In February 1971, I stood on a sandbagged parapet overlooking the Ashau Valley west of Hue, talking to members of a rifle company that I was about to commit to an assault on a jungle-covered mountain close to the Laos border. The scene is still vivid in memory: a sky of purple clouds against a red sunset; foliage wet from fog, but ground dry from lack of rain; upturned faces, young, attentive, anxious, questioning. It struck me that almost all of my listeners had come into the Army at the same time. By 1971, the U.S. Army had all but exhausted its cadre of experienced noncommissioned officers, and fully half of the rifle platoons that I sent into combat against the North Vietnamese—the toughest light infantry the U.S. Army ever fought—were composed entirely of very young men from the same year group: lieutenants out of Officer Candidate School, "shake and bake" sergeants plucked from basic training and force-fed three stripes, and the hapless riflemen, the most unfortunate of the unfortunate.

- Unfortunate to have been drafted in the first place, when anyone with the academic ability, money, or right connections enjoyed exemption.
- Having been drafted, unfortunate enough to have been assigned to the infantry, which in a highly technical Army still exercised its monopoly on blood and mud.
- Unfortunate in having been sent to Vietnam rather than to a unit in Germany or the United States.
- Unfortunate in that while many of their contemporaries in other infantry units were on the eve of departure from Vietnam, they were on the eve of their first battle.

And yet, those unfortunate soldiers proved to be as brave and willing as any I observed in battle in three years of infantry combat in two wars; all they lacked was experienced leadership and training.

Five years later, in February 1976, I talked to another group of American soldiers in very different, but equally memorable circumstance. We were again on a hill. Swirling fog obscured a panorama of the Taunus Mountains in Germany.
It was a bone-aching day, with boot-top mud and patches of wet snow. The troops had just completed several hours of mock combat between tank and mechanized infantry platoons, capped by a debate over who had lost and why. My mind went back to 1971, and I thought how comparatively fortunate these youngsters were:

- Fortunate that they were in the Army of their own choice, many having elected to come to Germany. All had just spent a day plying their trade of infantryman or tanker, and most were animated, even enthusiastic, during the review of triumphs and mistakes.
- Fortunate in that they had NCOs in abundance, older men with the sagacity and resilience bred by years of service.
- Fortunate in that their families knew what they were doing, and understood why.
- Fortunate in that their letters in the orange nylon mailbags were supportive, and no longer stuffed with condemnatory pamphlets urging desertion or application for conscientious objector status.

What had happened over the intervening five years?

End of the War – End of the Draft

In 1971, the U.S. Army was in sad shape not only in Vietnam, but worldwide. The same is true—albeit to a somewhat lesser degree, of all the other services—as the investigative reporter Stuart Loory detailed in his book Defeated: Inside America's Military Machine.

From remote Army camps in the Far East and Central Europe to stateside garrison, Vietnam veterans from general to grunt—and newer recruits for whom the war is only legend—are caught up in make-work boredom. They face a future rendered uncertain by a confusion over their mission. They are wondering, almost to a man, what am I doing here?

At dozens of air bases around the world, pilots indoctrinated with belief in their own invincibility ponder the matter of why it was that the nation's non-nuclear air power could not bring a fourth-rate nation to its knees.
From the Straits of Taiwan to the Bosporous, an aged, tradition-bound Navy wonders whether it will be up to the challenge of a young and virile Soviet navy.

In the meeting rooms of the Joint Chiefs of Staff at the Pentagon, the nation's highest military officers struggle to regain their self-confidence and prestige.

One of the concomitants of the Army's exertions in Vietnam was neglect of its formations in Europe, where a largely armored-mechanized force, part of NATO, faced Warsaw Pact armies poised for combat, equipped with much larger numbers of tanks and artillery pieces. Worldwide, the Army had 2000 tanks in its combat units, and was authorized for those tanks 2238 sergeant tank commanders (E6, MOS 11E40). The effectiveness of the tank in battle is largely dependent on the tank commander, a senior NCO, who positions his vehicle, selects its target, decides what ammunition to use, and when to fire. Yet as the Army withdrew from Vietnam, it could muster less than 1600 qualified tank commanders. Moreover, a survey of these 1600 revealed that over 50% were in the lower half of E6s Army wide, as measured by their annual MOS test, and were therefore ineligible for further schooling. One armored division commander in the U.S., finding that he had only 47% of the 11E40s he needed, reclassified involuntarily 48 NCOs from other military occupations (MOS). In the reclassification proceedings all 48 stated unequivocally that they had no interest in commanding a tank, and most cited boring, repetitive training, long duty hours, command pressure on training and maintenance, and discomfort in the field.

