

## Man Versus Mine

*Iraqi insurgents have perfected the use of lethal explosives, with profound implications for our military operations in Iraq*

by Robert Bryce

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Nearly a century ago, while serving as a British liaison officer to the Arab tribes during World War I, T. E. Lawrence developed many of the techniques of modern insurgent warfare. Lawrence's fluency in Arabic and profound understanding of Arab culture helped him invigorate the Arab Revolt of 1916—1918. His savvy military tactics helped ensure its success against the Turks.

In his memoir, *Seven Pillars of Wisdom* (1922), Lawrence revealed his most effective tactic: "Mines were the best weapon yet discovered to make the regular working of their trains costly and uncertain for our Turkish enemy." If not for Lawrence's pioneering use of precisely placed explosives, the Arab Revolt might well have failed.

In Iraq the insurgents are using similar weapons against U.S. forces. Today they are called IEDs—for "improvised explosive devices"—rather than mines, and the insurgents are targeting automobiles rather than trains. But the effect is just as devastating.

The number of mines being used in Iraq, and the share of casualties for which they are responsible, dwarf anything ever before seen by the American military. During World War II three percent of U.S. combat deaths were caused by mines or booby traps. In Korea that figure was four percent. By 1967, during the Vietnam War, it was nine percent, and the Pentagon began experimenting with armored boots. From June to November of 2005, IEDs were responsible for 65 percent of American combat deaths and roughly half of all nonfatal injuries.

Mines, quite naturally, have evolved since Lawrence's day. Iraqi insurgents are armed with a surfeit of explosives and ordnance, ranging from TNT to artillery shells. In addition, they may be making bombs from some of the 380 tons of high explosives that vanished from an Iraqi bunker after the American invasion in March of 2003. The missing arsenal includes truckloads of HMX and RDX, military-grade explosives so powerful that they were monitored by the International Atomic Energy Agency before the war. Detonation techniques are myriad. The insurgents have used pressure switches, infrared beams, cell phones, garage-door openers, and even garden hoses (which when run over by a vehicle send a stream of water into a small bottle, activating a detonator).

The combination of highly juiced explosives and ingenious detonation technologies has opened up unending possibilities for low-risk offensives by the insurgency. Small but devastatingly lethal bombs can be disguised as cinder blocks, hidden inside dead animals, covered with roadside trash heaps, placed underneath bridges—in short, can lurk almost anywhere in Mesopotamia.

The Pentagon's counter-IED strategy is coordinated by the Joint IED Defeat Task Force, which was originally set up under the Army's jurisdiction in 2003. Until last month Joseph Votel, a one-star Army general, led the effort, but the Pentagon recently assigned command to a retired four-star general—a move Votel says he supports. The task force works with about eighty different contractors on roughly a hundred counter-IED initiatives. Last year the Department of Defense spent about \$1.2 billion on those and other counter-IED efforts. This year it will spend about \$3.5 billion. That sum does not include money spent adding armor to vehicles.

About two thirds of the 22,000 Humvees in Iraq now have some type of armor, and in November the Senate appropriated \$344.3 million to add more steel to the Hummer fleet. Electronic jammers are being used to thwart IEDs detonated by radio. One of the newest counter-IED technologies is known as the Buffalo—a twenty-seven-foot mine-destroying vehicle with solid rubber tires and a remote-operated steel arm. It weighs more than fourteen Toyota Camrys and gets about four miles per gallon.

Votel told me recently that some of the countermeasures have been effective, and that the number of casualties caused by each IED has declined. But he concedes that the overall casualty rate is still climbing, and that the insurgents are changing their tactics. "This is a very, very adaptive enemy," he says. "We clearly recognize that there's a very difficult road ahead of us."

The insurgents have responded to heavier armor by building larger and more sophisticated mines. Last August fourteen Marines were killed near Haditha, in western Iraq, when their moderately armored amphibious-assault vehicle was hit by an IED fashioned from three land mines. The Iraqis have also begun using shaped charges that fire armor-piercing conical projectiles. As jammers proliferate, cell-phone detonators are being replaced by pressure switches and other techniques. And as bomb makers share their knowledge by circulating videos and other instructional materials, more IEDs of all types are being planted and detonated. Many military analysts and active-duty soldiers doubt that the threat posed by IEDs can be neutralized anytime soon.

The growing use of IEDs is forcing America's military strategists to rethink centuries of military doctrine holding that in warfare, mobility equals dominance. Votel told me that given the success that IEDs have had against America's fleet of motor vehicles, the Pentagon may need to switch to more foot patrols. An intelligence analyst working on the IED problem agreed, saying, "The answer to the IEDs is to leave the vehicles. It's obvious. It's the only choice." But such a move would expose U.S. soldiers to other risks, including snipers. And the December detonation of an IED in Fallujah, killing ten Marines on foot patrol, shows that soldiers will remain vulnerable to IEDs whether on foot or behind the wheel. As long as the insurgents can use IEDs to inflict damage on U.S. soldiers without ever engaging them directly, they will have a tactical advantage. "Our whole military is based on the idea of overwhelming firepower put on targets," says William S. Lind, a noted military theorist who has written extensively on asymmetric warfare. "But that doesn't work in this type of conflict. We are fighting an enemy that has made himself untargetable." Therefore, Lind says, the insurgents can continue fighting the American military in Iraq indefinitely—regardless of how many U.S. troops are deployed or how quickly they are massed.

IEDs also create fear and uncertainty—sensations that Lawrence exploited in fighting the Turks. In *Seven Pillars* he wrote that after his initial success at planting mines, the technique was quickly adopted by his fellow warriors. Over a period of four months his bomb makers destroyed seventeen locomotives, after which "traveling became an uncertain terror for the enemy."

Fear and uncertainty, of course, ultimately breed mistrust. That may be the most damaging aspect of the IEDs: they prey on American minds, making soldiers suspicious of the local population and ultimately isolating them.

For Lind and other military theorists, the IED problem in Iraq is insoluble no matter how much time or money is spent. "If we can't engage the enemy," he says, "what do we do? The answer is, we lose."

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