelectric contact fuze and propelled from an iron tube by a small rocket. Our soldiers are most afraid of simple roadside mines because of their unpredictability and the horrific effect they have on the body.

Recent experience in Iraq reinforces the truism that in limited wars a mounted soldier's chance of dying in the close fight is less by almost an order of magnitude than that of a soldier fighting on foot. Armored vehicles are particularly useful when fighting in cities. A layer of relatively impenetrable steel prevents all but the most powerful explosive devices from causing harm. Speed of movement and the ability to carry communications equipment and weapons gives mounted soldiers dominance in an encounter with back-alley thugs armed with RPGs, mortars, and automatic weapons.

The enemy and circumstances demand that some fighting be done dismounted. Exposed soldiers must be better protected, and the best protection is a shield of knowledge. If a soldier knows with relative certainty what or who is behind the next building, he needs little additional protection. But, in the GWOT, as in past wars, if he so chooses, the enemy will find ways to restore the fog of war. There are no guarantees of perfect situational awareness for even



US Marine Corps

Marines secure a truck loaded with Iraqi soldiers who fired at them during the U.S. drive to Baghdad.

the best-informed soldier walking point in the urban jungle. That soldier will need better personal armor to shield him from small-arms fire at close range. Once in contact, he will require additional means for limiting an enemy's ability to maneuver around him. He should be able to engage the enemy without exposing himself to fire. Finally, when he opens fire, he must have some ability to discriminate between the enemy and innocent civilians.

Tactical medicine. The survival rate for soldiers wounded in combat today is unprecedented, and more must be done to keep them alive. Our most vulnerable center of gravity is dead Americans. Timely evacuation of the wounded is the greatest challenge in urban combat. We must get a wounded soldier away from the enemy's close embrace and through (or above) narrow streets before he bleeds to death or dies from shock. The enemy's embrace on occasion foils even the best evacuation efforts. Soldiers fighting in cities will often find themselves stranded much like the U.S. Army Rangers in Mogadishu, Somalia. We must find better ways to stabilize a wounded soldier stranded on the firing line. Perhaps a portable protective wrap could be developed that would reduce a soldier's heart rate and slow his metabolism for several hours without causing serious injury.

Physical, intellectual, and psychological fitness. As the battlefield becomes more uncertain and

lethal, it also becomes lonelier and enormously frightening for those obliged to fight close. Most recent American campaigns have been fought in unfamiliar and horrifically desolate terrain and weather. We must pay greater attention to selecting, bonding, and psychologically and physically preparing close-combat soldiers to perform well in this new era of war. Modern science offers promising solutions. Soldiers can be better tuned psychologically to endure the stresses of close combat. Written tests, assessments, role-playing exercises, and careful vetting reduces the percentage of soldiers who suffer from stress disorders after coming off the firing line.

The biological sciences offer promise that older, more mature soldiers will be able to endure the physical stresses of close combat for longer periods, which is important because experience supports that older men make better close-combat soldiers. They are more stable in crisis situations, less likely to be killed or wounded, and far more effective in performing the essential tasks that attend close-in killing.

War is a thinking man's game. Senior officers returning from Iraq and Afghanistan have concluded it is better to out-think than out-equip the enemy. They tell us that wars are won by creating alliances, leveraging nonmilitary advantages, reading intentions, building trust, converting opinions, and managing perceptions—tasks that demand the ability to under-

An Iraqi woman and her children cover their faces while their house is searched by New York Guardsmen.



US Army

stand the changing nature of war. Yet increasingly, military leaders subordinate this ability to the more pressing demands of routine day-to-day operations. Today's military has become so overstretched it is too busy to learn at a time when the value of learning has never been greater.

We ask soldiers and Marines to make judgments and command decisions that in previous wars were reserved for senior officers. A corporal standing guard in Baghdad or Fallujah can make a decision that affects the strategic outcome of an entire campaign. In Afghanistan, sergeants decided where to deliver precision munitions. Their decisions had enormous consequences for the strategic mission, yet the intellectual preparation of these junior leaders is no more advanced today than during the Cold War. Thankfully, these soldiers' innate creativity, innovativeness, and initiative belie their lack of formal intellectual preparation. Even so, it seems clear they could do even better if service institutions educated them earlier and with greater rigor.

Today's close-combat soldiers or Marines need more time to develop to peak fighting efficiency than their predecessors did. Years, not months, are required to produce a close-combat soldier with the skills and attributes to perform the increasingly more difficult and dangerous tasks that wait in the future. At least a year is necessary for small units to develop the collective skills necessary to fight as teams.

