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## Chapter 1

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# FORGING A NEW ARMY

By late afternoon on February 26, Captain H. R. McMaster had been at war for 72 hours. His tank, Eagle 66, led a nine-tank formation as it moved across the featureless Iraqi plain like a squadron of miniature warships gliding through a glass-calm sea. Inside the steel body of Eagle 66, three other soldiers peered intently into a swirling sandstorm searching for the lead tanks of the Iraqi Tawakalna Division.

Isolated in the driver's compartment in front, Specialist Christopher "Skog" Hedenskog lay supine on his "lazy boy" couch. Skog's greatest fear was that his tank, the one that carried the troop commander, might stumble over a mine and miss the war. As he peered intently ahead, he nudged his T-bar left and right to steer smoothly around every piece of suspicious metal or slight imperfection in the ground ahead.

Staff Sergeant Craig Koch, the gunner, sat in the right of the turret, wedged between the gently moving gyro-stabilized gun and a densely packed jumble of white boxes and black telescopes illuminated periodically by blinking red, white, yellow, and green computer lights. The sandstorm, which limited visibility to 900 meters, made Koch very tense. He knew that in a tank battle, victory goes to the gunner who sees the other guy first.

Koch pressed his head tightly against the vinyl rest of his thermal-imaging sight, his right hand gently turning the "cadillac" handgrips left and right to maintain a constant, rhythmic slewing motion of the turret. His left hand nervously flipped the toggle that changed his sight picture from 3 to 10 power and back and forth between a "black hot" and "white hot" thermal image. He strained to discern from the desert horizon any telltale point of light that would be his first indication of Iraqi armor.

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To Koch's left sat Specialist Jeffrey Taylor, youngest and newest of the crew. Taylor had mastered the gymnastics of loading a 54-pound projectile into the pitching breech of the main gun. Less proficient loaders were known to ride with a round cradled in their arms for faster loading. Not Taylor; he could routinely load from the racks in a second and a half. At any rate, McMaster didn't allow free rounds in the turret...too dangerous. He wanted them kept safely isolated behind the inch-thick steel plate of the ballistic shield to prevent secondary explosions if they should take an enemy round. Taylor's job on the move was to steer the tank using a satellite position-locating device mounted on a bracket over the gun breech. Every few seconds he would crouch forward, read the digital display, correct Skog's heading, and drop back into his seat.

The crew's senses were muted inside the combat vehicle crewman helmets that each wore. The whine of the tank turbine was faded and distant. With his head outside, McMaster could hear, faintly, the staccato beat of the tank tracks as they churned through the desert, throwing behind a mud-sand plume. Above Koch, the thermal-sight cooling motor rattled continuously. The sound, coupled with the continuous motion of his sight, gave him the sensation of looking at a slow-moving, ghostly, black-white panorama through an old-time nickelodeon.

McMaster sensed intuitively that he was closing on the Iraqis. He ordered his vulnerable Bradleys, scouting to the front, to slip behind the protective line of tanks. Endless battle drills allowed the troop to shift formation immediately without further instruction. McMaster, centered now among eight other tanks, broadcast a clipped "Follow my move," and each tank fell behind in formation, four tanks echeloned on either side.

The shooting war began for Eagle 66 at 1618 hours and lasted exactly seven seconds. As he crested a slight rise, Koch spotted not one, but eight thermal hot spots. He could only make out a series of thin lines through his sight because an earthen berm masked the image of each Iraqi tank. Eagle 66 was loaded with a high-explosive antitank round, or HEAT, not the optimum choice for taking on the Soviet-made T-72 tanks. Should Koch's first shot hit the berm, the HEAT round would explode harmlessly. Koch screamed, "Tanks, direct front." McMaster spotted the tanks. "Fire, fire sabot," he yelled as he kicked up the metal seat and dropped inside to look through his own thermal imager. McMaster's clipped command was a code that automatically launched his three crew mates into a well-rehearsed sequence of individual actions. To Jeff Taylor,

*"Fire, fire sabot" meant that once the loaded HEAT round was gone, he must reload sabot, known to tankers in the desert as the "silver bullet."*

*Skog looked up and began immediately to "follow the tube" with his steering bar as he drove the tank briskly forward at 20 miles per hour. By aligning the tank body with the turret, Skog kept the 2-foot-thick frontal armor pointed toward the enemy. Koch, the gunner, knew what "fire" meant. He hit the button on his laser range finder. The red digital figure "1420" appeared just below the target reticle in his sight. "Jesus," Koch thought, "this sucker is close, practically a 'gunfight at the OK Corral' at tanker ranges." Red dot centered, Koch squeezed the trigger on the "cadillac," and the steady rocking motion of the moving tank was momentarily interrupted by a slight jerk and a muffled boom. Outside, the blast was deafening. Inside, the crew, working now on automatic, barely noticed any sensation other than an acrid smell of burned cordite and a discernable drop in air pressure as the HEAT round sucked out turret air on its way to the target.*

*Koch's HEAT round found an Iraqi tank less than one second later. It cleared the berm by 6 inches and struck a spot 4 inches above the base of the turret ring. Four pounds of Composition A3 exploded in a narrow 3,000-degree jet of burning gas, transforming the armor plate underneath into a white-hot, viscous fluid. The jet penetrated and continued to burn inside the tank, spewing gas and liquid turret metal in a deadly cone back toward the bustle of the turret. Two milliseconds later, gun propellant charges stored exposed in the bustle ignited. Half a second later, the turret separated from the tank body, spinning lazily 20 feet into the air like some cylindrical box lid that had been carelessly flipped open by an unseen hand. Sheets of white sparks, blue-white flame, and black smoke erupted from the now shapeless hulk.*

*A half-second after the first three Iraqi crewmen died, Taylor pushed himself back in the seat and kicked his right knee against a padded switch. With a smart clang, a shiny steel plate slammed open beside him, exposing two rows of deadly silver bullets ready to load. Taylor's right hand hit a release button and a round popped forward. Continuing the motion, he reached for the steel base of the projectile with his left hand and jerked it into the crew compartment. Like a twirler with an enormous baton, he spun the round nose forward and flicked it into the gun breech. As his knee left the switch, the safety door closed, instantly shutting off the crew from the volatile ammunition. Taylor's fluid motion took two seconds... about average for the fastest loader in the regiment.*

Koch had another target. He pushed the illuminated sabot button on his computer to index a different round. Imperceptibly, the computer dropped the gun's point of aim half an inch and automatically refined the aim further to compensate for other ballistic variations in range, crosswind, temperature, and velocity at the muzzle. The gun's stabilizer kept it locked automatically on the target even as the tank gently pitched and swerved. The range finder read 600... a chip shot. With sabot, berms were no problem. Koch couldn't miss. He squeezed the trigger on the "cadillac." The second round was gone. The battle was now three seconds old.

The slender, yard-long, depleted uranium dart of the sabot round crossed the killing zone in a fifth of a second. It tore through the berm and hit the T-72 with the force of a race car striking a brick wall at 200 miles per hour, but with all of its energy compressed into an area smaller than a golf ball. One millisecond later the dart broke through just above the track and a foot below the turret ring. Two milliseconds later it had gone through to the right side of the tank, then the berm again, and off into space. The dart's impact caused what ballistics scientists tactfully term a "pyrophoric effect," the result of thousands of tiny bits of dense uranium material, sheared off and turned white hot, flashing throughout the crew compartment. One piece of metal torched through the combustible cardboard of the propellant charges in the autoloader. A second Iraqi tank erupted in grisly pyrotechnics.

Koch aligned his gun with a third tank; range—400 meters. The enemy turret filled his telescope. Taylor had the round "up," and a third sabot streaked to its mark. The exploding T-72 was so close that McMaster felt a blast of hot wind against his face and watched, transfixed, as a shower of pyrophoric sparklers flew backward from the sabot impact and arched lazily over his head.

Suddenly other enemy tanks started to come alive, twisting their turrets to and fro like a herd of confused Paleolithic monsters searching for some unseen predator. The remaining tanks of Eagle troop closed on Eagle 66 and joined the gunfight in a disciplined, sequential pattern of engagement constantly practiced by the troop in peacetime. In 10 seconds, the five remaining Iraqi tanks erupted in flames. The battle lasted barely half a minute. In 23 minutes of combat, Eagle troop "killed" 30 more armored vehicles. Two platoons—nine lone American tanks—had cut a 3-mile swath of destruction through Iraq's most capable armored force and had virtually destroyed a tank force four times its size.



The crew of *Eagle 66* from left to right, Captain H. R. McMaster, Staff Sergeant Craig Koch, Specialist Christopher Hedenskog, and Specialist Jeffrey Taylor.

The example of these four cavalymen from the 2d Squadron, 2d Armored Cavalry Regiment, in the Battle of 73 Easting dramatically illustrates the transformation of the American Army from disillusionment and anguish in Vietnam to confidence and certain victory in Desert Storm. Only 100 ground combat hours were necessary for the Army to reestablish itself convincingly as a successful land combat force. During that brief period, mechanized forces moved more combat power faster and farther than any similar force in history. They averaged 95 kilometers per day, more than twice as many as the Wehrmacht's best blitzkrieg effort. Helicopter-borne forces conducted history's greatest aerial envelopment by placing the combat elements of an entire division 160 miles deep behind enemy lines. As part of the Coalition, the American Army decisively defeated the fourth largest field army in the world. It did so at the lowest cost in human life ever recorded for a conflict of such magnitude.

The 100-hour victory was all the more extraordinary because the American Army had seldom done remarkably well in the opening battles of past wars. America's traditional disdain for large standing armies has usually prompted a rapid demobilization at the end of a major war. Whether lulled by the euphoria of victories like those in the two World Wars or relieved by the end of an indecisive conflict like Korea, the nation

wanted to believe that there would never be another war. As a result, military preparedness declined drastically so that, almost without exception, from the War of 1812 to Task Force Smith in Korea, American soldiers found themselves overmatched, outsmarted, and undergunned in the first battles. Victories came eventually, but at great cost: green American soldiers learned the art of war the bloody way, on the job. After Vietnam, the Cold War prevented a wholesale demobilization, despite the country's distinctly antimilitary mood, and the American Army committed itself to a revolutionary program of reform. The result was a peacetime army that was better prepared for war than any American Army in history.

