

tapped the collective wisdom of the Army to include in the revised manual. FM 100-5 is TRADOC's "point of main effort" and requires the full attention of leaders Army-wide.

What message would you send to combined arms soldiers worldwide?

We've got a great Army, and I'm proud to be part of it. It's one that's confident in itself, as proved by its successes in JUST CAUSE, the Cold War and DESERT STORM. But we have work to do. We must rapidly shift our focus from preparing to fight the battles

of a Cold War world to the battles of the future. And to do that in our smaller Army, we must optimize all our combat capabilities, including making the most of our fires. So our doctrine, training and leader development strategies must evolve as we reshape the Army.

Then, as we reduce forces in Europe and move units to our TRADOC installations, and as our Army gets smaller, we must do it all while caring for our soldiers, civilians, and their families. For those who leave the Army, we must show our great appreciation for their service in peace and war, helping to

make the Army the best in our nation's history. All Army alumni should depart with a sense of dignity and respect.

To our many soldiers who will remain in the Army, all of whom play some part on the combined arms team, I thank you for all you've done and challenge you to continue your record of excellence.



Operation DESERT STORM

Armored Brigade in Combat

LIEUTENANT COLONEL G. CHESLEY HARRIS

In August 1990, when Iraq invaded Kuwait, the 3d Brigade, 1st Armored Division, in Bamberg, Germany, was far from the conflict. One of the brigade's battalions was inactivating, and its vehicles and equipment were being readied for depot turn-in. The rest of the brigade's soldiers and families were planning their Christmas holidays. But all this would change quickly. When the Secretary of Defense named the units that would deploy to the Persian Gulf, the 1st Armored Division, along with its 3d Brigade, was among those units deploying as elements of the VII U.S. Corps. The war was no longer just a news story. It was real; it was us.

But we were ready. We had to be, for it was truly a come-as-you-are war. The next month and a half were a blur of 20-hour days and seven-day weeks as we tackled this enormous challenge.

Our task organization was set—one

Bradley infantry battalion, two tank battalions, an artillery battalion, an engineer battalion, a support battalion, and many more specialty support units—a force of more than 3,000 soldiers (Figure 1).

The complex deployment planning began. The soldiers and equipment would begin moving to Saudi Arabia in 20 days—on 29 November. Mean-

while, individual training intensified. Local firing ranges ran 24 hours a day, and the instruction on individual survival skills now included operations in a chemical and biological environment. Meanwhile, tank and Bradley crews deployed to Grafenwoehr for gunnery qualification while other soldiers prepared the vehicles for the deployment.

The brigade emphasized battle drills

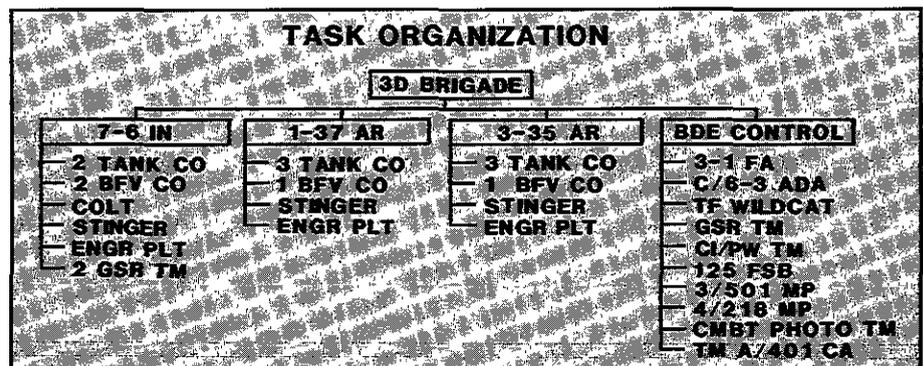


Figure 1

(NBC threat, ammunition exchange, crew evacuation, formation, actions on contact), recognition signals, equipment maintenance, soldier care (rest plans, food and water), and the combat lifesaver program.

We all had fears but were too busy to worry. Psychologists talked with soldiers, leaders, and families about detecting and coping with stress and anxiety. Security tightened to protect the kaserne against terrorism. Shots were given, eyeglass prescriptions were verified and filled, wills were revised, and debts were cleared.