The U.S. Army is, above all else, a reflection of the people from which it springs. The war in Vietnam puzzled, frustrated, and angered our people. Dissent was widespread. It is true that opposition to the war in Southeast Asia can be compared historically to dissent during the War of 1812 against Great Britain, or the War of 1848 against Mexico, and to internal opposition during the Civil War, or during American counter-insurgency against the Philippine Insurrection. Public support during World War I and World War II ill-prepared the Army for Vietnam: Gary Sadler and John Wayne were no substitute for George M. Cohan and Blue Stars in the windows along every residential street. By 1971, after five years of casualty lists—over 50,000 dead, four times that number wounded— the Nation was fed up with war. The U.S. Army was in disrepute, its leaders reviled,
its mores mocked, its institutions under attack from within and without. And low public esteem stemmed not alone from the flag-draped coffins and the young soldiers smiling from the obituary pages, but from the TV footage of Detroit and Kent State, and of grim soldiers confronting flower-bearing marchers in Washington.

Public disdain dissipated as swiftly as it had formed. A survey by Potomac Associates-Gallup Poll in May 1976 reported significant public trust in the leadership of the armed forces, who scored 40% higher than the CIA or labor unions, 20% higher than Congress or the White House, and 10% higher than the Federal judiciary.

Here in Lexington, the site of the annual conference for Reserve Officer Training Corps’ winners of the Marshall Award, it is useful to remember the ups and downs of the Army's ROTC. In 1965, enrollment in Army ROTC was 177,000, and in a number of colleges and universities, membership in the program was mandatory for male freshmen and sophomores. By 1971 the program was in eclipse —enrollment had dropped to 20% of what it had been in '65— and had become a storm center for student protest movements of all kinds. Mandatory ROTC was eliminated, and Harvard, Dartmouth, MIT, Princeton and other prestigious colleges and universities had cancelled the program altogether. But even that pendulum reversed. In 1976 most schools had rejoined, enrollment was up to 55,000, and officer production met the Army goal of 6,000 lieutenants per annum.

No doubt the end of the draft was a factor in the turn-around. Conscription has been an emotionally and politically sensitive issue at least since 1861. But not until the United States undertook land warfare on the continents of Europe and Asia did the Army become reliant on drafted manpower. That reliance declined throughout the last century. In the Civil War conscription provided 6% of Federal troops. In World War I, the draft furnished 67%; in World War II, 58%, in the Korean War 41%, and in Vietnam 40%. In 1969, during one of the peak periods of dissent against the war, the Nixon Administration promised to end the draft, and on June 17, 1973, within hours of signing the Paris Accords, Secretary of Defense Laird stated that "the armed forces henceforth will depend exclusively on volunteer soldier, sailors, airmen and marines."

Legislation for the All-Volunteer Force met with powerful resistance —among opponents were Senators Stennis, Nunn,
and Kennedy—but was enacted nonetheless. Some critics held that the volunteers would be exorbitantly expensive, and regionally and economically unrepresentative, being drawn disproportionately from the poor, the dull, or disadvantaged Southerners. Others argued that national service was good for the nation's soul—the columnist Joseph Kraft deplored the fact a whole generation of the northeastern establishment had grown up without experiencing the leveling of the barracks, or seasoning by association with red-neck sergeants or poor Southerners. The All Volunteer Army surprised most of us, myself included.

By 1976 recruiting statistics showed an almost exact correlation between the Army's intake and numbers of service-eligible males in the twenty most populous states, and between percentages of families at various income levels and recruits from said families. Numbers of blacks were half again as large as might be expected from eligible males, but given Federal laws that guaranteed equal employment opportunity, and the absence of evidence that blacks were less capable soldiers, the Army was unconcerned. With respect to mental ability, the Army found that it had improved its lie: compared with 1971, by 1976 the Army's intake of high school graduates was up 10%. Further, 87% of male recruits were in the upper three mental categories, compared with 78% during the draft, and 70% within the entire male age cohort. Finally, women were entering the Army in larger numbers; in 1976, 20% of ROTC enrollment was female.