To be sure, history tells us that disaster is often the surest catalyst to reform, particularly among armies, which tend by their conservative nature to resist change. Napoleon's Grand Army emerged from the defeated citizen mobs of the Directory. In turn, Napoleon's obliteration of the once-mighty Prussian army at Jena induced reformers such as Scharnhorst and Gneisenau to construct from the ashes of defeat an army capable of brilliant victories against Austria in 1866 and France in 1870. Subsequent defeat on the Western Front in 1918 reinvigorated reform in Germany and gave the world blitzkrieg 20 years later.

### THE POST-VIETNAM ARMY

The American Army emerged from Vietnam cloaked in anguish. In the early seventies it was an institution fighting merely to maintain its existence in the midst of growing apathy, decay, and intolerance. Forty percent of the Army in Europe confessed to drug use, mostly hashish; a significant minority, 7 percent, was hooked on heroin. Crime and desertion were evident in Germany, with at least 12 percent of soldiers charged with serious offenses. In certain units, conditions neared mutiny as soldier gangs established a new order in the barracks through extortion and brutality. Barracks became battlegrounds between blacks and whites. Racial violence spread into the streets of garrison communities from Fayetteville, North Carolina, to Bamberg, Germany. Soldiers assaulted noncommissioned officers, officers, and their families. In Vietnam, the practice of "fragging"—attacking unpopular leaders with grenades—remained a problem even after American soldiers ended active combat operations. Between 1969 and 1971, Army investigators recorded 800 instances of attacks involving hand grenades in which 45 officers and noncommissioned officers were killed.<sup>1</sup>

Soldiers rebelled for many reasons. In part, their ill-discipline reflected a concomitant decline of order within American society. Whether right or not, many in American society took out their collective frustration with Vietnam on the most visible American presence there—the Army.

Few young men wanted to be among the last to be drafted into an institution that promised to end the draft, and fewer still were willing to join voluntarily. As a result, the Army reluctantly accepted markedly lower-quality soldiers. Forty percent had no high school diploma and 41 percent were Category IV soldiers, a mental aptitude grouping of the lowest order. The lower standards for induction forced the Army to lower its standards for discipline and training. Yet even with lower standards, the ranks of young men willing to wear the uniform continued to thin. By 1974 the Army was 20,000 soldiers below authorization and missed its reenlistment target by 11 percent. The combat arms were short 14 percent. Manning and training shortfalls combined to make only 4 of 13 Active component divisions combat-ready. One frustrated young major, when interviewed by Drew Middleton of the *New York Times*, said, "You ought to see them, babied, pampered, dumb. Hell, they couldn't even lick the Cubans."<sup>2</sup>

Noncommissioned officers and officers, particularly the younger ones, found themselves trying to lead an army in purgatory. They were caught between soldiers they were unable to discipline and an "all-volunteer army" that had yet to take recognizable form. The job was thankless as well as frustrating. A 1973 Harris Poll revealed that the American public ranked the military only above sanitation workers in relative order of respect. Faced with no support inside or outside the institution, tens of thousands voted for the future with their feet.

### **FIRST ATTEMPTS AT REFORM**

Many stalwart leaders remained, however, and resolved to turn things around. General Creighton Abrams, a protégé of General George Patton, was determined to wrench the Army out of its lethargy and set it on a course toward reform. Like Patton, Abrams was also known for his bluntness and honesty. As Army Chief of Staff from 1972 until 1974, Abrams concentrated on ensuring that the Army was prepared to fight. In a speech repeated time and again during his tenure as Chief of Staff, Abrams told his audience with great passion: "You've got to know what influences me. We have paid, and paid, and paid again in blood and sacrifice for our unpreparedness. I don't want war, but I am appalled at the human cost that we've paid because we wouldn't prepare to fight." He was equally determined to restore a sense of values to the Army. In a time of growing cynicism, the craggy-faced, "fireplug" Chief constantly reminded dispirited leaders of the ideals that had brought them into the Army: patriotism, integrity, honesty, and devotion to duty. His tenure as Chief was tragically cut short by cancer in 1974, but before he gave up the stewardship of the institution to General Fred Weyand, he had instilled a new spirit of renewal among the professionals. He had convinced them that reform was not only possible, but had already begun.<sup>3</sup>

First evidence of Abrams' tough, uncompromising, but caring push toward reform began to appear in Europe as leaders there faced the tough issues of crime, racial strife, and professional lethargy head-on. General Michael Davison, the commander in Europe, instituted a series of programs to wrest control of the barracks back from unruly soldiers. Crime statistics actually increased somewhat in 1972 as gang leaders were rounded up and court-martialed. The authority to test randomly for drugs and the "expeditious discharge program" begun in 1973 were essential weapons in the battle to win back the barracks. Soldiers found to be habitual users or just troublemakers and malcontents could be immediately released from service without lengthy court-martial proceedings. Within four months, the Army in Europe discharged 1,300 gang members, drug users and dealers, and other criminals.<sup>4</sup> Davison also began a top-to-bottom racial awareness program that brought black and white soldiers together to confront the growing racial mistrust and polarization that so nearly brought the Army in Europe to its knees. Noncommissioned officers, sensing a return of trust and authority, responded by restoring the proven chain of command for dealing with soldier grievances. Without fanfare, the so-called "enlisted men's councils," intended to allow soldiers to petition directly to battalion commanders, gradually disappeared. Funds were tight and the 1973 Arab oil embargo significantly limited large-scale maneuvers, but by year's end the Army was largely out of the barracks and focused on relearning the basics.

Davison could garner only enough money, resources, and public support to conduct a rear-guard action against erosion of soldier welfare and morale. By the mid-seventies, one-third of the soldiers in the four lowest grades had families, a fivefold increase over the pre-Vietnam drafted Army. Europe in particular found it very difficult to assimilate this new social order into a crumbling infrastructure originally constructed for single soldiers. High housing costs were devastating to the 21,000 families of young first-term soldiers forced to live on the local European economy. Soldiers often had to rely on a second job or, in the States, food stamps to provide adequate support to their families. One financially beleaguered soldier, after spending only for food, clothing, housing, and other essentials, came up \$60 per month short. He lamented, "I like being a soldier and serving my country, but when you have to go home at night and hear your stomach growl and there's no money for food, then you wonder why you're doing it."<sup>5</sup>

Herculean efforts by Weyand, Davison, and other leaders restored order in the worst units, an essential first step toward institutional reform. However, substantial improvements in soldier quality and the quality of soldiers' lives would require an equally substantial increase in the Army budget that would not come until the late seventies.

## THE OCTOBER '73 WAR

The fourth major Arab-Israeli War, which began on October 6, 1973, jolted the Army out of its doctrinal doldrums and forced it to face the reality that its method of fighting, if not changed, risked obsolescence. On that day, the Egyptian Second and Third Armies forced their way across the Suez Canal, penetrated the Israeli Bar Lev Line, and pushed deep into the Sinai in a stunningly successful operation. Concurrently, five Syrian divisions rushed the Golan Heights and locked themselves into a hellish tank-on-tank battle with the Israelis. For 16 days Americans watched transfixed as the Israelis fought to restore their defenses and regain the initiative.

The war influenced the Army's effort toward reform for two reasons. First, it was the first large-scale confrontation between two forces equipped with modern weapons representative of those found in NATO and the Warsaw Pact. As such, the battle was a propitious window on the future. Second, the battle was so bloody, intense, and close-run that policymakers outside the Army began to seriously question the ability of a seemingly moribund American Army to fight a war of similar intensity. The war prompted a compelling argument for sweeping modernization and reform.

The Israeli experience made it clear to the Americans that the modern battlefield had become enormously more lethal. The terrible destruction that US Army investigating teams observed in the Sinai and on the Golan Heights was the first evidence of the precision revolution in warfare applied to ground combat. American pilots in Vietnam first took advantage of precision technology in bombing raids over North Vietnam. In the air as well as on the ground, two distinct methods delivered ordnance with precision. The first was to instrument and computerize the delivery platform so that it greatly reduced the radial error, or circular error probable (CEP), of its unguided, or "dumb," bombs. The Navy A-7, later purchased by the Air Force, was the first close air support aircraft to be so equipped. With computerized bombing, the average CEP for fighter aircraft decreased from 300 meters to fewer than 30 meters. The second technique was to make the bomb or projectile itself "smart" by engineering a method of precision guidance. Using reflected laser energy or internally mounted "fire-and-forget" seekers, projectiles could be guided (or guide themselves) directly into a target with virtually no error.

In the October '73 War, the precision revolution was most apparent in the tank and infantry direct firefight. Range finders, analog ballistic computers, and rapid improvements in main-gun ammunition technology gave tanks an enormous advantage in long-range precision gunnery. A World War II tank required an average of 17 rounds to kill another tank at a maximum range of approximately 700 meters. By 1973 tanks required

only two rounds to kill at 1,800 meters. Both the Israelis and the Egyptians possessed precision weapons in the form of wire-guided antitank missiles. The Soviet Sagger, available in large numbers to the Egyptians, was a primitive but effective first-generation missile. The American TOW used by the Israelis could kill with almost a 90 percent probability out to a range of 3,000 meters. To a small-unit tank or infantry commander, the realities of the precision revolution applied to the direct firefight meant, in soldier parlance, "what can be seen can be hit, and what can be hit can be killed."

The Israelis still believed the tank to be the dominant weapon on the battlefield, but the presence of lethal antitank missiles and rockets made the battlefield too lethal for tanks to go it alone. All battlefield systems had to be balanced and employed in synergy if a unit were to survive. Direct fire or artillery suppression of enemy systems was essential if platoons and companies were to maneuver against a force liberally supplied with wire-guided missiles.