Family support groups of wives and friends mobilized to identify families with problems, distribute information, dispel rumors, and learn to help each other more. Partnership units, the German Federal Railroad, local police, and German friends stood ready to help.

On 30 November, the United Nations endorsed the use of any means necessary to remove Iraqi forces from Kuwait. Saddam Hussein had until 15 January 1991 to withdraw.

More than 6,000 wheeled vehicles and almost 2,000 tracked vehicles now moved to seaports. It took more than 200 trains and 180 convoys, then more than 100 planes and 44 ships to ferry our soldiers and equipment to Saudi Arabia. New soldiers arrived to fill critical shortages, and a new brigade commander arrived to find his brigade divided between two continents.

By 4 January the entire brigade was in Saudi Arabia—somewhere. The air deployment of soldiers accelerated because of the availability of reserve aircraft from the United States, but all our equipment would not arrive for three more weeks—well after the air war had started.

Our tasks were extremely complex and resource intensive—assembling units from the various airfields and ports, preparing their equipment and getting it to them, moving them to the desert, establishing camps, training them, and rapidly establishing a coherent defense. Every unit was involved in these operations at the same time, with portions of units spread more than 400 kilometers apart.

At the ports of Damman and Al Jubayl, the unloading of ships continued 24 hours a day. The plan had been for the wheeled vehicles to arrive first, then the combat vehicles, but the arrivals were jumbled and units assembled piecemeal. Several ships, heavily laden, moved too slowly or broke down. Some container ships carrying special equipment and spare parts that were needed early did not arrive until the war had ended. Many containers were never found. We were able to paint only selected vehicles because there was not enough tan paint and not enough time.

Aircraft with soldiers from Europe landed at various airports within hours of ships' arrival at the seaports, then the available equipment and soldiers linked up.

Our home, a temporary holding area eight kilometers north of the port, looked like a refugee camp. A tent city designed for 9,000 soldiers was home at times for more than 12,000. There the soldiers were acclimated, intensive close combat training continued, first aid was rehearsed, and physical training directed. Personal hygiene was rigidly enforced—showers, use of specified toilets, and litter control. Five international telephones served the camp, and long lines of soldiers waited to use them 24 hours a day.

Now the soldiers could see and feel the war—checkpoints with armed guards, SCUD missile attacks, and thousands of military vehicles moving northward. The pace was frenzied—assemble, complete combat checks, and deploy quickly to tactical assembly areas 500 kilometers into the desert. The huge port area was an easy target, and we knew it. Our Abrams tanks were no defense against SCUDs; our defenses were hope and Patriot missiles. As soon as enough of a unit was assembled, usually a company or larger, it moved to our desert defensive locations.

Convoys moved by day with armed escorts and helicopter cover because of the fear of terrorist ambush on the single road northward. Many tracked vehicles were moved by transport, but even the hundreds of transports available could not support the theater-wide com-

mitments. One of our Bradley battalions—more than 100 tracked vehicles—had to drive the 500 kilometers.

Deep in the desert camps, the soldiers felt safer but led Spartan lives. Nothing in any direction but sand, rocks, nomads headed south, and the Kuwaiti border 100 kilometers to the north. Bulldozers pushed up berms around the camp for security and protection. Advance parties erected tents, brought in water and food supplies, and dug latrines. Flies, sand fleas, small rodents, dogs, and camels gathered around our living areas. Hygiene was a major concern, because any soldier who was medically incapacitated would be a major loss and a burden as well.

Then the flood of soldiers and units began to arrive. Daily physical training was enforced to accelerate acclimatization and also to relieve stress. The terrain varied significantly from that in Europe—no trees, infinitely flat land—but it was neither warm nor dry. It rained torrents most of January and February. One or two meters of fine sand and rock covered an impermeable shale rock foundation. After a rain, water stood more than 10 centimeters deep, with the sandy dirt underneath saturated to a sticky goo. The fine sand, like chalk dust, rivaled the mud at a construction site when combined with water, and wheeled vehicles mired to their axles.

