material, material takeoff lists, and quality assurance and inspection procedures. When engineers from light units deploy to undeveloped countries such as Somalia and Haiti, they are often among the first soldiers on the ground. They need engineer construction skills to build base camps, provide waste disposal, upgrade or build main supply routes, and perform many other engineer-related tasks. To fill that need, all engineers will receive the training required to perform their missions during operations other than war.

Conclusion

The Engineer School's goal is to produce the best-trained lieutenant it can in 17 weeks. Although these young officers cannot become experts in all the subjects taught at the school, they will receive a broad range of training opportunities and experience. This will be a tremendous advantage when they arrive at a unit. Lieutenants leave the basic course excited about being an Army officer and eagerly look forward to leading a platoon and serving their country. It then becomes the unit's responsibility to sharpen their warfighting and leadership skills. These young officers are the future leaders of the Engineer Corps. Soldiers are our credentials, but our junior leaders are our legacy.

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obstacles that will allow him to disengage when he chooses. Wide dispersion will negate the already difficult concept of shifting engineer units across task forces to support multiple operations.

At the same time, maneuver units will be faced with an increasingly complex array of countermobility threats. Among these are the use of mines and other obstacles in great number, plus better use of the terrain's natural countermobility effects, to asymmetrically combat American superiority in speed and firepower. Land mines are a cheap, deadly, and almost-insurmountable threat to the mobility of U.S. forces. The problem will get worse as more countries acquire a dynamic obstacle-emplacing capability by using systems equivalent to our Volcano and artillery- and helicopter-delivered scatterable mines. The lesson of Desert Storm will be very clear to our enemies: The American Army cannot be allowed to freely maneuver its armored forces.

Even the nature of the threat will pose an increasingly difficult problem. The mountains of Bosnia and Iran, the ricefields of Korea, the jungles of Africa and South America, and urban sprawl everywhere are certainly more challenging to our mobility than the north German plain or the Iraqi southern desert.

Despite *Army Vision 2010*'s claim that the Army is the service of choice to ensure full-spectrum dominance, divisions become *less* capable of full-spectrum operations with the loss of an engineer battalion. Combat engineer battalions often are the unit of choice in operations other than war. They deploy as mechanized infantry when Bradleys are inappropriate, as firefighters, and as relief for all kinds of disasters. In all operations (garrison, combat, and operations other than war) TRADOC's Division XXI design will result in a huge increase in operational tempo and personnel tempo for the two engineer battalions.

While the basic organizational structure of an engineer brigade and three battalions remains sound, heavy division engineer battalions still need major internal changes to meet the rigorous requirements of both today's and tomorrow's battlefields. Clearly, we must resource key staff officers such as the S2, signal officer, and maintenance officer; restructure the maintenance section to provide company-oriented contact teams; and provide a desperately needed organic medical evacuation and treatment capability.

Focus on Success

The 299th Engineer Battalion in the 4th Infantry Division's experimental force has worked diligently to improve the battalion's capability by using recent lessons learned and future warfighting concepts. The differing approaches taken by TRADOC and the 4th Infantry Division are extraordinary: One whittled away at an old structure to arrive at a predetermined manpower cap, while the other focused on warfighting and improved capabilities.

Deletion of an engineer battalion from the division structure does indeed save personnel spaces, but it creates a poor warfighting design. It repeats mistakes of the past. It fails to capitalize on lessons learned, recent innovations, and battle-proven structures. It fails to address the challenges of the future. It is the wrong force design for the Army's division of the 21st century. The Army needs to reinforce, not destroy, the successes of today's heavy division engineer brigade.

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