The Israeli experience also made it clear that, at least for the foreseeable future, the Americans would not be able to rely solely on superior technology to win against the quantitatively superior Soviets. Tank-on-tank combat showed the Soviet T-62 tank to be a match for the older M60, particularly at close range. The Soviet BMP infantry fighting vehicle proved a particularly nasty surprise because it was the first true infantry fighting vehicle. The proliferation of anti-aircraft missiles and guns greatly complicated close air support, long considered by the American Army as essential to offset the firepower imbalance of direct and indirect fires posed by superior Soviet numbers.

If the future enemy were Soviet, how could the Army hope to win when the Soviets possessed not only greater numbers of weapons but ones of equal or better quality? The answer seemed to lie in harnessing the intangibles: to optimize the fighting qualities of limited numbers by training each soldier to fight to his full capacity and to create a superior war-fighting method through progressive doctrinal reform. Evolutionary changes in training and doctrine would not be enough to close the gap on the Soviet army. Ten years had been lost wandering in the jungles of Vietnam. What was needed was not change, but revolution.

## TRAINING REFORM

The powerful personality of General William DePuy, who at the establishment of the Army's Training and Doctrine Command (TRADOC) in July 1973, became its first commander, dominated the process of institutional metamorphosis in the early years in training, doctrine, and leader development.<sup>6</sup> DePuy's experience as an infantry officer in Europe during World War II profoundly affected his vision of how a future army should fight. He had witnessed poor-quality soldiers, sent into battle by poorly

prepared leaders, waste themselves in poorly conceived and executed operations against an enemy often better led and better prepared for the harsh realities of combat. Thirty years later DePuy retained a pervasive respect for the fighting skill of the German army, as well as an often critical view of the leadership and fighting ability of American soldiers. His fixation on the European battlefield remained steadfast, and he sought from the start of his tenure at TRADOC to redirect the Army's focus from jungle warfare to a possible ground war with the Soviets on the plains of central Europe. He emphasized the value of the indirect approach in battle and stressed the importance of suppressing an objective with direct fire before assaulting a prepared defense. Nevertheless, his combat focus remained, as it had in World War II, on the "how-to" of unit-level training, battle drills, and coordinating tanks, artillery, and infantry.<sup>7</sup>

As with so many of his ideas, DePuy derived his vision for a revolution in training from his experience with the 90th Division in World War II. The 90th trained a full two years in the United States and England prior to D-Day. DePuy recalled with dismay how the division trained for combat *by the numbers*, devoting each day to endless field firings, road marches, and classroom lectures. "Learning and relevance," he noted, "were secondary to scheduling."

The division learned to fight for real against the Germans in Normandy—the Germans did the instructing. In six weeks, the 90th Division lost 100 percent of its strength in infantry soldiers and 150 percent of its infantry officers. Years later, DePuy blamed the slaughter on inept leaders at the division level who were unable to train infantry companies and platoons to take ground against skilled resistance.<sup>8</sup> Some officers were reasonably well trained in the scholastic art of "drawing arrows on a map." Yet these same officers had no idea how to make soldiers perform at the points of the arrows. DePuy watched them march soldiers against well-defended hedgerows after a few rounds of preparatory fire when battalions of machine guns, tanks, and artillery should have been used to suppress the enemy. He watched countless soldiers die in unnecessary frontal assaults because impatient commanders ignored obvious soft spots in the enemy's defenses.

In time the 90th Division would fight better. In Normandy a lieutenant's life expectancy was two weeks; five months later, during the Battle of the Bulge, it was 10 weeks. Yet the price paid for improvement was too high. In DePuy's analytical terms, "the casualty curve was too steep and the seasoning curve too flat." When he took command of TRADOC, DePuy determined to steepen the seasoning curve, preferably without paying in blood.

Post-Vietnam training methods had changed little from World War II. Huge training centers continued to crank out soldiers en masse. Teaching was by the numbers and learning was by rote. The most realistic peacetime battlefield for infantrymen and tankers was still the firing range. The Army school system was bloated with overhead and infused with a similar obsolete approach to learning. Officers were sequestered in classrooms to learn the outdoor activity of war. Equally disturbing, the Army had seriously neglected noncommissioned officer training.

As its first order of business, TRADOC began a fundamental reformation of Army training. It adopted a simple and direct slogan: "An army must train as it fights." Training reform began by pushing young officers out of the classroom and into the field. Instead of studying the art of war, lieutenants learned the intricacies of maintenance and gunnery. The Army refocused from its fixation on training schedules to training to a standard—preferably one based on necessary combat skills. The "systems approach to training" was based on the proposition that even the most complex combat endeavor could be subdivided into a series of discrete individual tasks. Each task would have set conditions and a measurable standard by which soldiers' skills would be evaluated and to which the soldiers would be held accountable. The Army Training and Evaluation Program, or ARTEP, appeared in 1975 and became the principal vehicle for measuring training readiness among companies, battalions, and brigades. The objectivity of the ARTEP system did in fact expose units that looked good in garrison but failed to meet the standard in the field. But the ARTEP fell short of providing a realistic yardstick for predicting how units would perform in combat. While sums of individual skills might provide a reasonably accurate assessment of crew and section proficiency, battalion and brigade performance depended more on intangibles. Qualities like leadership and decision making, as well as the intuitive ability of leaders to sense terrain and synchronize the employment of men and weapons, were more important indicators but were difficult to measure objectively. More to the point, combat experience in previous wars indicated that a scripted, one-sided exercise like the ARTEP, no matter how objectively measured, could not adequately replicate combat conditions. Soldiers could be seasoned and tested only by subjecting them to a reasonably close approximation of real war.

## DOCTRINAL REFORM

General Depuy was a practical soldier. As such, he viewed with a healthy skepticism those who looked at the development of doctrine as a scholastic exercise. "Doctrine, or the method of war an army employs," noted DePuy, "doesn't work unless it's between the ears of at least 51 percent of the soldiers who are charged to employ it."<sup>9</sup> DePuy also had an almost obsessive desire to break the Army from its Vietnam malaise and

“get it moving again.” As TRADOC commander, he had little influence over the budget, nor did he command units in the field. But his charter made him the conductor of a huge orchestral body that was obliged to play according to the doctrinal score he devised. DePuy’s challenge was to compose a symphony bold enough to snap the orchestra out of its lethargy and credible enough for at least 51 percent to play in tune. During his tenure, DePuy’s symphony, *Field Manual 100-5, Operations*, served as a wake-up call to the Army. But this keystone manual for Army doctrine fell far short of achieving the harmony he sought.

Intending FM 100-5 to stimulate reaction in the Army, DePuy went to great lengths to avoid sterility. Beginning in late 1973, he hosted a year of meetings with branch commandants, allies, and the Air Force. He demanded that the manual be written in simple English. Instead of the traditional tan bound publication, he published a camouflage-covered manual in loose-leaf format, both to facilitate future changes and to send a message to the field that even though it had the DePuy stamp, he intended the manual to be the first iteration of a continuing doctrinal dialogue.

DePuy personally wrote much of the 1976 version of FM 100-5, which sought to define the fundamentals of land warfare. Not surprisingly, the manual mirrored his personal experiences and prejudices. Above all, it reflected his fixation on practical soldiering. He wanted to give the field a practical guide on “how to win the first battle of the next war.” The Fulda Gap region of the inter-German border became a familiar prospective battlefield. The manual told soldiers how to fight using weapons then in their hands. It included a detailed tutorial on the lethality, accuracy, and range of weapons on both sides to graphically impress prospective users with the precision revolution in direct fire that had made the battlefield tremendously more destructive. The October ’73 War became the model for the first battle: short-lived, exhausting, and terribly destructive to both sides. If, like the Israelis, the American Army expected to fight outnumbered and win, it had to exploit every advantage accruing to the defender in order to hit the enemy first and with great precision. FM 100-5 reflected the value that both the Israelis and the Germans placed on the liberal use of suppressive firepower to paralyze an enemy momentarily before maneuvering against him.

The manual accepted from the Germans the value, if not the primacy, of the defense—but defense of an unconventional kind. The so-called “active defense” emphasized economy of force and the need to strike a penetrating enemy force with surprise and with carefully husbanded combat power at the critical place and time. The objective of the active defense was to halt the Soviet advance as close to the inter-German border as possible. Since the Soviet operational concept was to attack in successive armored waves or echelons, the task at hand was to kill enough Soviet

tanks in each echelon to give the defenders time to regroup and prepare to face the next echelon before it came within range.

As soon as it was published, FM 100-5 became the most controversial doctrinal statement in the history of the American Army. The chorus of disharmony came principally from outside TRADOC, the most discordant from outside the Army. Criticism centered on the manual's preoccupation with weapons effects and exchange ratios and the perceived return to the American fixation on *firepower-attrition* warfare rather than the maneuver-centered focus traditionally attributed to European armies, particularly the Germans.

Within the Army, criticism tended to be more introspective and conceptual and began, albeit subtly, while DePuy was still commander of TRADOC. The light Army—those raised in the airborne and air assault family—criticized the manual for focusing on Europe to the exclusion of other theaters and other methods of war. Parochialism aside, they had a point. In Vietnam the Army had developed a method of warfare in airmobility as unique and revolutionary as German blitzkrieg had been in its day. Light Army proponents argued that future victories would increasingly be decided in the third dimension, and they saw in Vietnam the prospect of future Third World battlefields in which the helicopter would continue to predominate.

Opposition to the maestro's tactical method centered on the active defense. Many detractors perceived it as a tactic intended to avoid defeat rather than to attain victory. Lieutenant General Donn Starry, a DePuy protégé, co-wrote much of this doctrine. However, after taking command of the Army corps charged with defending the Fulda Gap, he was among the first to publicly question its utility. Starry particularly did not like the math. Facing him across the inter-German border were at least four Soviet and East European tank armies arrayed in three enormous echelons of armor, infantry, and artillery. Active defense doctrine would be helpful in disposing battalions and brigades to defeat the first echelon, but Starry had neither the forces nor the time to reset the defense before being overwhelmed by the second and third. To avoid defeat, he would have to find a way to slow and weaken follow-on echelons before they arrived within direct-fire range of the main line. Starry's elevation as DePuy's successor at TRADOC in 1977 sparked the renaissance that would eventually lead to the rediscovery of operational art within the Army and the creation of AirLand Battle doctrine.