The water never stayed long, though, because of the wind and sun, and once vehicle traffic broke through the fragile desert crust, the dust underneath was often intolerable. Noses and ears filled with dust and sand, and blood-shot eyes watered constantly. Dust storms reduced both human vision and normal optics to less than 100 meters visibility.

Although we could normally see four to six kilometers across the flat desert, it was made up of soft sand, non-trafficable rocky regions, drop-offs of one or two meters, and huge depressions. Night fell quickly, and groups that did not have satellite navigation systems had to stop lest they wander aimlessly. For instance, one water team that was four kilometers from camp when night fell traveled 150 kilometers during the

night trying to find us and arrived late the next morning. If not for aerial photography, whole brigades could have hidden or disappeared.

We had the month of January to conduct our final training. Detailed chemical decontamination exercises, mass prisoner processing, obstacle reduction, and rearming or refueling procedures were incorporated into day and night maneuver exercises—company through division.

We had never maneuvered as a brigade, even in Germany. The brigade formation of more than 1,100 vehicles would move in a wedge five kilometers wide and nine kilometers long—providing speed, security, and massed fire-

power (Figure 2). We laid the formation out on a scaled sand table—down to every vehicle and trailer. Since we anticipated conducting most operations at night, every soldier had to know the entire operation, with nothing left to chance.

The support battalion was tailored. Its 500 vehicles, laden with critical food, water, fuel, ammunition, and medical supplies, would travel protected inside the brigade wedge. Armor battalions would be to the flanks, with infantry and artillery forward. Tracked ambulances would travel with each maneuver company.

Casualty treatment and evacuation were major concerns, and we designed

special exercises to rehearse these procedures. Soldiers gave each other intravenous plasma and practiced simulated traumatic amputation procedures—a skill that would later save the lives of two of our Bradley crewmen. Time and distance factors for every action and drill had to be collected and verified for both day and night operations. The plan was simple, but its execution would be very complex.

Terrain models as big as two football fields were scaled to reflect the terrain and enemy positions in our zone of attack. The models were updated daily on the basis of the latest photo imagery on the enemy's occupied revetments and gun-tube orientations. Templates were made for maneuver drills, including locations for artillery illumination and smoke marking rounds for each attack. Vehicle attack speed and artillery times of flight were adjusted.

All the soldiers understood the commander's intent, the objective, the location of all units, as well as checkpoints, codes, recognition signals, vehicle night marking schemes, and drills. Very little was kept from them. From backbriefs and daily battle drills, they understood their mission and had confidence in the plan, their leaders, and their equipment. Soon, though, the reality of war would reduce these detailed plans to rough estimates; nothing ever happened as planned.

When 15 January came and the Iraqis positioned 400,000 soldiers in Kuwait, we knew the war would start soon. At 0300 on 17 January, the duty officer awakened me to say the air war had begun. I stepped outside my tent, hoping to glimpse a piece of it. But it was dark and cold, and nothing moved but the wind.

Here we sat, with only half of our vehicles on hand and few of our critical combat systems. Almost all the support structure was there but with little to protect it. We, the entire VII Corps, lay 100 kilometers south of four to six Iraqi armored formations that could be on us in six hours. In anticipation of a preemptive Iraqi attack down the Wadi Al Batin, all the combat forces in our division were placed under the operational

