

CHAPTER 10

WAR AND THE INTEGRATED (NUCLEAR, BIOLOGICAL, AND CHEMICAL) BATTLEFIELD

10-1. Introduction

War with sustained operations has the potential to generate numerous KIA, WIA, and battle fatigue casualties. To counter this, all units must be well-trained and well-led, and all soldiers made aware of the factors that cause battle fatigue (see Table 10-1). Active prevention programs can

reduce the incidence of battle fatigue casualties. Attrited units with exhausted leaders can become incapable of self-help. These units must be permitted to reconstitute psychologically as well as physically. Only then can they be a combat effective force prepared for return to the battle. Battle in the rear area will increase stress and stress casualties in all units.

Table 10-1. Likely Stress-Producing Aspects of War on the High-Tech Battlefield

-
- BRIEF, HIGH-INTENSITY ENCOUNTERS.
 - EXTENSIVE CASUALTIES IN ONE AREA, FEW IN ANOTHER.
 - SMALL UNITS AND TEAMS IN ISOLATION.
 - SOLDIERS VIEWING MASS DESTRUCTION AND DEATH.
 - UNPREDICTABLE STRIKES BY LONG-RANGE WEAPONS.
 - MASSING OF FIRES IN SMALL AREAS—TOTAL DESTRUCTION EVIDENT.
 - SOLDIER REACTION TO ACTUAL USE OF DEADLY CHEMICAL, BIOLOGICAL, AND NUCLEAR MUNITIONS.
 - LOSS OF MOST OR ALL OF A UNIT IN A MATTER OF SECONDS OR MINUTES.
 - HIGH-TECH EQUIPMENT FAILURE.
 - LARGE NUMBERS OF KIA (BOTH MILITARY AND NONCOMBATANTS).
 - LARGE NUMBERS OF WIA (BOTH MILITARY AND NONCOMBATANTS).
 - MAIN ROADS CLOGGED BY NONCOMBATANTS' VEHICLES.
 - EVACUATION SYSTEM OVERLOADED.
 - UNIT COHESION CHALLENGED BY INTEGRATING LARGE NUMBERS OF NEW REPLACEMENT SOLDIERS.
 - EXISTENCE OF RUMORS, MISINFORMATION, OR THE LACK OF INFORMATION.
 - BEING A LONE SURVIVOR.
 - CONTINUOUS OPERATIONS IN CHEMICAL AND NUCLEAR ENVIRONMENTS.
 - FIGHTING ON UNFAMILIAR OR LESS-FAMILIAR TERRAIN.
 - HIGH TECHNOLOGY (MOVING AND FIGHTING FASTER THAN HUMANS CAN REACT OR MANEUVER).

Table 10-1. Likely Stress-Producing Aspects of War on the High-Tech Battlefield (Continued)

-
- LITTLE GUIDANCE ON THE BATTLEFIELD VERSUS MICROMANAGEMENT ENVIRONMENT OF GARRISON.
 - KILLED IN ACTION AND WIA EFFECTS WILL RESTRICT UTILIZATION OF HIGH-TECH EQUIPMENT. THERE WILL BE FEWER EXPERTS REMAINING.
 - CONTINUING THE BATTLE WITH LITTLE INFORMATION FEEDBACK ON OVERALL RESULTS.
 - CONTINUING OFFENSIVE PUSH WITH LITTLE CHANCE FOR REST.
 - MOVING AHEAD OF LOGISTICS TAIL.
-

NOTE

At the end of the conflict, after-action debriefings should be conducted. These debriefings, in small groups if possible, are conducted to help prevent PTSD. Post-traumatic stress disorder can occur even in soldiers who showed no disability during combat.

Electronic warfare is another tactic; this blocks communication and spreads misinformation. These tactics maximize confusion, uncertainty, shock, and fatigue. They are intended to make the defender unable to function—to put him in a state of physiologic and mental helplessness. This state was called battle paralysis or shock by the former Soviet Union.