Despite the criticism, the 1976 version of FM 100-5 brought about a fundamental change in the way the Army viewed itself. Expressing that view led to a subordinate body of doctrinal literature called the "how to fight" series of field manuals, which energized the entire training and education system. As DePuy intended, FM 100-5 was a transition step that

opened an intellectual dialogue throughout the Army. It set the stage for later revisions in 1982 and 1986 that introduced and refined the AirLand Battle concept which underpinned the way the Desert Storm campaign was planned and fought. Reforms that improved discipline, training, and doctrine without addressing how to attract and retain a quality force, however, were only partial solutions.

### THE HOLLOW ARMY

After a brief period of public support prompted by the end of the draft, the American public and Congress's interest in the volunteer Army quickly dissipated. To induce recruitment, the Nixon administration raised soldier salaries 61 percent in 1973. But in spite of large-scale inflation, salaries remained essentially frozen for seven years thereafter. Earlier pay raises were targeted toward first-term enlistees, while non-commissioned officers, considered already hooked by the system, received proportionately less. The consequent pay compression meant that an experienced sergeant earned only 30 percent more than the newest private. In real terms, purchasing power for sergeants dropped from \$20,000 per year in 1973 to \$14,000 by 1979. Entitlements, which military families considered essential for economic survival, lost value in proportion to pay. Moving allowances for a family of four remained at 10 cents per mile—unchanged since the Eisenhower administration. Young sergeants, in the best of circumstances barely able to make ends meet, found themselves thrown hopelessly into debt with unexpected movement orders. By 1979, the salary of junior enlisted soldiers had dropped so low that a corporal with a small family was officially below the prescribed government poverty level. In that same year Army commissaries accepted almost \$10 million in food stamps.<sup>10</sup> The soldiers' plight grew considerably worse in Europe. As large numbers of wives streamed overseas to join their soldier husbands, the problem of poor or nonexistent housing was compounded by poverty wages. With no money to spend, soldiers and families had little to do but try to survive.

In the lean years following Vietnam, the Army created the conceptual outline for a future force fundamentally different from any American Army of the past. Accepting the mantle of steward from Weyand in 1976, General Bernard Rogers embraced Abrams' goal of creating a force consisting of 16 Active and 8 Reserve component combat divisions. At the same time, he continued to work on ways to improve soldiers' quality of life. However, while Rogers paved the way to improved readiness and worked on long-term sustainability in an effort to pull the Army out of the intellectually and physically stagnant period of the volunteer Army, his task was severely hampered by budget woes.

In the late seventies, the Army witnessed drastic cuts in funding for maintenance and training. By 1979, 6 of 10 Stateside Army divisions were,

by the Army's own liberal standards of measurement, not combat-ready. Even though Europe was the Army's front line, one of the four divisions stationed there was not combat-ready. Serious shortages of qualified soldiers, spare parts, and replacement equipment grew alarmingly. The Commander in Chief, US Army Europe, General Frederick Kroesen, long noted for his frankness, confessed publicly that the European Army had become obsolescent. Kroesen and other senior officers began to speak openly of a "hollow army." Although the Army could boast 16 divisional flags, the content and quality of those divisions was diminishing rapidly.

Soldier quality, never particularly high during the early years of the volunteer Army, started another precipitous drop after 1976. The numbers recruited in mental Categories I, II, and IIIa, which measure the upper half of mental aptitude among American youth, shrank from 49 percent in 1973 to 26 percent in 1980. Only 50 percent of those recruited in 1980 had graduated from high school.<sup>11</sup> Statistics for drug addiction, unauthorized absences, and crimes, while still below the immediate post-Vietnam War figures, were still alarmingly high. The Army recruited so many poor-quality soldiers during the late seventies that it dismissed 40 percent for indiscipline or unsuitability before they completed their first enlistment.

Meanwhile, in late 1979, the Islamic fundamentalists' removal of the Shah of Iran and the Soviet invasion of Afghanistan began to shake the American public from its lethargy.

### **CRISES OPEN THE COFFERS**

The failed attempt to rescue American hostages held in Iran in 1980 marked one of the lowest points in American military performance since the end of the Vietnam War. The spectacle of broken Marine helicopters and crashed Air Force C-130 aircraft and the tales that emerged from Desert One of confusion, overcentralization, poor communication, and botched planning brought to light publicly what the pros had foretold for some time. As so often happens in American military history, a military debacle was necessary to wrench the Services back from the brink of ruin.

The furor following Desert One alerted the American public to chronic institutional problems that had remained shrouded since Vietnam. The Army realized that reduced budgets had left equipment inoperative, shortened training exercises, and delayed the arrival of new weapons. The Army leadership also recognized that the Army could not achieve real combat readiness unless it could, as a first priority, populate itself with good soldiers. In the wake of Desert One, the cry grew more shrill for a return to the draft. A volunteer army, so the argument went, would only draw from the poorest and most poorly educated segment of the population. In time the Army would consist only of the socially disenfranchised. While ostensibly volunteer, the Army was still "drafting," but using

economics rather than the Selective Service System to force enlistments.<sup>12</sup> Some pro-draft sentiment could still be found within the Army, but by and large, most Army leaders favored the all-volunteer concept. The flaw, they believed, was in how the volunteer system was implemented. The draft was over. Simply opening doors was not enough to induce quality men and women to enlist. America's youth had to be convinced that service in the Army was right for them. Needing a marketer to sell itself, the Army found its salesman in the person of Major General Maxwell "Max" Thurman.

Thurman began his tenure as head of the Army Recruiting Command by selecting only the best soldiers to be recruiters. Instead of long-term recruiting professionals, he brought in officers and noncommissioned officers from the field for short-term assignments. Their job was to recruit the same soldiers that they would later have to train. The recruiting market moved from the streets to high schools. High school students were harder to recruit, but research proved that a diploma was the most reliable indicator of future success as a soldier.<sup>13</sup> Each of Thurman's subordinate commanders negotiated a contract with him to produce a certain quality of soldier in a certain number, balancing the demands of the Army against the particular demographic and economic circumstances of the region. Thurman recognized the power of advertising. With the enthusiastic support of Vice Chief of Staff General John Vessey, he convinced Congress to appropriate approximately a half-billion dollars to finance Army recruiting and bonuses. The "Be All You Can Be" campaign achieved instant recognition among American youth. Thanks to positive image-making and the improving quality of life within the Army, the "Willie and Joe" image inherited from the drafted Army gave way to the Army's new image as a caring, challenging, high-tech outfit.<sup>14</sup>

A Congress increasingly alarmed by the Army's declining readiness and sympathetic to the plight of soldiers and their families responded by increasing soldiers' salaries 25 percent between 1981 and 1982. Army research found that the most important reason for the smartest soldiers to enlist was money for college. After Congress reinstated the GI Bill and initiated the Army College Fund, the quality gap began to close.<sup>15</sup>

While Army recruiting continued to experience occasional growing pains, the quality of young men and women recruits steadily climbed, keeping pace with the public's increasingly favorable image of the Army. By 1991, more than 98 percent of the applicants were high school graduates. Seventy-five percent scored in the upper mental categories, less than one percent in the lowest. Fully 41 percent chose to enroll in the Army College Fund. As quality increased, traditional indicators of indiscipline dropped off the charts. Desertions and unauthorized absences dropped 80 percent and courts-martial 64 percent. Positive indications of drug abuse dropped from 25 percent in 1979 to less than 1 percent a decade later.<sup>16</sup>

As defense budgets increased, the temptation grew to expand the size of the Army to meet the growing Soviet threat. However, with end-strength capped at 780,000 soldiers, meeting the goal of 16 Active divisions was difficult enough, let alone trying to expand the force. General Edward "Shy" Meyer, Chief of Staff from 1979 to 1983, chose to hold the line on total numbers. He reasoned that any large increase, given the limited number of available high-quality prospective recruits, would substantially lower overall quality. The most glaring shortage would be made up by the Reserves.

The political argument for greater integration of the Reserves had its roots in Vietnam. President Johnson chose to rely on the draft alone to prosecute the war in order to cause as little disruption on the home front as possible and thereby dampen popular opposition. While successful during the early years, Johnson's policy created an army in the field made up largely of the very young, the poor, and the disaffected. As the war dragged on and casualties mounted, a rift was inevitable between the people and this unfamiliar, unrepresentative body of men fighting an unpopular war. For that reason, General Abrams, during his short tenure as Chief of Staff, had insisted that the Army could not go to war again without the involvement and tacit approval of the American people. A call-up of the Reserves would bring home to Americans from the beginning that they had a personal stake in the conflict. Therefore, Abrams had sought to weave Reserve forces so inextricably into established deployment schemes that no force would be able to fight a major war in the future without them.