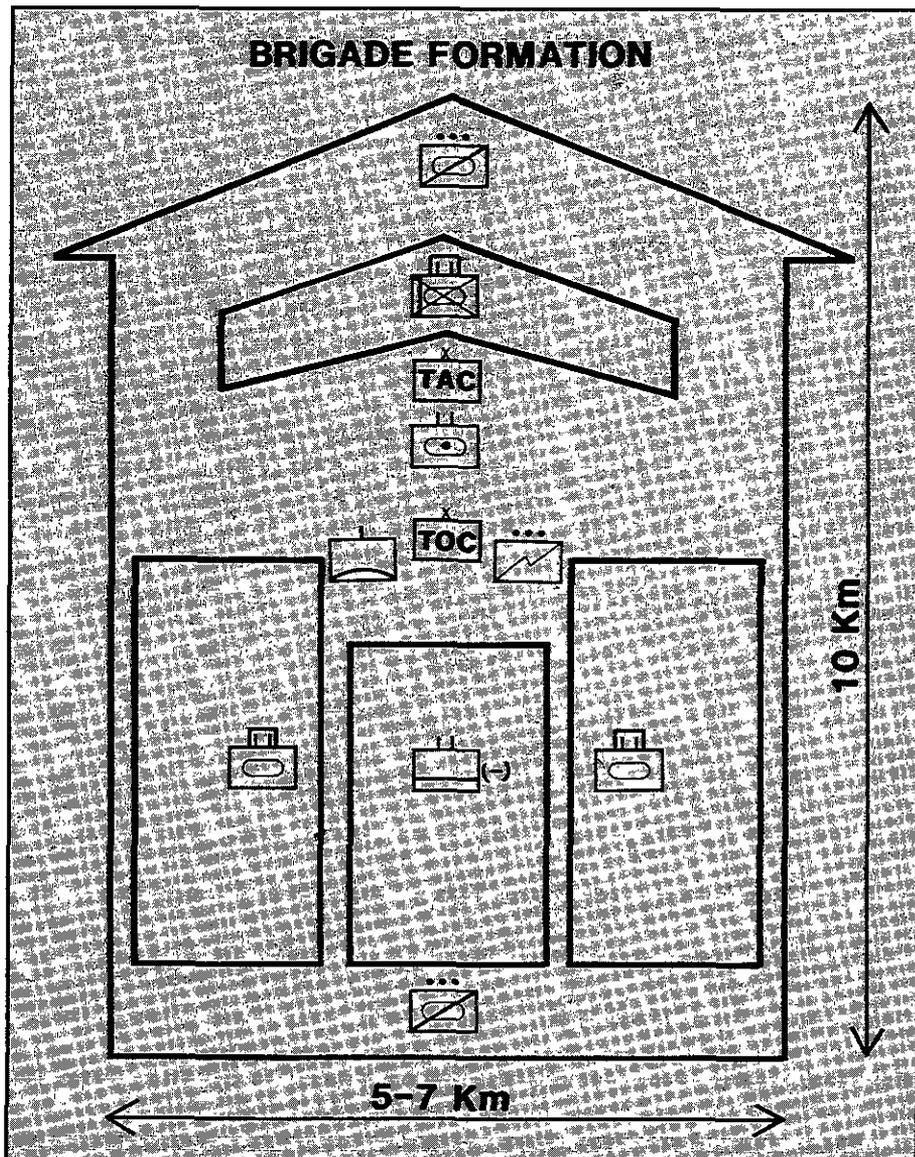


Figure 2

control of our brigade. Our complete brigade headquarters was operational. Full-scale rehearsals and detailed sandtable exercises were conducted daily. The task organization changed as new units arrived from the ports. For three weeks, our brigade remained as the 1st Armored Division's and corps' reserve. With every Iraqi border crossing or major troop movement, we went to full alert. Both soldiers and leaders hardened in the process.

At the desert camp, the problem of nomads in our perimeter increased. They raced about the desert in pick-up trucks, many of them believed to be Iraqi spies. Saudi Bedouins provided unexpected aid: Knowing the land and the other nomads, they quickly reported to us any Kuwaiti or Iraqi Bedouins.

Equipment maintenance took top priority. Many containers with repair parts could not be located, and other parts were in the depots at the seaports. Special lubricants for the high-technology equipment were impossible to find.

Ammunition had deployed on our tanks from Germany, but it had to be exchanged for the combat loads planned for the upcoming engagements. Limited quantities of training ammunition remained for practice in the desert; in the end, we had five rounds per tank, eight per Bradley, and ten per machine-gun for practice. The artillery and attack helicopters would fire precision munitions in combat that they had never fired in training. Drills were refined for the laser designation of targets and joint attacks with the Air Force.