10-2. The Battlefields of War

During war the battlefields are, by definition, chaotic, intense, and highly destructive. They may extend across wider geographical areas. While each of these features can be understood separately, their combined effects constitute the actual setting of operations.

a. Employment of Soviet-Type Offensive Doctrine. A characteristic of the offensive doctrine developed by the former Soviet Union is continuous attack by echelons of fresh units. Supported by massed artillery, these units reinforce success, bypass resistance, and break through. All available means are employed, perhaps including NBC, to destroy and disrupt rear area command, control, and logistics.

b. Employment of Battlefield Tactics. United States Army operations doctrine intends to minimize the effectiveness of potential enemy tactics and turn the tables on an aggressor. Instead of waiting passively to be overrun or isolated, US units must take the initiative and carry the attack to the enemy rear. They must disrupt the enemy's timetable and damage some of his reserve echelons. They must deprive his remaining force of sleep and confidence so they develop battle paralysis or desert their unit. Even with our technological advantage, we must expect to fight around the clock, whether on defense or offense. We must rest and resupply in a highly mobile environment. To succeed, our leaders and troops at all levels must retain the mental agility to detect windows of opportunity in the midst of confusion and stress. Leaders must act spontaneously and synchronously in accordance with their commanders' intent, even though the

situation has changed and communications are disrupted. Exhausted and attrited units, even those which have suffered mass casualties, must be returned quickly to the battle. The demands on CSS units, as well as the combat arms, may be extreme. If NBC weapons are employed, the stressors on the integrated battlefield will be incalculably greater.

c. Lines of Operation. In modern war, Army forces must prepare to fight campaigns of considerable movement, not only to reduce vulnerability but also to obtain decisive points. The speed with which today's forces can concentrate and the high volumes of supporting fires they can bring to bear will make the intermingling of opposing forces nearly inevitable. Telling friend from foe in darkness, smoke, and dust will be difficult.

NOTE

With the rapid pace and the urgency of firing first, tragic episodes of accidentally killing friendly forces ("brother" killing "brother" or fratricide) may happen. Prevention requires emphasis on vehicle and other identification training, awareness of the tactical situation, and continual risk analysis by leaders at all echelons.

(1) From the first of battle, deep reconnaissance, air mobility, long-range fires, and SOF will blur the distinction between front and rear. This will impose a requirement for all-around defense and self-sufficiency on all units. Throughout the battle area, attack and defense will often take place simultaneously as each combatant attempts to mass, economize locally, and maneuver against his opponent. This creates a state of uncertainty that calls for continued vigilance. Constant vigilance is impossible for

individuals to maintain. Only a well-trained, highly-cohesive unit can maintain constant vigilance for a prolonged period of time.

(2) Fluidity will also characterize operations in the rear of forward-deployed committed forces. Guerrillas, enemy SOF, and terrorists will seek to avoid set-piece battles and to strike at scattered points of vulnerability. Defending forces will try to preempt such attacks wherever they occur.

d. Lethal Systems. With the end of the cold war, sales of high-tech weapons (by the successors to the former Soviet Union and by western countries) may increase rather than decrease. The US intends to maintain our technologic advantage. Potential enemies, however, may field high-quality weapons systems whose range and lethality equal or exceed those of our lead elements. The following examples indicate a concentration of enormous combat power, especially at decisive points. These may be used by potential enemies, as well as by ourselves and our allies.

(1) Potent ground and air systems with missiles (air-to-surface, surface-to-surface, and surface-to-air).

(2) Armored vehicles with reactive armor and all-weather, day-night target acquisition systems.

(3) Multiple-launched rocket systems and tube artillery capable of saturating large areas with fire at really long ranges.

(4) Fixed-wing aircraft and attack helicopters firing multiple bomblet munitions.

(5) Scatterable mines with delayed or smart fuses.