Cultural awareness. The American soldier's humanity occasionally gets him killed. Many past enemies have remarked on the naiveté of U.S. soldiers new to close combat. Thanks to the oceans that surround the United States, we are relatively well protected and have rarely faced massive invasions or traumatic intrusions into our homeland. That explains why many U.S. soldiers in a firefight at first do not believe someone unknown really wants to kill them. American soldiers like to befriend strangers and even enemies. German and Japanese veterans were astounded at how quickly American soldiers sought to bond with them and forgive their aggressions once the battle ended. Children in particular were often the objects of this innate propensity to make friends.

Unfortunately, the gulf between West and East has never been greater than that between American soldiers and Iraqis. A barrier of cultural differences between American and Islamic societies blocks the American soldier's proclivity to connect with alien societies. Few soldiers speak Arabic or have spent any time in Arab countries or even in the presence of Middle Eastern peoples. Close-combat forces cannot again be sent into a tactical environment where they are forced to fight as complete strangers. In the war in Iraq, Iraq's strategic center of gravity is the will of the Iraqi people. Our soldiers cannot hope to win such a war without better



Special Forces supplement U.S. Embassy security during an evacuation of foreign nationals from Liberia.

US Air Force

knowledge of how the enemy thinks and acts.

Every American soldier should receive cultural and language instruction, not to make him a linguist but to make him a diplomat in uniform who has the sensitivity and linguistic skills to understand and converse with indigenous citizens on the street. Soldier acculturation is too important to be relegated to last-minute briefings before deployment. The military should devise, monitor, and assess acculturation policy as a joint responsibility.

The military spends millions to create urban combat sites to train soldiers how to kill an enemy in cities. Urban sites optimized to teach small units how to coexist with and cultivate trust among indigenous peoples might be equally useful. Such centers could expose young soldiers to a simulated Middle Eastern urban crisis, perhaps near a mosque or busy marketplace. Expatriate role-players could incite local mobs to violence. The services and joint agencies, with State Department, CIA, or allied observers calling the shots during an exercise, would provide an interagency and international presence.

Training. The quality of performance among today's close-combat soldiers is high. Enemy soldiers run about shooting wildly while American soldiers move in tightly formed groups and carry their rifles with fingers outside the trigger wells. No one questions the value of rigorous training, and no one appreciates first-rate training more than close-combat soldiers. They know good training is better than pay and benefits because they, more than anyone, understand that first-rate preparation for war is the best life insurance they can buy.

Past performance in combat provides no guarantees for the future, however. The unforgiving nature of today's urban battlefield demands a new set of close-combat skills. Urban battles are isolated, com-

partmentalized affairs where small units must be self-contained, autonomous entities that perform complex tasks without external help. Soldiers and Marines will have to be proficient in the many tasks supporting units, such as intelligence, medicine, fire support, and communications units, once performed.

In Vietnam, two-thirds of all small-unit combat deaths occurred during the first 2 months in the field because the training system of that era mass-produced soldiers unprepared for the complex, difficult task of close-in killing. In the future, small units must undergo far

more rigorous precombat conditioning. No unit should go into a shooting situation until leaders as well as followers have experienced bloodless battles first.

Soldiers and Marines will also have to transform themselves from close-combat specialists to providers of humanitarian assistance and social services. Often, they will have to shift between the two opposite roles several times during a deployment. Such soldiers and Marines cannot be mass-produced. Training regimens for tasks such as these might take years rather than months. Think of tomorrow's close-combat soldiers or Marines as moving from apprentice to skilled close-combat journeyman under the tutelage of master craftsman squad leaders. Taking a close look at its custom of keeping young Marines in the ranks only through a few deployments before mustering them out might be in the Marine Corps' best interest. The Corps might find it more productive to keep Marines in the force longer.

Small-unit effectiveness. U.S. soldiers are more effective than those from other cultures because they fight for their buddies rather than for fractured ideologies, twisted theologies, failed symbols of allegiance, or discredited leaders. No one disputes that fighting in cities today demands a great deal more training and collective bonding. The isolation inherent in urban fighting puts greater demands on small units and requires a degree of small-unit cohesion never before seen in the American military. A soldier's bond to his buddy often lasts long after the danger has passed, sometimes for a lifetime, but little is known about how to generate this bonding, and commanders are not terribly skillful at creating conditions for it to occur.