The creation of what was to become the Total Force Policy began gradually during the mid-seventies as the Army shifted combat support and combat service support necessary to sustain the Active Army in a large-scale European conflict into the National Guard and Army Reserve. The plan was to increase the total number of Active divisions to 16 while staying within mandated end-strength ceilings by "rounding out" selected Army divisions so that they consisted of two regular and one Reserve component brigade. A number of separate Reserve component battalions were also included in the roundout program. Roundout brigades were expected to join their parent division after a period of muster and postmobilization training, which was originally postulated to require at least 30 days. By the late eighties, the Total Force Policy had been so firmly embedded in the Army's structure that 52 percent of combat forces and 67 percent of other forces were Guard or Reserve. Seven Reserve component brigades—six from the National Guard and one from the Army Reserve—rounded out Active Army divisions, while 10 separate battalions, all in the Guard, served additionally as roundout augmentation to the Active Army.<sup>17</sup>

## THE BIG FIVE

While General Abrams committed the Army to producing world-class soldiers, he also sought to develop first-class materiel. Following Vietnam, the obstacles to achieving that commitment were seemingly insurmountable. The Soviets had exploited the Army's Vietnam diversion to close the gap in weapons technology. Popular opinion at the time did not appear to favor significant funding increases for new weaponry. Since the Army traditionally spent proportionately more than the other Services on people programs, not enough developmental money was available to buy every weapon the Army needed. The Army was fortunate to have Abrams at the helm. He was an officer who continued to maintain the trust and respect of Congress and the public through the Army's troubled times. He had a congenital distrust of Pentagon bureaucracy. Perhaps his obvious discomfort with Washington was one reason Congress listened to him so attentively. Abrams drew copiously from this wellspring of political credibility to rebuild the Army, but first he had to deal with the bureaucracy.



Clockwise from top left, the Big Five weapons systems are the UH-60 Blackhawk, the M1 Abrams tank, the AH-64 Apache, the Patriot, and the M2/3 Bradley.

The Army materiel development community consisted of dozens of constituents, all of whom believed that their particular weapon or program deserved funding priority. Legions of young officer-analysts labored intently to produce tightly argued, amply documented justifications to prove the worth of their particular systems. However, even within each community, opinions varied. To Abrams, the Army seemed reluctant to make up its mind or to keep to an established course once it made materiel decisions and only he could discipline the process. He began by selecting five weapons the Army had to have: a new tank, an infantry fighting vehicle, two helicopters—an attack helicopter and a utility transport to replace the ubiquitous Huey of Vietnam fame—and an air defense missile. Other programs would be proposed and some would ultimately survive Congressional scrutiny, but having put his reputation on these Big Five, Abrams would tolerate no further dissent within the Army.

As the development of the Big Five weapons systems began during the period of constrained military budgets, Abrams' successors continued to fight to keep the programs alive. With the efforts in recruiting, training and doctrinal reforms, and new weapons systems all running concurrently, Army leaders continued to seek better ways to bring all of these improvements together.

### **BIRTH OF THE COMBAT TRAINING CENTERS**

Studies of combat experience in World War II, Korea, and Vietnam revealed a disturbing propensity for units to suffer very high casualties in their first exposure to direct combat. The problem was particularly perplexing because the human cost in first battles did not seem to be lessened by the time spent in training prior to deployment. Some divisions like the 90th prepared for war in Europe for more than two years, yet suffered more than 100 percent casualties in the hedgerows of Normandy. A method was needed in peacetime, as DePuy had noted, to steepen the seasoning curve without paying in blood. Curiously, the Navy showed the Army how to practice fighting for real. In early air-to-air combat over Vietnam, Navy pilots achieved a kill ratio against North Vietnamese MiGs of only two to one. A careful study showed a seasoning curve increase for pilots after combat as dramatic as Army studies had found for ground soldiers. Forty percent of all pilot losses occurred in their first three engagements. However, 90 percent of those who survived three engagements went on to complete a combat tour. In 1969 the Navy began a program that sought to provide a pilot his first three missions risk-free. *Top Gun* pitted novice airmen against a mock aggressor skilled in North Vietnamese aerial tactics. Combat was bloodless yet relatively unfettered. Uncompromising instructors recorded and played back every maneuver and action. The results were dramatic. From 1969 until the end of the air war, the Navy's kill ratio increased sixfold.

A similar method of battle seasoning was needed for Army training, and General DePuy handed the task to his TRADOC deputy chief of staff for training, Major General Paul Gorman. However, technological problems in creating a ground-based *Top Gun* were daunting. Aircraft came equipped with their own on-board radars and computers. Aircraft instruments could easily be linked to ground-based sensors to track and record every aerial track and maneuver for later playback and critique. But how do you keep track of thousands of soldiers shooting at each other among the folds and foliage of normal terrain? Gorman again got the answer from the Navy. In 1973, he discovered a young technician who was experimenting with a method for sailors to practice marksmanship indoors. The technician simply attached a laser to a pistol and fabricated a laser-sensitive target to record hits. Gorman expanded the "laser pistol" idea into what eventually became the Multiple Integrated Laser Engagement System (MILES) with devices that could be attached to all weapons from rifles to tank guns. MILES was a sophisticated version of the "laser pistol" concept that used coded signals to record kills and to discriminate among the types of weapons firing so that rifles "killed" only soldiers and not tanks. To replicate the Navy's successful program, planners had to devise an instrumentation system capable of tracking units, vehicles, and individuals and linking them all together through a master computer. The Core Instrumentation System (CIS) that evolved for the National Training Center utilized state-of-the-art technology with video cameras and multiple radio monitoring stations.

To exploit the promise of MILES and CIS, Gorman pursued an Army version of *Top Gun*, which was ultimately created at Fort Irwin, California. The exercise area was vast, and MILES permitted combat units to be pitted against each other in relatively free-play, force-on-force engagements. An observation center equipped with CIS near Fort Irwin kept track electronically of MILES kills, individual vehicle movement, and radio transmissions from the evaluated units. The center resembled a dimly lighted video arcade with monitors and television screens depicting real vehicles engaged in mock combat. Elaborate data-processing equipment provided instantaneous information on unit locations, troop concentrations, heavy weapons positions, the number of shots fired by caliber, and hits and misses. Remote-control cameras located on mountaintops provided total video coverage of the battle area. Observer-controllers accompanied every unit throughout the rotation, unobtrusively recording actions that were then combined with electronic data for the after-action reviews (AARs).

The resounding success of the National Training Center was the result not so much of its technology, but of the effect of its real-world, real-time, no-nonsense combat simulation on how the Army prepared for war. Each successive iteration or rotation of a unit through the NTC experience

increased that unit's ability to survive and win in combat. The experience was grueling indeed and often, at first, very humbling. The opposing force, or OPFOR, regiment that daily hammered the novice commander was finely practiced in Soviet tactics and offered no quarter. Four hours after each instrumented engagement, leaders of the evaluated unit faced the harsh realities of watching their performance played back during an AAR. The conduct of an AAR embodied, perhaps more than any other single event, the commitment of the Army to no-nonsense training. In silence, each commander watched on video as the observer-controller dispassionately explained, vehicle by dead vehicle, how the OPFOR took the unit apart. The observer-controllers did not intend the AAR to be cruel. Units that did not do well were not necessarily bad units; the more numerous and highly skilled OPFOR was tough to beat. The AAR simply brought home to every leader the realities of combat. Lieutenant General Frederick Brown, former deputy chief of staff for training at TRADOC, saw the AAR process as the "truly revolutionary characteristic of the NTC." There was no precedent for exposing a unit's chain of command to a no-holds-barred battle against an OPFOR where a leader's failure was evident in exquisite detail to his subordinates. "No army—including the Israeli army—has dared to do this," Brown said.<sup>18</sup> After leaving the briefing van, the commander knew whether his skill at drawing arrows on the map was equaled by his ability to infuse his soldiers with the confidence, leadership, and combat skills necessary to make his battle plan work in the harsh, unforgiving world of real combat. Almost a decade of continuous exposure to NTC and other derivative exercises at the Joint Readiness Training Center at Fort Chaffee in Arkansas and the Combat Maneuver Training Center at Hohenfels in Germany infused in field commanders an institutional obsession to train realistically for combat. With each successive rotation, the Army moved inexorably and bloodlessly a notch higher along the combat learning curve.

In 1984, *America's First Battles*, a volume produced under the auspices of the Army Command and General Staff College (CGSC), Fort Leavenworth, Kansas, appeared and caused an instant stir among senior leaders throughout the Army. The final chapter concluded what American soldiers had known intuitively for some time. The American Army performed poorly in the opening battles of all its wars not so much because of poorly prepared soldiers but because senior leaders—division and corps commanders—were not up to the task of commanding and controlling large units in the field. Lieutenant General Jerry Bartlett, then commander at the the Combined Arms Center and CGSC, believed that this problem could be substantially solved by applying the learning curve to generals as well as privates. What the Army needed was an NTC-like experience for generals and their staffs. Divisions and corps were too large to be routinely placed in the field to conduct realistic force-on-force

combat. Therefore, the Army created a computer-driven OPFOR to be manned by experienced controllers capable of electronic force-on-force interaction. To put as much of the fog of battle as possible into the Battle Command Training Program, or BCTP, the simulation was taken to units in the field so that the war game could be played using the tested division's headquarters staff and communications equipment. Whenever possible, Bartlett's controllers would exercise the division's existing war plans.

BCTP would provide the same realism, stress, and harsh, objective reality for generals and their staffs as NTC provided for colonels. The problem was the dreaded AAR. Holding colonels accountable for their errors in front of troops was difficult enough, but what about generals? The Army solved the dilemma by bringing in three retired four-star generals, each known and respected throughout the Army as experienced war fighters, to supervise the exercise. Initially, the Army in the field balked at such frank exposure. However, General Carl Vuono, then Chief of Staff, insisted that the BCTP continue.<sup>19</sup>

Unit-level training is the focus of the NTC, the ARTEP, and the BCTP. Units and their leaders perform mission-essential tasks that can be observed and evaluated against measurable standards under specific conditions. Within units, the leadership skills required by increasingly sophisticated weapons systems and training tools called for a simultaneous revamping of the Noncommissioned Officer Education System (NCOES).

## **THE NONCOMMISSIONED OFFICER EDUCATION SYSTEM**

In late November 1990, Command Sergeant Major of the Army Julius Gates accompanied General Vuono to the Soviet Union at the invitation of General Valetin Varennikov, the Soviet Ground Forces Commander-in-Chief and a hero of the battle of Vilnius in World War II. Near Kiev, Vuono, Gates, and another Soviet General, Boris Gromov, stood together as they watched two young Soviet officers lead a platoon of trainees through a demonstration of close-order drill. Soviet officers did not quite know what to make of Gates. A master paratrooper and a Ranger, Gates' many years with light infantry units had kept him trim and fit. Yet the sight of a sergeant purported to be a personal advisor and confidant to the highest-ranking officer in the Army seemed incongruous to them, to say the least. Gates was not terribly impressed with what he saw. As the soldiers wheeled about in intricate evolutions, Gates turned to Gromov, pointed to the officer drillmasters, and remarked dryly, "You know, in our army sergeants would be doing that—junior sergeants."