From this tactical assembly area in Saudi Arabia, we finalized plans for war and reinforced the theater deception plan—we would attack directly into Kuwait along the historical invasion routes toward Kuwait City. The Iraqis took the bait and defended accordingly: Protecting Kuwait's southern border were two defensive belts of Iraqi infantry divisions behind multiple complex obstacle belts. To the rear, highly mobile armored brigades and divisions formed the Iraqis' tactical reserve. And to their rear, along the northern border of Kuwait, was the Republican Guard Corps—the operational and strategic



A Bradley fighting vehicle takes up a position at the first border berm between Saudi Arabia and Iraq.

reserves. Deeper to the west were weakly manned supply depots and thin lines of communication, all very vulnerable.

These last few weeks of training were precious. Vehicle maintenance problems were corrected, ammunition exchange completed, and critical weapon qualifications verified. Vehicles that could not operate on the sand were exchanged for all-wheel-drive vehicles.

Days before the attack, the entire XVIII Airborne Corps, followed by the VII Corps—our major headquarters—moved unnoticed hundreds of kilometers westward against the unprotected section of Iraq. For us, this move rehearsed the corps attack plan, further verifying formations and critical time-distance factors. Now in the attack position 30 kilometers south of Iraq, we waited to execute the left hook deep into Iraq and destroy the Republican Guard Corps in northern Kuwait.

At 0400 on 24 February, coalition forces in the east attacked the Iraqi defenses in Kuwait. Their immediate success rippled across the theater, accelerating the ground campaign in the west for the VII Corps. We were not scheduled to attack until 0600 the next day, but at 1000 the division commander directed us to go to Readiness Condition I (ready to move on notice) by 1200.

Moments earlier, we had refueled our combat vehicles and sent the fuel trucks off, and they were not scheduled to return for more than six hours. As it was, they would return to an empty camp, collect their equipment, and race to join us deep in Iraq later that night.

As 1200 approached, the brigade battle staff passed current intelligence updates and reviewed the plan of attack with the assembled commanders. The soldiers rapidly donned their NBC protective suits, took their nerve-agent tablets, completed crew checks, and prepared for the attack. At 1200 the brigade attack formation assembled in a sandstorm, with visibility less than 100 meters, and slowly moved northward toward the border. Meanwhile, aircraft attacked deep against the objectives we would assault the next day.

As planned, two battalions of engineer bulldozers had begun reducing the double three-meter berms at the border during the previous night. We arrived to find gaps every 100 to 200 meters across the division's 20-kilometer front. At 1500, with dust swirling, we crossed and moved deep into Iraq, stopping at 2100 to refuel.

This was our most vulnerable period. We had moved 100 kilometers, consuming seven of our 10 hours of on-board fuel. The fuel trucks were racing

to catch us, and air filters were being blown out. We made no enemy contact and had detected few enemy radio transmissions. But we were well within range of enemy fighters, bombers, and helicopters, as well as SCUD and ASTRO rockets and artillery. Our own attack helicopter staging operation leapfrogged forward into Iraq to better support deep operations.

An Iraqi attack now would stall the plan, especially if it included chemical or biological agents. A few Iraqi outposts surrendered; we learned that they had no radios. By 2300, intelligence updates from aerial platforms were complete. Our objective was still the Iraqi 26th Infantry Division headquarters and one of its brigades. From there, we would attack another 70 kilometers and wait. Our ultimate objective was the Republican Guard, but we wanted them to move out of their prepared defenses first.

It was cold and very dark that night, with hardly any moonlight. Vehicles moved with no lights, the drivers using night vision goggles. Special lights mounted on the rear of vehicles with unique color schemes for each unit and flank vehicle ensured that formations remained tight and cohesive during movement and attack drills and also helped service vehicles move rapidly through the formation to designated units. With my night thermal optics, I could see nothing but our tanks and Bradleys on all sides.

Our attack plan was simple: We would execute trained drills and saturate known enemy positions with rocket fire as the brigade moved forward and positioned our own artillery just out of range of the enemy's artillery. At the same time, attack helicopters would maneuver on our left flank to destroy the six to ten Iraqi tanks that had been identified in satellite photos. Then the helicopters would continue north along the west flank to destroy the threatening artillery deep on the objective. This would set the stage for the ground maneuver.

It didn't happen that way.