The All Volunteer Army proved to be significantly better disciplined than its predecessor. By 1976, commanders throughout the Army were reporting a significant decline in courts-martial, confinement facilities were being closed for lack of prisoners, and even the ubiquitous drug problem seemed more manageable. The traditional indicators of discipline, the rate per 1000 soldiers AWOL (Absence Without Leave for less than 30 days) and Desertion (AWOL greater than 30 days) spoke volumes: from 1971 to 1976, AWOL was down 60%, and desertion down 75%. The table below puts these numbers in historical perspective:
<table>
<thead>
<tr>
<th>Year</th>
<th>AWOL*</th>
<th>Desertion*</th>
</tr>
</thead>
<tbody>
<tr>
<td>1944 (WWII)</td>
<td>Not available</td>
<td>63.0</td>
</tr>
<tr>
<td>1952 (Korea)</td>
<td>181.0</td>
<td>22.0</td>
</tr>
<tr>
<td>1965 (Vietnam)</td>
<td>60.1</td>
<td>15.7</td>
</tr>
<tr>
<td>1971 (Vietnam)</td>
<td>176.9</td>
<td>73.5</td>
</tr>
<tr>
<td>1973 (End draft)</td>
<td>159.0</td>
<td>52.0</td>
</tr>
<tr>
<td>1976 (Volunteers)</td>
<td>70.3</td>
<td>17.7</td>
</tr>
</tbody>
</table>

*Rate per 1000 soldiers

There was, of course, a price for the All Volunteer force, the cost of recruiting and paying soldiers. At the end of the draft Congress pegged soldier pay to the national standard-of-living index. In 1976, a typical first term enlistee earned $400–$500 per month, up 30–40% per month from 1971. In one sense, however, the Army of 1976 gave the public a much better return on investment. In 1945, the U.S. Army, with 6 million soldiers, fielded 89 divisions, roughly one division for each 68,000 men under arms. During the wars in Korea and Vietnam, that figure was higher. Even the peacetime Army of 1963 was manpower intensive: authorized 875,000, the Army supported 14 divisions, still well over 60,000 per division. In 1976, the Army was authorized 790,000, and manned 16 divisions: one per 50,000. More importantly, the 1976 division wielded significantly more firepower, and had the organic mobility and communications to control a much larger area. In a U.S. Army division in Europe in 1976 there had been a 300% increase in divisional armor and anti-armor weapon systems compared with its 1963 counterpart.

**Transformation Within the Army**

But tanks and anti-tank weapons, however numerous or effective, require proficient crews, and adroit tactical commanders. The occasion for my visit to the Taunus region of Germany in 1976, mentioned at the outset, was a field test of an innovative training technique we referred to as Tactical Engagement Simulation (TES). TES was designed to train and challenge leaders and followers: the form of TES evaluated was a two-sided exercise in which individual weapon pairings were adjudicated, and casualties assessed in real time. The engagement was followed by a detailed examination of the encounters by all participants to discover ways in which they could be both more "lethal" and more "survivable" in future fights. The troop enthusiasm I observed amid that miserable weather was real, and it confirmed for me that the Army was on a course that would genuinely change attitudes within its ranks toward
"peacetime" training in combat units. On point, defining the path for the Army, was its newly activated Training and Doctrine Command (TRADOC). As Loory reported, the Army came out of Vietnam with its professional compass spinning. Its bureaucracy was stifling, over-supervision by senior officers rampant, its training centralized, boringly pedantic, rote, and demonstrably ineffective, especially in developing resourceful young leaders. What was the Army for? What did its future hold? What direction should it take?

In 1971, guided by Lieutenant General W.E. DePuy, then the Assistant Vice Chief of Staff of the Army, the Army began looking for answers. DePuy began looking for answers. DePuy operated on three fundamental premises: 4

• An Army should train as it intends to fight. On the future battlefield a high degree of dispersion and decentralization will characterize tactical command, and battalion and company commanders will manage their own battle. Hence they should manage their training themselves, per a mission-type order...
• The U.S. Army must be entirely honest with itself...
• The Army's whole approach to training in units needs rejuvenation and change. Change will require firm support at the highest echelons for better training management, better training techniques, and better devices...the problem is less the message than the medium -less what to do to better support the trainer than how to communicate improvements to him...

In 1973 the Army awarded DePuy his fourth star, and put him in command of the newly formed TRADOC. During Yom Kippur in the fall of 1973, Israel was attacked by Syria and Egypt, a clash of armor and anti-armor systems, aircraft and anti-aircraft systems. DePuy used data from those battles to draw attention to the abject lack of readiness within the U.S. Army to deal with the Warsaw Pact threat. I submitted two papers to General DePuy in January 1974, one entitled "How to Win Outnumbered" dealing with tankers, the other "Infantry in Mid-Intensity Battle" dealing with foot soldiers. These cited not only examples from the Yom Kippur War, but also "historical parables" drawn from earlier military undertakings (e.g., gunnery in the British navy circa 1898). Both recommended to DePuy what he should do about doctrine, organization, and training. 5 By and large, DePuy accepted and improved upon these recommendations. In my judgment, DePuy's decisions
made three important contributions to the post-Vietnam Army:

First, he scrapped the Army Training Program—the organizing principle of which was curricular hours of instruction—and its related Army Training Tests—checklists for an observer. In place of these legacies of World War II, he substituted performance-oriented training: TRADOC stipulated tasks to be performed, conditions under which these must be performed, and standards for determining adequate performance. Training management therefore changed from a commander's scheduling classes to his developing a Mission Essential Task List (METL), and then requiring his or her troops to perform each METL task under combat-like conditions until judged proficient. The Army was taught to use the After Action Review (AAR), an all ranks, collective dissection of a training exercise or an actual operation that identified tactical mistakes and missed opportunities.

Second, DePuy pressed for adoption of Tactical Engagement Simulation in three forms: (1) live TES for training units in the field with their combat equipment performing battle missions opposed by a skilled, thinking enemy; (2) virtual TES in which simulators for combat vehicles enabled crews to fight together against a thinking foe on an apparently real, computer-generated battlefield; and (3) constructive TES, a model of combat used to train commanders and staffs with advanced command post exercises. All three forms could be combined for multi-echelon training of units. For all three forms he fostered the early fielding of primitive prototypes, and encouraged rigorous third party evaluations—typically by the Army Research Institute of Behavioral and Social Sciences (ARI)—to illuminate amelioration. With TES TRADOC inserted challenge and competition into tactical training, and overcame many of the constraints of time and territory that had theretofore constrained meaningful exercises.

Finally, DePuy emphasized performance by combined arms, that is, teamwork among the several Army branches, and facility with support from, or to, another service. He laid down provisions within future Army programs for the National Training Center (NTC) at Fort Irwin, CA, where brigade combat teams, employing TES, could move shoot and communicate and train jointly with Tactical Air Command units training at nearby Nellis Air Force Base. The brigade would be opposed by a highly professional opposing force.
with Soviet-like equipment, using Soviet style tactics. While the NTC did not become functional until the early 1980's, TES prototypes began to impact combined arms training at platoon level as early as 1973. TES has engendered its own literature, books published about experiences in training as vividly written as the battle accounts of previous wars.6

From within the Army, TES evoked strong opposition. DePuy once sent me to brief a group of retired generals on the result of early TES evaluations. In the foremost row sat one of the Army's best-known trainers, a lanky, grey-headed man of stern, chiseled features. When I was part way through my brief, he arose to ask me whether I really meant that this training would assess casualties among participants, and would rule out their further participation in the exercise. When I replied in the affirmative, he shook a bony finger in my direction, and proclaimed that I was teaching American soldiers how to die. Although shaken by that charge, I responded that our evidence was, to the contrary, that we were teaching soldiers how to survive and to win.

From outside the Army, the evolution of TRADOC's training concepts and management evidenced strong Air Force influence. For example:

<table>
<thead>
<tr>
<th>1971</th>
<th>1976</th>
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<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>U.S. Air Force</strong></td>
<td><strong>U.S. Army</strong></td>
</tr>
<tr>
<td>Flying Hour Program</td>
<td>Army Training Program</td>
</tr>
<tr>
<td>(allocated hours per subject)</td>
<td>(allocated hours per subject)</td>
</tr>
<tr>
<td>Specified Events</td>
<td>Army Training tests</td>
</tr>
<tr>
<td>(observer check lists)</td>
<td>(observer check lists)</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>1976</strong></td>
<td></td>
</tr>
<tr>
<td>Unit Desired Operational Capability (performance objectives)</td>
<td>Army Training Evaluation Program (performance objectives)</td>
</tr>
<tr>
<td>Aggressor Squadrons (dissimilar aircraft, expert adversaries)</td>
<td>Opposing Force Units (OPFOR) (dissimilar tactics, expert adversaries)</td>
</tr>
<tr>
<td>Multi-threat ranges and force-on-force exercises (RED FLAG)</td>
<td>Tactical Engagement Simulation</td>
</tr>
</tbody>
</table>
TES as a concept was a direct extrapolation of the Air Force RED FLAG training, which in turn was derived from the Navy's TOP GUN program. In training management too, the Air Force led the way for the Army. General DePuy enjoyed a close working relationship with General Robert Dixon of the Tactical Air Command (TAC), whose headquarters was at Langley Air Force Base, not far from Fort Monroe. Whether or not the two commanders planned the congruence, it was certainly there.