(6) Fuel-in-air explosives which approach the blast effects of low-yield nuclear weapons.

(7) Precision-guided or smart fire and forget munitions.

(8) Nonpersistent or persistent chemical or biological agents, or nuclear warheads.

e. Sensors and Communications.

Wide-ranging surveillance, target acquisition sensors, and communications will provide information almost immediately. These will increase the range and scope of battle. Sensors offer the commander more than just timely information on deep enemy locations and activity. They also serve as the basis for attacking enemy follow-on forces or units resting or reconstituting in reserve. Since these attacks can be of vital importance in battle, the sensors and communications means which make them possible are particularly valuable and subject to counter-attack. They will also be subjected to electronic countermeasures and deceptive simulation devices which decrease the validity of their input.

NOTE

When functioning, battlefield sensors may contribute to information overload. If too much reliance is placed in them, confusion, stupor, and even panic may occur when they malfunction or are deceived, as they surely will be at times.

Caution should be taken with global position-locating devices. These provide tremendous technologic advantage, but troops must not become so dependent on them that they cannot navigate by map and compass when the device is damaged.

f. Command and Control. The more fluid the battlefield, the more important and difficult it will be to identify decisive points and focus combat power. Under such conditions, it is imperative that the commander's intent and concept of operations be understood throughout the force. Communications will be interrupted by enemy action at critical times. Units will have to fight while out of contact with higher headquarters and adjacent units. Subordinate leaders must be expected to act on their own initiative within the framework of the commander's intent. If soldiers at all levels are trained to be active rather than passive, that in itself will substantially counteract the tendency to become battle fatigue casualties. However, the necessary mental functions are also the functions more likely to deteriorate with sleep loss, fatigue, and stress.

g. Air Dimension. The airspace of a theater is as important a dimension of ground operations as the terrain itself. Airspace is used for maneuver, delivery of fires, reconnaissance and surveillance, transportation, resupply, insertion of forces, patient evacuation, and command and control. The control and use of the air will always affect operations and can decide the outcome of campaigns and battles. Commanders must distribute proportionally air power in planning and supporting their operations. They must protect their own forces from observation, attack, and interdiction by the enemy and must expect the enemy to contest the use of the airspace.

NOTE

- Having air superiority decreases battle fatigue casualties.
- Being subject to air attack increases battle fatigue casualties.
- Being hit by friendly air attack greatly increases battle fatigue casualties.

On the rapidly changing, integrated battlefield, fast-moving friendly aircraft (who are themselves at great risk from air defenses) will have only a split second to distinguish friendly units from enemy targets.

10-3. The Integrated (Nuclear, Biological, and Chemical) Battlefield

a. *The Nuclear, Biological, and Chemical Warfare Threat.* The future battlefield may have a high threat of NBC. Until recently, the former Soviet Union continued to test, produce, and stockpile NBC weapons. Soviet doctrine, organization, training, and equipment supported NBC weapons' use, especially chemical, in order to obtain a military advantage. Former Soviet weapons or design experts may be acquired by Third World countries. Other countries, notably Iraq, have recently used chemical weapons in combat. Use of NBC weapons in rear areas may severely degrade CSS capabilities. Its use would increase casualties and patient work loads, slow operations, and rapidly fatigue personnel because they are forced to operate at the various MOPP levels for extended periods of time. Evacuation and triage will be complicated by contaminated casualties. Vehicles and aircraft will require decontamination at the completion of all missions that encountered contamination from a NBC agent.

b. *Nuclear Warfare.* Even though the primary purpose of nuclear weapons is to deter their use by others, the threat of nuclear escalation hangs over any military operation involving the armies of nuclear powers. It imposes limitations on the scope and objectives even of conventional operations. United States nuclear weapons may be used only by following specific directives from the NCA after appropriate consultation with allies. Even if such authority is granted, however, the employment of nuclear

weapons would be guided more by political and strategic objectives than by the tactical effect. A particular authorized employment of nuclear weapons would certainly magnify the destructiveness of operations and could sharply alter their tempo. Besides the effects of physical damage, the psychological stress on soldiers would be severe, especially if they have not been prepared by their leaders. As a consequence, battles and campaigns may last only hours instead of days or weeks, crippling friendly and enemy combatants.