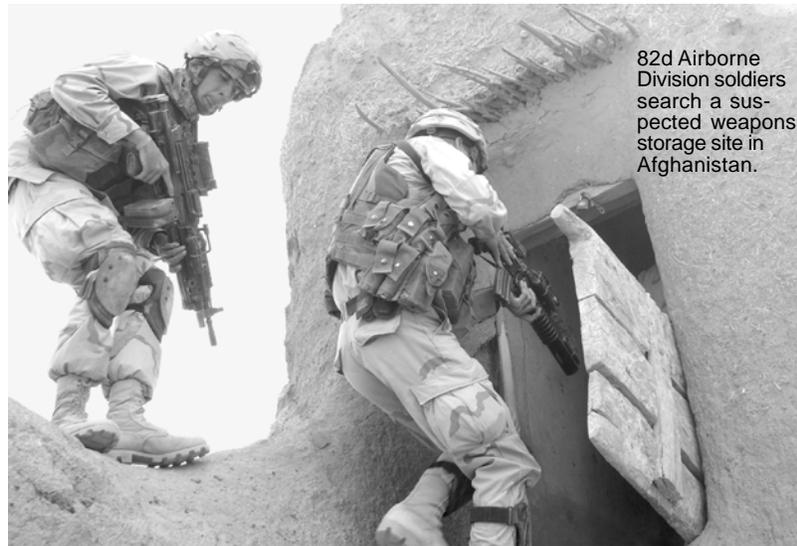
The one ingredient all agree is necessary for creating a closely bonded unit is time. The aging of a

good unit, like a good wine, cannot be hurried. Platoons need at least a year to develop full body and character. The Army's effort to create individual soldier stability is admirable, but keeping a soldier stable is meaningless if he goes into combat a stranger within his unit. Perhaps we need to recast the definition of stability to embrace the centrality of small-unit stability, specifically in close-combat squads and platoons. The pipeline is long and the probability of death is great. Conventional logic demands that the Army and Marine Corps create many more close-combat units, of which we can never have too many.

The challenge for the future is to develop doctrine and technology to allow small units to regain the advantage in the close urban fight and defeat a diabolical enemy who owns the home-field advantage. To be successful, small units must be able to connect with each other inside urban canyons, overcome isolation, and mass and concentrate the force as much as possible. Small units must find ways to extend the red zone to regain the advantage of killing the enemy outside the range of his organic weapons. Only after achieving these objectives can American forces enter a city with confidence that they will defeat the enemy while incurring losses acceptable to the American people.

Supply. Paradoxically, as the American way of war has become more technologically complex, non-technological stressors on fighting units have grown. Infantry and special operations soldiers in Afghanistan and Iraq carry far heavier loads on their backs than soldiers did during World War II. A soldier today is virtually a pack animal, carrying as much as 120 pounds of gear into the battle area. Even this load gives him less than 24 hours of sustainability. Batteries alone weigh more than 20 pounds. A close-combat soldier must become unburdened if he is to fight effectively. His needs must be met just when needed and in the right proportions.

Aerial vehicles on call can provide dismounted soldiers in cities with the essentials of close combat by dropping supplies directly to units in contact. Close-combat soldiers must have the discretion to expend whatever is necessary to win and that resupply will follow without enemy interference. Only then will soldiers and Marines chance unburdening themselves and focus on fighting rather than humping loads that inhibit their ability to fight effectively.



82d Airborne Division soldiers search a suspected weapons storage site in Afghanistan.

US Army

External Support

With the essentials provided, a close-combat soldier's need for additional support diminishes in proportion to the cost and proximity of resources coming from outside his immediate control. The presence of outside help rarely contributes significantly to improving soldiers' circumstances, and we should treat external sources of support with caution. Most close-combat soldiers would gladly trade all the bombers and fighters in the universe for the sure knowledge of who is around the next corner.

Firepower. The sources of external killing power soldiers favor are not the most expensive, sophisticated items in the service arsenals. First choice goes to systems the soldier or Marine commands personally, such as the low-tech and ubiquitous mortar, a weapon that is both simple and responsive. Next is close support artillery to respond to calls for fire from soldiers in contact. Outside sources of killing power that soldiers and Marines prefer are aerial systems. Most favored are older, slower, low-tech killing machines that can deliver intimate killing power, such as attack helicopters; the ubiquitous, trustworthy, low and slow-flying A10 attack aircraft; the Marine Harrier; and the deadly AC130 aerial gunship, derivative of a 1950s-era Air Force transport aircraft.