Before first light, we were moving again, and faster than planned. The

rocket battalion couldn't get into position fast enough from the division's west side; scout helicopters from the attack battalion arrived and confirmed that there were no tanks but did locate some air defense guns. Our support battalion stopped outside Iraqi rocket range, prepared now to receive casualties and dispatch preconfigured resupply and maintenance vehicles. Fifteen minutes later, our artillery positioned and fired more than 800 rounds of special bomblet munitions that killed many Iraqis and caused many others to lose the will to fight.

Aerial scouts to our rear, using special optics, viewed the objective and reported movements—both ours and the enemy's. The artillery fire continued while the Bradley battalion and the two tank battalions maneuvered precisely, according to drill, to their attack positions. The lead battalion made unexpected contact with several armored reconnaissance vehicles at 1300. That fight lasted 10 seconds from report of contact to cease-fire.

The artillery fire was lifted, and the mounted assault began. Tanks with blades pushed through the bunkers and the defensive positions. All battalions reported contact with small arms fire. The prisoners captured early in the southern fight provided key information on other enemy locations throughout the brigade objective, and this information was rapidly passed on the radio. By 1630, the brigade cleared the objective, refueled, and moved farther north to reestablish our attack formation. It happened so fast.

By 2230, the brigade re-formed. With moonless and cloudy conditions, the sky turned darker, with thunder, lightning, and rain. Our first fight was over, but another was under way on our northern flank. Rocket fire streaked overhead throughout the night against a commando unit and an armored unit protecting a logistics base to our front. Explosions shook the ground and sent shock waves through the dense air.

The commanders assembled and reviewed the fight. We discussed the lessons we had learned and how we would do it differently next time. Our

plan had been good, but it had not been executed as planned. Intelligence had not been as exact as we had expected, and flexibility had been the secret to success.

We reviewed intelligence updates and plans for the next attack. Then a message came from division: The plan to hold here for 24 to 36 hours had changed. Our new mission was to continue the attack eastward toward Kuwait, with the objective being the Republican Guard divisions. Indications were that Saddam Hussein and his elite operational reserves had no idea we had moved so deep. A new brigade attack plan was quickly disseminated. We would not receive the written plan from division headquarters until the next morning—after the attack was under way.

Early the next morning, the brigade on our west flank attacked the logistics depot shelled the previous night. A tank company with other armored vehicles augmented the Iraqi defense. The exchange of intensive small arms fire began. The identified enemy tanks were quickly destroyed; then more artillery fire was called in to neutralize several enemy bunker positions. A Bradley battalion attacked again; cannon and machinegun fire saturated the area. The engineer tanks moved in, destroying the remaining bunkers and building defenses. With the area secure, a critical rear area threat was eliminated. The attack accelerated and continued eastward.

Around 1430, the brigade rounded the elbow eastward. Close air support attacked our next objective 80 kilometers ahead. Psychological warfare leaflets were dropped—"surrender now or you die." The linear enemy tank positions were confirmed. Our aircraft reported destroying 25 tanks. At least that many more remained in prepared positions manned by a brigade of the Republican Guard Tawakalna Division. We would later find the reported success had been grossly overstated and its location off by several kilometers. Our rocket battalion was still too far away to help and cover our approach. Fortunately, speed and surprise were on our side, because we were in this fight

alone—or so we thought.

At 13 kilometers from the objective, now around 1900, our artillery battalion stopped and initiated fire. The brigade maneuvered closer. At three kilometers out, the lead battalion opened direct fire from its tanks and Bradleys. Technology was on our side. Thermal optics made the night fight seem like day, except for the green or red tint. Burning Iraqi tank hulks now dotted the horizon. Radios crackled with reports. Two Iraqi tank battalions and an armored infantry battalion were on the objective. The rest of the Iraqi division stretched south into our flank division's zone. It was a night fight of the worst kind. Someone's attack helicopters started firing missiles at our objective. Our hot tank engine turbines became potential targets. It was pandemonium. Our artillery continued showering the objective as we maneuvered into position.