"Yes, I know," the Soviet replied through an interpreter. "That's what makes your army so good. We use officers because we don't have sergeants like you."

Soldiers have long recognized that sergeants are the backbone of an army, particularly the American Army, which has traditionally given noncommissioned officers a great deal of authority and responsibility. But 10 years of war in Vietnam damaged the NCO Corps physically, morally, and psychologically—more than any other segment of the institution. The strain imposed by back-to-back combat tours in Vietnam exacted a terrible toll on young NCOs. Tens of thousands died or were wounded, and many more left the Army frustrated and fatigued as soon as their hitch was up. Morale continued to plummet after the war. NCOs found themselves in an unfamiliar army where the message to new volunteer soldiers was not one of discipline and combat readiness but rather "the Army wants to join you." Pay compression made NCOs almost as poor as their privates. Those who remained stood by and watched anxiously as their authority steadily eroded in a progressively more permissive and ill-disciplined environment.

The near ruin of the NCO Corps during Vietnam caused the Army leadership to take a careful look at how the Army developed noncommissioned officers. Without a comprehensive schooling system, NCOs were expected, for the most part, to learn on the job. In 1969 General William Westmoreland, at the urging of his Vice Chief, General Ralph Haines, had instituted a system of NCO training and selection that in many respects paralleled the officer system. The concept called for four levels of training. The primary level was similar to the old NCO academies. Basic and advanced levels required board selection for attendance and included advanced skill development balanced with a strong dose of leadership and training evaluation. The fourth and highest level was the Sergeants Major Academy founded at Fort Bliss, Texas, in 1972. The Academy curriculum paralleled that of the Army War College, and selection became as highly prized among senior NCOs as the War College has traditionally been among officers. The NCOES added rigor to NCO career development. A sergeant had to prove himself to his leaders in order to advance to each level, and at each level he learned the skills necessary to succeed at the next higher grade.

As the NCOES produced better sergeants, the trust of officers in their NCOs returned in full measure and then began to grow. With trust came increased responsibility and in turn confidence began to reappear among the "new breed" of well-trained and well-educated NCOs. As pay and quality of life for NCOs improved, so too did the quality of the NCOs themselves. Of the SMA's first graduating class in 1973, fewer than 8 percent had attended college. Of the soldiers who joined the Army that year and who rose through the ranks to attend the academy 18 years later,

88 percent had attended college; nearly half had earned degrees.<sup>20</sup> In addition to education, the NCO Corps maintained with equal strictness standards for job performance, personal conduct, physical fitness, and, most importantly, demonstrated leadership ability. By the time units deployed for Desert Shield, the transformation of the NCO Corps was virtually complete. Sergeants performed in the desert with unequaled initiative, professionalism, skill, and concern for soldier welfare. Brighter, better educated NCOs also required the best possible officer leaders.

### AIRLAND BATTLE DOCTRINE

Most of the Army's senior leadership, with General Starry in the lead, had grown increasingly uncomfortable with the 1976 version of FM 100-5. In 1977, a year after taking command of V Corps, Starry stood on the Golan Heights looking east toward Damascus as Israeli General Rafael Eitan explained how, in the desperate hours of October 6, 1973, he watched as waves of Syrian tanks formed successive echelons as far as the eye could see.<sup>21</sup> Although force ratios clearly called for the Syrians to win, they lost because of *intangibles*. To Starry, the battle of Kuneitra proved conclusively that the side that seized the initiative and demonstrated superior fighting skill and determination would prevail.

The Soviet invasion of Afghanistan in 1979 underscored to General Meyer that Europe might not be the only probable future battlefield. Meyer was particularly concerned that fixation on the active defense, whether intended or not, might affect the morale and fighting spirit of young officers. General Richard Cavazos had a heightened respect for unquantifiable aspects of warfare that FM 100-5 tended to ignore. Commander of Forces Command (FORSCOM) at the time, Cavazos spoke about the value of leadership, courage, endurance, and will as principal determinants of combat effectiveness: "What's important is how soldiers, not systems, fight."

The 1982 version of FM 100-5, for the first time, moved decisively away from force ratios to intangibles as predominant factors on the battlefield. It listed leadership as an element of combat equal to firepower and maneuver and went on to underscore the validity of training, motivation, and boldness—the ability to perceive opportunity, to think rapidly, to communicate clearly, and to act decisively. The success of AirLand Battle depended on four basic tenets: *initiative*, *depth*, *agility*, and *synchronization*, each demanding as much from the intellect of the commander as from the physical power of his force.

The 1982 manual also introduced AirLand Battle doctrine. General Glenn Otis, Starry's successor as TRADOC commander, recognized that the size and complexity of the air and land battlefield had outgrown the narrow tactical focus that DePuy had imposed on Army operations in FM 100-5. Otis chose, therefore, to introduce the operational level of war in the

1982 version as an intermediate level between tactics and strategy. By the time the Army developed the 1986 edition, AirLand Battle had become synonymous with the operational level of war.<sup>22</sup>

AirLand Battle doctrine sought to find a method for defeating second- and third-echelon forces. A defending force waiting passively for the enemy to appear would be swept aside by successive Soviet echelons. In order to have any chance of winning against such unfavorable odds, the defender would have to seize the initiative by attacking follow-on echelons before they appeared. The manual proposed two methods of attack. The first was to use distant fires and electronic warfare to slow, confuse, and damage as many early arriving forces as possible, executing distant strikes in a carefully conceived pattern. The object was to create gaps in the enemy's battle array that could then be exploited with the second means of attack: lightning-fast offensive maneuver using mechanized forces supported by tactical air power and attack helicopters. Fires became, therefore, not merely a means to attrit the enemy, but also a mechanism for setting the terms of battle. Fires would freeze the enemy and stun him long enough for maneuver forces to strike deep to destroy following echelons.

The imperative to strike deep forced the writers of FM 100-5 to observe the battlefield from a higher perspective. In the 1976 version, the view from the division commander's perch, essentially a tactical view, was high enough to observe the direct firefight at the point of collision between two opposing forces. But to see and strike echelons not yet committed demanded a higher-level perspective. In terms of time and space, three echelons attacking in column formation occupied ground to a depth of 150 kilometers and required about three days to close on the point of contact. In 1982 the maneuver commander had few weapons or means of observation capable of reaching that far. The Air Force, however, did have a deep capability, so the need to extend the battlefield and strike deep gave the corps commander an even greater interest in how air power was employed. Since World War II, the Air Force had considered aerial deep attack, or interdiction, to be an essential mission, but they had not, in the past, so closely linked the interdiction effort to the corps commander's maneuver scheme. However, the Air Force did accept the Army's contention that success on the ground depended on deep strikes to shape the battlefield. Beginning in 1979, the Tactical Air Command at Langley Air Force Base, Virginia, and TRADOC headquarters, just 20 minutes away, began to develop a joint doctrinal vision that included a system for Army fires to suppress enemy air defenses and air interdiction (AI) to attack the second echelon.

In 1984 General John Wickham and General Charles Gabriel, the Army and Air Force Chiefs of Staff, announced the acceptance of 31 initiatives specifically designed to enhance joint employment of AirLand Battle

doctrine. The initiatives resulted from a year of discussions, war-gaming, and intellectual free-for-alls by members of a joint force development group. The group's charter, simply stated, was "to create a means to design and field the best affordable AirLand combat force."<sup>23</sup> A focal point of their effort was to reach an agreed method for using air interdiction as an integral part of combat power. As a result, the group redefined air interdiction as an attack on targets beyond the corps commander's area of interest and established a new category, battlefield air interdiction (BAI). Initiative 21 stated in part that BAI was:

*Air action against hostile surface targets nominated by the ground commander and in direct support of ground operations. It is the primary means of fighting the deep battle at extended ranges. BAI isolates enemy forces by preventing their reinforcement and supply and restricting their freedom of maneuver. It also destroys, delays, or disrupts follow-on enemy units before they can enter the close battle....*<sup>24</sup>

Operational art and the increasing importance of joint operations demanded more from commanders and their staffs than ever before. As these demands increased, so would the need for educating officers more capable of understanding and applying the new concepts.

### **SCHOOL OF ADVANCED MILITARY STUDIES (SAMS)**

General William Richardson was commandant at the Command and General Staff College during the period when the 1982 version of FM 100-5 was being written. He lamented the Army's system of officer education, which had not adequately provided the intellectual rigor necessary to grapple with the complexities of the operational level of war. The intellectual ferment surrounding the birth of the new doctrine rekindled interest throughout the Army in military history as the most practical laboratory for learning the art of war and applying intangibles to its execution. The result was a concept, first offered in 1981, to create an advanced second-year course for a small, select group of perhaps 50 first-year graduates of CGSC. They would study the art of war in an intensive program of reading military history, practicing computer war games, and writing extensively. Recitations in class would be scrupulously critiqued by their peers and a faculty selected for their own intellectual acumen and knowledge of military history.

Instituted in 1983, SAMS was so rigorous that it initially overwhelmed its students. Long hours of concentrated study and intense pressure to perform led some students to wonder if this "academic Ranger school" was really worth the effort. To avoid any appearance of elitism, graduates received no special favors other than a guaranteed position in division- or corps-level staffs. As its motto SAMS adopted the unofficial maxim of the

German general staff, "Be more than you appear to be," and the director admonished graduates that they must be an elite with a humility that bears no trace of elitism.<sup>25</sup> The intention of the program to infuse a common body of thought—a common *cultural bias*—throughout the Army by means of its graduates worked beyond anyone's expectation.