Whatever the source of killing power, close-combat soldiers judge its effectiveness on four crucial characteristics: precision, discrimination, proximity, and latency. The precision problem is virtually solved. One-meter accuracy is perfectly fine. The problems of discrimination and proximity arise from the difficulties in placing air-delivered fires on the right target, particularly a tactical, close-in target. Soldiers and Marines might prefer 2-ton bombs for collapsing bridges and buildings, but big bombs are of little use when the target is small, just around the

corner, and on the move. Smaller, rather than more precise, bombs are the necessary next step in weapons development if aerial killing power is to meet the demands of urban close combat.

The ground warrior's greatest firepower need is a solution for the latency problem. Simply stated, the closer in the target, the greater the time needed to deliver firepower to kill it. Technology can help solve this problem, but the greatest impediment to responsive fires is bureaucracy. Too many eyes and hands are involved and too many decisions made before aircraft are cleared to deliver a weapon to friendly forces in contact.

Unresponsive firepower systems are taxed most severely when attacking targets on the move. Even the most advanced bombing system cannot kill any object, even a large one, on the move. Of course, the enemy is aware of this weakness and has learned the surest way to avoid destruction from American precision is to disperse and hide or keep constantly on the move. The enemy knows a safe period always follows being spotted because American commanders and soldiers use that time to choose the right weapon, gain permission to deliver the munition, and decide the proper method to deliver it. Unfortunately, these impediments lessen the ability of supporting fires to kill the most dangerous enemy systems. The task is left to the man inside the red zone using shoulder-fired missiles, tanks, and infantry fighting vehicles.

Maneuver. The freedom to move about the battlefield is essential for success in the open battlespaces and closed urban battlespaces of a campaign. The more quickly a ground force defeats an enemy arrayed conventionally in the open, the less likely the enemy can retreat into the urban jungle to establish a cohesive defense there. Imagine the consequences if Army and Marine forces in Operation Iraqi Freedom would have had combined armored and aerial-delivered forces to pass through and over Iraqi forces and surround and enter urban areas. Had American forces possessed that operational speed, the enemy never would have been able to create today's organized havoc inside Iraq's cities, and the task of destroying both the fedayeen and Ba'athist infrastructures would have been far easier and considerably less costly in lives.

Sweeping, rapid maneuver in open warfare can

best be accomplished by transporting close-combat soldiers and Marines in light, swift, armored vehicles. However, the maneuver challenge changes when relatively static urban warfare begins. In cities, the enemy can only move about in small groups without risking annihilation by fires from aircraft watching overhead. Mounted maneuver allows armored vehicles to establish a cordon around a city quickly without exposing ground soldiers to enemy ambush. The speed of vehicle movement permits small units to strike deep into the urban mass to take out critical targets and return unharmed. The soldier's greatest concern when fighting mounted is the disorientation and isolation he feels once he leaves the vehicle.

Getting the Proportions Right

Big science and technology produced the world's best aircraft, ships, and armored vehicles and are still essential to the Nation. To neglect these programs now would only encourage other potential enemies, such as China and perhaps Russia, to rekindle a needless, fiscally damaging conventional arms race.

One can also argue that certain aspects of big-war technologies devoted to winning wars at sea, in the stratosphere, and in space provide useful capabilities for prosecuting tactical battles in urban jungles. The argument is simple. If you believe events in Afghanistan and Iraq are anomalies that, once ended, are unlikely to be repeated, then today's defense priorities are about right. If, however, you believe the military faces decades of intense conflict against active, adaptive, and fanatical enemies who consider killing soldiers a viable strategic end, then you must agree a rebalancing of defense priorities is of utmost importance. Current events appear to prove proportions are not right. We must adjust priorities immediately to improve the chances of keeping American ground forces alive in the close tactical fight. More resources for individual soldiers and Marines will mean fewer deaths and maimings. Paying more attention to those who do most of the fighting and dying will have strategic consequences. Limiting the cost of prosecuting wars increases the likelihood we can achieve victory at a cost the American people are willing to accept. **MR**

*Major General Robert H. Scales, Jr., U.S. Army, Retired, is an independent consultant for defense matters. He received a B.S. from the U.S. Military Academy and an M.A. and Ph.D. from Duke University. He has served in various command and staff positions in the United States, Germany, and Korea. With Williamson Murray, he is the co-author of *The Iraq War: A Military History* (Cambridge, MA: Harvard University Press, 2003).*