The artillery and direct fire from our base battalion stopped. One of our tank battalions dropped its lightly armored and wheeled vehicles and maneuvered its tanks across the objective. Finally, we got the Apache helicopter fire from our south to stop. Hidden Iraqi tanks engaged ours; then their infantry started firing. Secondary explosions ripped across the objective. The Iraqi tanks were in superb fighting positions, but their gun orientations limited their ability to traverse and fire completely into our attack. Our tank battalion lost four tanks in the assault. The casualties were evacuated by another battalion in the brigade. Four of the six personnel casualties would return to duty the next day.

Reports of our losses rippled across the radio nets—mines, the indiscriminate hidden killers that could lift a 60-ton tank three meters into the air. On cue, our wheeled vehicles moved into columns in the cleared tracks laid by the tanks. Destroyed enemy tanks and their crews, the smell of burning metal and gunpowder, and reports of dead soldiers kept the reality of death near. All the soldiers saw it as they moved forward. A burning U.S. tank lit the sky all night with secondary explosions.

The night fight lasted four hours, but

its intensity made it feel like minutes. We destroyed the better part of three Iraqi battalions in prepared defenses. Not until then did I fully realize the brigade's potential for focusing violent and lethal combat power. Our training had paid off. We were good, but we were also lucky. A report on the division radio net said enemy artillery had shelled our cavalry squadron's command post. Many soldiers had been wounded and many vehicles damaged.

By 2300 the brigade moved to the east side of the objective, refueled, rearmed, then started to move again—less one battalion. In rehearsals we had practiced completing this brigade-wide refueling in 45 minutes. Now we had to do it fast if we were to maintain the momentum of the attack. The tank battalion that had attacked the objective took about an hour more to sweep the area with infantry, then rearm and refuel—their support vehicles had remained well to the rear. They could see their tanks burning.

The engineers built a temporary holding camp for the Iraqi prisoners of war—almost 450—and interrogators went to work. Water and rations were distributed, and aid teams provided medical assistance.

Then our focus shifted. The logistics base ahead, our next objective, was defended by a mechanized armored battalion, and we would have to travel all night to reach it at dawn. We started to move at 2330; by 0200, the entire formation was re-formed and moving. That night fight was the last against a prepared defense. We were now in pursuit; the 1,100-vehicle brigade attack formation surged forward, with observers and drivers rotating positions.

It had been 20 hours since a sleep halt, and for most it would be 18 more. We lost both physical and radio contact with the division on our right flank. The formation changed; we shifted more combat power to guard that flank. We were 20 to 30 kilometers out in front and exposed.

Early on 27 February, we made contact with the hasty defenses guarding the massive logistics base. The defending battalion seemed to vaporize. In the

first minute of fire, 10 Iraqi armored vehicles erupted in flames. The brigade attacked on line, an armored formation of more than 150 tanks and Bradleys abreast moving 15 kilometers an hour. Psychological warfare teams broadcast warnings on huge speakers, asking the Iraqi soldiers to come out of their bunkers and surrender, not to fight and die. Huge ammunition bunkers and fuel cells were everywhere. It was a powder keg waiting to explode, and we were smack in the middle of it.

On the way, my Bradley detonated several unexploded scatter bombs and small mines, but only its tracks and shock absorbers were damaged. If we were to continue the attack across Kuwait toward the Gulf, I needed to stop and change my maps. A tank company protected my front, another to each side. Apache helicopters overhead provided deep fire and observation. We found a small revetment for cover and concealment. Iraqi soldiers surrendered in groups to the units around us.

When my driver and operations NCO stepped out, they detonated a mine and were seriously injured. It took 15 minutes for the tracked ambulance to arrive, and it seemed an eternity. By that time, thanks to the combat lifesaver program of one per vehicle, both soldiers were stabilized, and their lives were saved. (See "Combat Lifesaver Training" elsewhere in this issue.)

We started encountering Iraqi convoys and mixed units trying to escape northward. Among them, an Iraqi tank battalion turned and attacked in the gap between us and the brigade to our north. Reports were incomplete. Our ability to locate targets at three kilometers was countered by our inability to confirm their identification. And when in doubt, no one fired for fear of fratricide.