By the time the Gulf War began, SAMS graduates had established a reputation as some of the best staff officers in the Army. They were present on all planning staffs and were heavily involved in the conception, development, and execution of the strategic and operational plans that would win the war so convincingly.

### LIGHT FORCES RENAISSANCE

Despite the focus on armor and mechanized forces fighting on the Central European plain, which had been sharpened by the October 1973 Arab-Israeli War, the Army could not ignore light and Special Operations forces. General Abrams recognized the value of highly trained and disciplined light infantry when he instituted the formation of two Ranger battalions in 1974. He intended to create a core of light fighters that would set the standards for the rest of the Army. The 1-75th Infantry (Ranger) was formed at Fort Stewart, Georgia, and the 2-75th at Fort Lewis, Washington. Many Ranger-qualified soldiers actively sought assignment to these tough units that they knew to be bastions of discipline and pride.

As the seventies progressed and terrorism increased, the Rangers and other Special Operations forces received more attention. The Army described a spectrum of conflict that compared the likelihood of engagement in combat to the risk or magnitude of danger. The high risk of total war up to and including nuclear holocaust seemed less likely than terrorism and brush wars at the low-risk end. This model argued for balance at both ends.

The Ranger battalions did indeed set the standards throughout the Army for training, physical fitness, and discipline. Parallel to the resurrection of the Rangers, the Army's Special Forces also underwent a renaissance to throw off the lethargy of Vietnam. Expanded several times over during that conflict, the Special Forces had lost the professional edge that had made them such an elite force. Like other elements of the Army, the Green Berets returned to basics—in their case, teaching indigenous forces to fight unconventional wars. After Desert One, the role of Special Forces expanded considerably to include counterterrorism and difficult direct-action missions that required specialized equipment and training.

In 1980 General Meyer established the High-Technology Test Bed in the 9th Infantry Division at Fort Lewis. Meyer's idea was to increase the mobility and firepower of the division while simultaneously making it smaller and lighter. Technology would cover the combat power gap

created by smaller size and greater deployability. During its early years, the 9th Infantry Division under Major General Robert Elton, and later under Major General Robert RisCassi, tested emerging equipment in the midst of its development cycles, bought off-the-shelf items, and restructured itself to test Meyer's concept. Shortly after becoming Chief of Staff in 1983, General John Wickham carried Meyer's initiatives one step farther with the creation of light infantry divisions. Driven by the shortage of airlift, the high likelihood of conflict at the lower end of the risk spectrum, and the constrained end-strength of the Army, Wickham foresaw an ascending role for light divisions. These divisions would not replace the heavy force, but would increase responsiveness and provide a complementary force optimized to fight where heavy armor and mechanized units could not go.

### URGENT FURY

The first signs of progress in the long climb back from the abyss of Desert One occurred three years later with the airborne coup de main in Grenada, code-named Urgent Fury.<sup>26</sup> Many of the structural problems that plagued the Iranian rescue operation also plagued Urgent Fury preparations. Useful intelligence was practically nonexistent. No agents were on the island, and hastily dispatched electronic and photographic collection platforms provided very little tactical information. To command the operation, US Atlantic Command, headquartered in Norfolk, Virginia, quickly created a joint task force. This arrangement placed the fighters—Army, Air Force, Marine, and SEAL combat elements—under a naval command equipped with incompatible communications and largely inexperienced in Army-Air Force planning and operational methods. In addition, the physical separation of the joint command from ground combat on Grenada would inevitably lead to numerous miscommunications and delays.

Tens of thousands of sailors, marines, soldiers, and airmen were ultimately involved in the Grenada operation. Nevertheless, as so often happens in war, responsibility for victory fell almost exclusively to a small body of fighters: five companies, each consisting of 50 to 80 Army Rangers, a few Army Special Operations commandos, and a handful of Air Force AC-130 Spectre gunships.

On the evening of October 24, 1983, Lieutenant Colonel Wes Taylor, commander of the 1-75th Infantry (Ranger), took off from Hunter Army Airfield, Fort Stewart, Georgia, with four MC-130 aircraft en route to Grenada. A late departure left Taylor with, at best, only 30 minutes of darkness over the objective, the airport at Port Salines. His only reference to the battlefield was a vaguely legible black-and-white photocopy of a British Ministry of Overseas Development map. His mission was to clear the runway at Salines to allow follow-on forces to land. At takeoff, the

situation at Salines was so poorly developed that he could not tell his soldiers what resistance to expect. He could not even tell them whether they would parachute into the objective or land on the runway. Not until he was in the air an hour out did Taylor learn that the Cuban defenders at Salines had scattered barrels and road-grading equipment across the runway. The Rangers would have to jump. Flying in the dark and stuffed 45 to each aircraft, the Rangers began harnessing parachutes and snapping 150 pounds of parachute, kit bags, rucksacks, and weapons containers onto their bodies.

A mile short of the island, a searchlight illuminated Taylor's aircraft, which was flying at only 500 feet. The C-130 was so low that guns emplaced on the heights above Salines airstrip fired red and green tracers at it horizontally. Taylor's planeload jumped out into the pyrotechnics and seconds later slammed onto the airstrip only to endure a crescendo of automatic weapons fire from angry Cubans entrenched in the hills all around them.

During the next two hours, a handful of Rangers set about clearing obstacles from the runway and assaulting the Cuban defenses. Captain John Abizaïd, commanding Taylor's A Company, charged the heights to the east of the runway. Rangers shouted in Spanish to the Cubans to surrender; the Cubans replied with bilingual obscenities and increased fire. To reach the high ground, Abizaïd needed a tank. Sergeant Manous Boles provided one in the form of a Cuban bulldozer that he found on the runway and hot-wired on the spot. Boles raised the blade for protection, slouched in the driver's seat, and charged his unlikely armored vehicle toward the enemy. Other Rangers crouched behind the blade and fired in every direction. When they reached the top, the Cubans were gone. By midmorning the airfield was secure.

Two days later, Rangers rescued American medical students trapped by the insurgents at the Grand Anse campus some distance up the coast. This time the mission fell to the 2-75th Infantry (Ranger) commanded by Lieutenant Colonel Ralph Hagler. Major General H. Norman Schwarzkopf, at the time the Army advisor for operations, suggested a joint heliborne operation using Marine helicopters aboard the *USS Guam*—the surest way to reach the students quickly with the least risk. While Marine and Navy staff officers argued the wisdom of this course of action, Hagler and Colonel Granville Amos, commander of the Marine helicopter squadron, sat down on concrete blocks in the hot sun at Salines and developed a simple plan of assault. They coordinated preparatory fires by Navy A-7 fighters and Air Force AC-130 aircraft placing 105mm cannon fire into buildings surrounding those that sheltered the students. The operation went exactly as Amos and Hagler had planned. Marine helicopters landed the Rangers while CH-53 helicopters followed immediately and rescued the 233 medical students and American citizens.

The complete operation, from first arrival to last departure, required only 26 minutes.

The next day Hagler's Rangers conducted a second successful airmobile assault against a Cuban barracks complex at Calivigny. In all, the Rangers accomplished most of the combat tasks on Grenada at the cost of 8 killed and 69 wounded. Grenada succeeded, thanks to the bravery and competence of ground soldiers and in spite of flawed operational planning and an incomplete integration of land, sea, and air forces.

From the deck of the admiral's flagship, General Schwarzkopf watched the operation unfold with mixed emotions. On the one hand, he grew increasingly frustrated—and at times furious—with the difficulties inherent in conducting such a complex operation on such short notice with Services so little acquainted with each other. On the other, the performance of the infantry soldiers at Salines and Grand Anse reinforced his lifelong belief that great soldiers were the single most important ingredient in victory. "We need to focus on the fundamentals, the values of the battlefield, and the standards and discipline of our soldiers," Schwarzkopf remarked after the battle, "because Grenada, once again, proved that even though higher headquarters screws it up every way you can possibly screw it up, it is the initiative and valor on the part of the small units, the small-unit leadership, and the soldiers on the ground that will win for you every time."<sup>27</sup>

### **CHANGES BEGIN TO TAKE HOLD**

Urgent Fury gave the Army a renewed sense of pride and accomplishment. Rangers appeared on national television at the Army-Navy football game halftime show at the Rose Bowl in December 1983 drawing thunderous applause and well-deserved respect. Abrams' Ranger battalion idea had not only taken root but had grown into a fighting force vindicated in battle. The 82d Airborne Division shared the spotlight along with the Army's 160th Aviation Battalion (Special Operations). This sense of well-being came at a time when the ground was ripe to replant the fundamentals and values referred to by General Schwarzkopf.

General Wickham put a distinctive stamp on this effort when he and Secretary of the Army John Marsh instituted a series of yearly themes that emphasized such subjects as leadership, the soldier, and the family. By emphasizing a different theme each year, the Army kept values in front of everyone's eyes as programs and policies were implemented to strengthen that theme. Direct measurement of progress was difficult, but the emphasis on ethics and soldierly values like courage, competence, candor, and commitment became bywords in the lexicon of leadership in the mid-eighties.

The infusion of defense dollars and the renewed focus on values needed at least three years of gestation before they began to produce clearly recognizable results in the field. Arthur Hadley, a syndicated reporter and long-time observer of the military, began to notice the turn-around as early as 1982. Often, indicators were subtle. A group of German civilians in Bad Mergentheim noted that American vehicles no longer drove across planted fields and orchards or knocked corners off buildings. In 1984 a German panzer colonel noted an "unbelievable" jump in combat proficiency by an American tank battalion attached to his regiment. Hadley noted that vehicles no longer littered German roadways during exercises. He met tank crewmen with as many as eight years' experience and these crewmen knew their jobs: "In 1985 most of the tanks one saw broken down beside the road had soldiers with tools working on them, while others directed traffic. Four years before, there were far more broken-down vehicles and soldiers were sitting on them smoking."<sup>28</sup>

More tangible indicators demonstrated improvements in combat readiness. In 1987 an American tank crew from the 4-8th Cavalry won the Canadian Army Trophy for the first time in 24 years. The superior fire control of the M-1 tank, combined with imaginative use of simulators for training, gave Americans the advantage in this NATO competition.<sup>29</sup> That same year, a team from the 11th Armored Cavalry Regiment broke German dominance of the Boeselager reconnaissance team competition for the first time. At the National Training Center, units on their third or fourth rotation began to beat the OPFOR—consistently. Some units, in fact, became famous throughout the Army for their skill at "fighting outnumbered and winning."