Did the DePuy reforms make a difference in the Army? General William Hartzog, one of his successors as commander of TRADOC, wrote in 1997 that "no single training reform since World War II has had so profound an impact on the readiness of the United States Army's fighting battalions as has the National Training Center at Fort Irwin, California." By 1976 there was solid evidence that what DePuy's TRADOC was seeking was right for the times, and would be effective where it would make the most difference to the Army: with tankers and infantrymen in small combat units.

Let me offer one example: One prototype of TES instrumentation was an optical simulation scheme called REALTRAIN, effective enough for field exercises with a limited number of armored vehicles and a few dismounted troops — basically constrained to a reinforced platoon on each side. In 1975 and 1976, TRADOC and ARI collected extensive data in USAREUR on the effectiveness of REALTRAIN —occasioning my trip to the Taunus Mountains, earlier reported. The evaluations took place during three weeks of "battles, two engagements per day, spread over four months in four different training areas. The test design compared the performance of a control group (Team A) who were advantaged by having fought in all the engagements with another group (Team B) who was permitted to accumulate no more than one week's experience. Each team consisted of tanks armored personnel carriers (APC), infantry (INF) that could dismount from the APCs, and anti-tank missiles (TOW). There were three principal measures of effectiveness: (1) initiation: who detected the opposition first; (2) which side opened fire; and (3) survivability. As might be expected, during the first week's engagements, there was little difference between Team A and Team B. But in the second and third week, leveraged by experiential learning, the performance of Team A became significantly better. In just three weeks of training over a period of four months,
Team A, operating against a thinking opposing force, learned to detect OPFOR first, (A 55%), to shoot first (A 163%), and to make its components more survivable (A TKS 26%, A INF 13%, A APC 41%, A TOW 64%). N.B. So trained. Team A was demonstrably ready to fight outnumbered and win. 

Allow me one more anecdote relevant to the Army in the aftermath of Vietnam. By 1979 it was evident that Tactical Engagement Simulation at a much larger scale was necessary were the Army to ready itself to defeat the Warsaw Pact juggernaut without recourse to weapons of mass destruction. But the price of that larger-unit TES would be high. That year the Chief of Staff of the Army, General Bernard W. Rogers, faced a difficult decision: whether to commit funds to procure MILES, and thereby instrument the NTC at Fort Irwin, and actualize the TES component of the DePuy "training revolution." In March 1979 General Rogers visited the author's 8th Infantry Division (Mechanized) in Baumholder, Germany.

When I assumed command of that division in 1977 I found that I had over 380 tanks, crews at strength and commanded mainly by TRADOC-schooled NCOs, with a TRADOC-trained Master Gunner in each tank battalion. My rifle companies and my artillery batteries all had a full complement of sergeants, most of them also graduates of TRADOC's NCO Educational System. In short, I became a beneficiary of what General DePuy had created for the Army.

Right after General Rogers arrived, I took him out to observe training. The first troops we encountered were in a large tent conducting an After Action Review of a "battle" using REALTRAIN (much as described above). CSA and I slipped unnoticed into seats in the back while a sergeant led the participants through a detailed examination of actions and orders, minute by minute. What emerged was an account of a successful but costly attack: the attacking unit lost all of its leaders—commissioned and noncommissioned—and most of its armored vehicles, but soldiers took over, and a young Specialist 4th Class, a rifle platoon leader's radio operator, coordinated fires and movement for a successful final assault that seized the unit's objective.

CSA drew me outside, and with some evident anger accused me of staging the AAR for his benefit. I assured him that neither I nor anyone else in the division would or
could have done so. AARs like he had witnessed had been going on twice each day for the past several weeks, and what he heard was by no means exceptional. But, I said, the Army needed to help me extend TES to units larger than platoons, to company or battalion at least, and to do that we needed a system like MILES. General Rogers was silent for a moment. Then he announced that he would sign up for any system that could train a Spec 4 to take over command of a company in combat. He did sign up for MILES, and he thereby opened the way to the NTC, to JUST CAUSE, to DESERT STORM, to OEF in Afghanistan, and to OIF in IRAQ.


Merritt, J.N. and Sprey, P.M. "Money for Men and Materiel." Unpublished MS, ca. 1971. There was neither funds nor technology, other than nuclear weapons, then in sight adequate to compensate for the Warsaw Pact's overwhelming numbers of tanks. The authors essayed to show that crew proficiency could be the cost-effective support for a strategy of "flexible response.

"Multiple Integrated Laser Engagement System" (Latin: miles, soldier), a family of laser-based devices in which a burst of light substituted for the projectile of a direct-fire weapon. This was the planned instrumentation for TES with large units, conceived within TRADOC, developed by industry, and approved for procurement by operational test. In 1979 General Rogers faced a decision to commit $ billions for the system’s procurement.