The commanders talked, trying to assess the situation. We were not sure whether an offensive was developing. Should we counterattack? Then the tank fire exchange began, but it lasted only minutes. What next? A battalion of Iraqi tanks was destroyed. Many burned for days. Six hundred more prisoners were taken on this day alone, and the engineers as well as some com-

bat units helped the military police. The lack of transportation, food, water, and shelter for these prisoners was overwhelming.

The brigade formation changed again, anticipating a mission to continue eastward and with continued lack of contact to our south. Dark hazy oil smoke weighted the late afternoon air. We crossed into Kuwait and knew we really had the Iraqis now. Then we heard that a convoy of 40 vehicles was coming from the south headed into our flank. We rapidly reoriented a tank battalion to protect the southern flank, but nothing ever showed. We would learn later that the report, which should have said "northern flank" instead, was a delayed report of the Iraqi tank battalion we had destroyed an hour earlier.

Night fell. A scout identified an Iraqi tank company several kilometers to our front in Kuwait, and our artillery battalion fired 120 rounds of bomblet munitions. We would not know the results until the next morning. Again, our commanders huddled, the intelligence officer provided an update, and we reviewed the attack plan for the next day.

It had been 40 hours since I last slept. Exhaustion overcame me, and I collapsed in the corner of my Bradley, as reports continued across the radio nets, for four hours of sleep that went too fast.

At 0530 on the 28th, a one-hour rocket and artillery preparation preceded the attack. The brigade commander and I made our way to the front of the formation. The artillery fire made the air

shake, and rockets screamed like holiday fireworks. The low-lying fog was blackened from the burning oil wells. Hundreds of fleeing Iraqi units battled to get back into Iraq.

Our attack helicopters stayed close to the fight, providing long range observation and fires. Because friendly forces were converging, target identification was critical. At 0720 the brigade commander directed a cease fire. A unit to our south reported that we were firing into their zone. Luckily, our scouts identified the problems. A friendly company there had mistakenly wandered into our zone, forward of our lead battalion, and our ricochets had hit their vehicles. After they moved out of our zone, the fight continued, only to be stopped by the international cease-fire at 0800. The war was over.

Our follow-on clear-in-zone mission was slow and dangerous. Huge ammunition dumps and unexploded munitions littered the battlefield—two more of our soldiers would lose their lives there. In four days, we had to return through the areas of the last three fights and destroy by-passed equipment, munitions, and positions back in Iraq—a monumental task.

Our mission then turned to humanitarian aid along the southern side of the Euphrates River valley. We gave medical aid to more than 2,000 civilians. More than 100,000 refugees were searched and processed. The bodies of unknown hundreds were carefully collected, marked, and buried with compassion.

Reflecting on the battles, we collected detailed data on every portion. More than 750 combat vehicles had been destroyed, more than half of them tanks and infantry armored assault vehicles. More than 1,000 enemy prisoners of war had been captured.

Battles were fought at extreme ranges, and engagement information was critical. On the average, we acquired targets three kilometers away and destroyed them two to two-and-one-half kilometers out. Most Iraqi direct fire systems could not extend farther than one-and-eight-tenths kilometers.

There were many reasons for our success at brigade level: No secrets were kept from the soldiers; they knew the plans and knew we would tell them everything they needed to know before an attack. Their clear understanding of the intent provided the continuity for the offensive. Our NCOs and young officers provided the discipline, enforced the standards, and kept the soldiers alive. The soldiers' confidence in their leaders, the plan, and the equipment made the force resilient and cohesive. We could not have asked for more.

Lieutenant Colonel G. Chesley Harris was S-3 of the 3d Brigade, 1st Armored Division, during the division's deployment to DESERT STORM and now commands the 279th Support Battalion in Europe. He previously served with the 24th Infantry Division at Fort Stewart. He is a 1975 graduate of the United States Military Academy.

The Soldier's Load

LIEUTENANT SCOTT C. PORTER

During Operation DESERT SHIELD, a brigade conducted a live fire training assault to seize a bridge. The brigade commander noticed that

the equipment the soldiers carried was interfering with the accomplishment of their mission. At the after action review he directed the battalion com-

manders to investigate the weight the soldiers carried in their battalions. At the briefback one commander indicated that the average soldier in his battalion