## JUST CAUSE

After 15 years of reform, the Army considered its transformation from a mass conscripted force to one of long-service professionals virtually complete. In the interim since *Urgent Fury*, the Congress had taken a hand in military reform with the passage of the Goldwater-Nichols Act in 1986. The new law was intended to improve the conduct of joint operations, strengthening the positions of the Chairman of the Joint Chiefs of Staff (JCS) and the operational CINCs. The first test of the new law came with the invasion of Panama on December 21, 1989. Tensions in the region had mounted rapidly in late 1989 with assaults on American soldiers and civilians and growing evidence of dictator Manuel Noriega's support of drug traffic. In response, the President decided to execute *Just Cause*, an operation that would dramatically showcase the Army's growing professional competence. The brief campaign against Manuel Noriega and his band of thugs is important to the story of Army reform because it demonstrated the operating techniques and military principles that would be proven again on a greater scale in *Desert Storm*.

The President retrieved General Thurman, former chief of Army recruiting and later Army Vice Chief of Staff and TRADOC commander, just short of retirement to be his man-on-the-spot in Panama. Immediately after arriving at his headquarters in Quarry Heights, the new Commander-in-Chief, Southern Command, made it absolutely clear that he was in charge. Thurman arrived prepared to fight a campaign. A veteran paratrooper himself, he placed responsibility for executing a military option on his friend, Lieutenant General Carl Stiner, commander of XVIII Airborne Corps at Fort Bragg, North Carolina. Stiner was the right man for the job. Any action against Noriega would be a joint operation; Thurman would command regular and special operations forces from four Services. Stiner, who had extensive experience in joint commands and had accumulated more practical knowledge of special operations than any general in the Army, became commander of Joint Task Force South.

Thurman and Stiner planned an enormously intricate joint coup de main—the most detailed, complex assault of this sort since World War II. It included simultaneous airborne operations against 27 objectives spread across the country—and all conducted at night. Many of the assaulting units would fly directly into battle, almost 1,500 miles from garrisons in the United States. The plan was a complex and compressed “takedown” operation intended to smother the Panamanian Defense Force (PDF) and wrest control quickly. That way, civilian and military casualties and collateral damage would be minimized.

The medley of available forces included Army Rangers, Special Forces, and troops from three divisions: the 82d Airborne from Fort Bragg, North Carolina, the 7th Infantry (Light) from Fort Ord, California, and the 5th Infantry (Mech) from Fort Polk, Louisiana. The 193d Infantry Brigade permanently garrisoned in Panama provided a substantial portion of the Army’s combat strength. The Air Force provided airlift as well as fire support from F-117 Stealth fighters and AC-130 Spectre gunships. The Navy provided special SEAL teams and the Marines stationed in Panama would act as a blocking force.

All players would be tied together through the use of a single, compact list of communications frequencies and call signs. Units in Panama would conduct repetitive rehearsals in full view of the enemy, both to hone their troops to a sharp edge and to “cry wolf” so many times that they would not alert the Panamanians when the real operation began.

By the time the President authorized Just Cause, many of the soldiers tagged for the operation had been through real or simulated versions of the exercise many times. They were accustomed to operating autonomously, and they were trained to take charge even when left virtually alone. Finally, the joint command had good intelligence. It knew where

each enemy unit was located and infiltrated US Special Operations forces ahead of the main assaults to keep an eye out for unexpected movements.

Operation Just Cause played out almost exactly as planned. Prior to H-hour, midnight, December 20, 1989, Special Forces soldiers infiltrated key facilities in and around Panama City. One team blocked a mechanized task force crossing the Pacora River bridge to the city to join the fight. This team engaged the task force with AT-4 antitank rockets and called in fires from Spectre to hold the bridge against heavy odds. Task Force Bayonet, consisting of the 193d Infantry Brigade reinforced by the 5th Infantry and by light tanks from the 82d, attacked Noriega's headquarters, the *commandancia*, with a phalanx of armored infantry carriers supported again by Spectre gunships circling overhead.

Three minutes after H-hour, two battalions of Rangers dropped out of the night to seize Rio Hato Airfield some 50 miles west of Panama City and to neutralize two companies of PDF. After three minutes of assault fire by Spectre gunships, another Ranger battalion dropped on Tocumen International Airport to seize the control tower and capture PDF forces nearby. Fifteen minutes after H-hour on the Atlantic side, a task force of paratroopers secured key facilities, including vulnerable canal locks and machinery. A small force secured Madden Dam in the center of the Canal Zone and, after a brief firefight, rescued 20 political prisoners Noriega had locked up nearby in Renacer Prison.

Forty-five minutes after H-hour a brigade of the 82d Airborne Division began parachuting into Tocumen International Airport to assault Panamanian army and air force elements defending there. An ice storm at Fort Bragg hindered loading and takeoff, delaying the arrival of follow-on troops three hours. However, after landing, the follow-on paratroopers quickly transferred to 18 waiting Blackhawks, escorted by Apaches, to conduct three coordinated air assaults on Panama Viejo, Fort Cimarron, and Tinajitas army barracks. The three hours' delay transformed a relatively safe night landing into a daylight combat assault against the elite PDF Tiger Company occupying Tinajitas barracks. The Blackhawks took numerous hits as they dropped soldiers into the landing zone some 400 meters from the barracks complex. In stifling heat, the paratroopers pushed forward. When they arrived at the garrison walls, the enemy soldiers had fled, leaving most of their equipment behind. The PDF command and control structure and most PDF units were neutralized by H-plus-10 hours. The PDF were simply smothered by unseen attackers from every direction and in every dimension. While they had expected battle, they did not expect to be confronted with such a simultaneous display of overwhelming force.

The Army would repeat the success of Just Cause again in the Iraqi desert barely more than a year later. Just Cause presaged Desert Storm in

several important respects. First was the growing confidence among the Army leadership that the newly minted generation of high-quality soldiers could be relied upon to execute even the most dangerous and difficult missions. Second, Just Cause indicated to field commanders that the President and his national security advisors would give them wide latitude to conduct the operation. The operation demonstrated again the imperative that victory must be won quickly with overwhelming force to ensure minimum casualties.

From the tactical perspective, Just Cause demonstrated that joint operations were not only possible but imperative in future wars so long as all units involved could talk to each other and operate together under a single chain of command. Precision weapons proved worthy of the extra cost in Panama because of their unique ability to take out military targets discretely while reducing collateral damage to surrounding civilian facilities. Night operations are the most difficult to execute, but when executed with competence, achieve the most decisive results at least cost. The soldiers' performance in night combat vindicated the Army's commitment to, and substantial investment in, expensive night vision technology for ground soldiers and aviators. Just Cause showed what a combat multiplier psychological operations (PSYOP) can be when fully integrated into the tactical plan. PSYOP induced bloodless surrenders and prevented needless casualties on both sides.

Just Cause also foretold the problems that the Army might have after Desert Storm in supervising humanitarian assistance, restoring order, and rebuilding damaged infrastructure. In fact, postconflict headaches in both wars would last considerably longer and would require a great deal more effort than generals ever imagined. Before the shooting stopped, soldiers in Panama found themselves guarding prisoners of war, distributing food, and walking the beat in Panama City as surrogate policemen. Soldiers ran a displaced persons camp as well as 20 food distribution sites and contributed free medical assistance to more than 15,000 Panamanian citizens. As in Grenada, the transition from warrior to humanitarian was made smoothly by superb young soldiers, many of whom had been standing on the freezing tarmac at Fort Bragg just a few hours before. Only the very best could have pulled off what was "the largest, most sophisticated contingency operation conducted over the longest distances in the history of the US armed forces. It succeeded because of tough young soldiers, sailors, airmen, and marines."<sup>30</sup>

## **EVOLUTION NOT REVOLUTION**

Shortly after the Gulf War, the Senate Armed Services Committee asked Major General Barry McCaffrey, commander of the 24th Infantry Division (Mech), how the war was won in only 100 hours. He replied, "This war didn't take 100 hours to win, it took 15 years." McCaffrey's

sentiments reflects those of his generation who as young soldiers watched the Army fracture in Vietnam and who devoted most of their adult lives to the task of reforging the institution through a remarkable process of evolutionary reform.

All of the Services regenerated themselves during the Reagan years, but Army reform differed from the other Services in two important aspects. First, at the time of greatest institutional crisis immediately after Vietnam, the Army was obliged to fundamentally change its character from the mass conscripted army of World War II, Korea, and Vietnam, to a small body of high-quality, long-service professionals. Second, Army reform centered primarily on ideas and people rather than machines. To be sure, the Army went to war with first-class weaponry. But it was the quality of the young soldier and his leaders and the excellence of their operational method that proved so overwhelmingly decisive in the Gulf.

A visionary cohort of soldiers who stayed with the institution during the difficult years following the war in Vietnam was responsible for launching the Army on its path to reform. They saw in the volunteer Army concept the opportunity to create a new-style Army capable, for the first time in its history, of winning the first battle at the lowest possible cost in human life. The small professional Army they created would be able to maneuver with unprecedented agility and speed. Its leaders would possess the independent spirit to make decisions on their own initiative. This new Army would seek to outthink rather than outslug its opponents. It would be peopled by a new style of soldier whose intelligence, skill, and esprit would allow him to take on and defeat a more numerous foe. Thanks to these soldiers and their successors, the Army that met Saddam Hussein was fundamentally different from the Army that emerged from the jungles of Vietnam 20 years before.

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