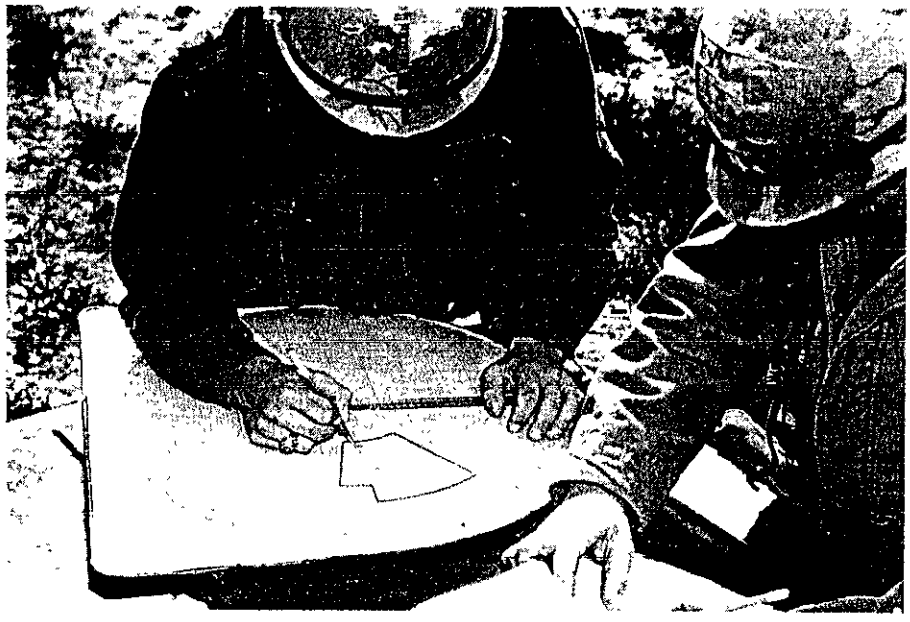

Given the availability rate of the mortar ballistic computer, the old M16 plotting board, shown in use here, may no longer be needed as a backup system.

courses to use both the MBC and the M16 plotting board it was designed to replace. In addition, the M16 plotting board is easily damaged through misuse or accident. Exposure to direct sunlight, for example, can warp the disc. The present cost of an M16 plotting board is $123. Doing away with this system would save us thousands of dollars, money that could be better spent on other military equipment. And, after all, the designated back-up system would be used only rarely.

For more than two years the British Army has had a computer system similar to the MBC in all of its Infantry battalions. It is called the Morzen Mortar Fire Data Computer (MFDC). When this system was introduced, similar questions arose concerning a back-up for it, but eventually the British Infantry School decided upon the map, protractor, and firing table.

The British plotter, L1A1, was, and still is, a very good one, and many old and tested infantrymen were reluctant to change to the new computers. The idea of accepting them and doing away with the plotter altogether and not even having it as a back-up was hard for these veterans to accept. But accept the computers they did, and today the L1A1 is a system of the past, fondly remembered only by those who had mastered it. The British system of mortaring has been a complete success.

Once the U.S. Army has fielded all of its authorized MBCs, I suggest it do away with the M16 plotting board and move forward with the available technology. Technology will then move forward even faster instead of waiting for some mortarmen to catch up.

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Directed Energy Warfare

CAPTAIN S.T. MISHKOFSKI

The United States infantryman faces a new threat to his well-being on today's battlefield — directed energy warfare (DEW) — a threat that he should begin getting acquainted with.

The Army defines DEW as "the use of electromagnetic waves or a stream of sub-atomic particles to perform military combat tasks." That definition is not as new and strange as it may sound; an infantry battalion today trains with lasers every time its soldiers use MILES (multiple integrated laser engagement system) equipment. In addition, Dragon and TOW gunners "shoot" their simulators at a directed energy source, while attached artillery fire support teams use laser designators to "paint" targets and guide smart munitions. Both the M60A3 and M1 tanks have laser rangefinders to determine range to target and to assist in fire control.

The DEW equipment the Army has today and expects to have tomorrow is designed for such tasks as detection, identification, illumination, ranging, jamming, disruption of communications, and destruction of hostile soldiers and their materiel resources. Our DEW equipment includes lasers, microwave

and millimeter-wave technology, devices to create electromagnetic pulses, devices that use light energy, and weapons that emit very low frequency radio signals.

Right now, though, the laser systems are the ones that are of the most concern to infantrymen, because one day, instead of shooting bullets we may shoot tiny pieces of light at our opponents — and they at us. (It is interesting to note that the Soviet Union has the same kind of tactical lasers we have. A recent issue of a leading military publication shows a T-62 tank, complete with laser rangefinder, pulling out of Afghanistan.)

Today, the Infantry School is working on a number of devices that use lasers, among which are both handheld devices and weapons to be mounted on combat vehicles. One of these systems is the electro-optic countermeasures set, called Stingray, which is designed for use with the Bradley fighting vehicle. Other service schools are working on filters for optical sights that will filter out those parts of laser light that can damage a soldier's eyes.

Even without getting into a complex discussion on the power of lasers, it's not hard to guess that if one hits a soldier in the eye he could end up losing his vision. And even without talking about nanometers and spectral radiance, it's not hard to guess that if a laser hits an optical sight while a soldier is looking through it he is likely to be hurt.

Thus, when we use lasers in training we must be careful to use them at a range at which our soldiers won't be injured. Those people who are downrange when a laser is in use, for instance, should have some kind of shielding for their eyes.

CONFIDENCE

The Army wants to keep its soldiers from being blinded, their maneuver from being detected, and their equipment from being jammed. And the Army wants to build confidence in its countermeasures. In the final analysis, then, this new technology brings with it a need for training — the kind of training that can help solve the problems presented on the battlefield today.

In response to this need, the Army has already developed a draft regulation on tactical directed energy warfare policy, and Army schools are now perfecting lesson plans for DEW training. This training is scheduled to begin soon in TRADOC schools.

The Combined Arms Center at Fort Leavenworth has come up with 10 tasks, along with conditions and standards, to get our soldiers ready:

- Identify DEW threat.
- Recognize the effects of DEW on equipment
- Recognize the medical effects of DEW on personnel.
- React to a laser weapon attack.
- React to a microwave weapon attack.
- React to a particle beam attack.
- Employ active and passive countermeasures for DEW.
- Wear and maintain protective equipment, such as suits, goggles, glasses, and lens filters.
- Sound a DEW warning.
- Communicate in a DEW environment.

For the Infantryman, DEW is just one more hill to climb, one more river to cross.

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