(1) During the Cold War, a full-scale global exchange of all available thermonuclear weapons was widely believed to be capable of making the earth's environment temporarily unsuited to human civilization. This doom was attributed to persistent radiation and to the dust particles which would be lifted into the upper atmosphere, causing temporary climatic changes and cooling of the earth ("nuclear winter"). More accurate computer models suggest only a partial "nuclear autumn" is likely, but disruption of crops, distribution means, and technologic infrastructure would still cause extreme global suffering.

(2) During the Cold War, many people were convinced that first use of any nuclear weapon in war would inevitably bring on an uncontrollable rapid escalation. The "nuclear winter scenario," however, clearly is not triggered by a small number of low-yield tactical nuclear weapons. Climatic changes were not encountered following the fire-bombing of cities in WWII or the occasional atmospheric testing of large thermonuclear weapons by several of the nuclear powers. The breakup of the Soviet Union and the continued progress in strategic arms limitations makes massive global strikes unlikely now, but the future remains uncertain. Fear of radioactive fallout spreading to other regions of the globe could be created even by a regional nuclear conflict.

(3) Given this background, if US troops know a nuclear weapon has been used but are not being kept adequately briefed by their leaders, some may still think we are on the brink of total world catastrophe and perhaps already over the edge. The spread of rumor will be compounded by the usual problems of communication in the presence of electronic jamming, deliberate misinformation by the enemy, and conventional countermeasures. It may be further disrupted by the electromagnetic pulse of high-altitude nuclear bursts.

(4) Measures must be taken in advance to structure and prepare the soldiers' perceptions of the situation. If this is not done, there is potential for hopelessness. In the common Cold War perception of nuclear war, there was no winner, and even if you survived the initial blast, there is no hope of meaningful survival. It is unknown what such a level of hopelessness for the future of humankind would do to inadequately-trained soldiers. Some soldiers have been exposed to movies, books, and TV shows which have created myths and gross exaggerations about the effects of radiation.

(5) We must prepare soldiers mentally and emotionally for the shock of seeing or hearing a first nuclear attack. An important step is to provide realistic, clearly presented information on the risk of various levels of radiation exposure. Information about true risks, especially low-levels of radiation, should be compared to those risks associated with other commonly accepted hazards. These hazards may include cigarette smoking, therapeutic x-rays, and high altitude flying or residence.

(6) Nuclear weapons use usually implies high-intensity conflict. The possibility of terrorist use (or of attacks on civilian reactors or damage to nuclear-armed weapons in conventional war) must also be considered. United States' forces might be called in as part of

a peacekeeping force following use of nuclear weapons. This could be in a conflict between Third World countries or between factions in a civil war within a nuclear power. They might also be called in to support civil authorities following a major nuclear reactor accident. Actions to prepare soldiers for the special stressors of nuclear war are discussed in Appendix A.

c. *Biological Warfare.* The US has renounced the use of biological weapons. However, this unilateral renunciation does not free our own forces from the threat of enemy biological warfare. Army forces must continue to train to fight an enemy who could use biological weapons. New genetic technology may put this capability into the hands of unstable Third World countries (or terrorists) as they develop a pharmaceutical industry. Biological warfare is, therefore, a threat in war and operations other than war (conflicts).

(1) An added stress feature is that it may be difficult to prove that the presence of biological agents is an act of war rather than a natural or accidental occurrence. Reputable biologists still argue that the mycotoxins ("yellow rain") which killed Laotians and Cambodians were not a Soviet (North Vietnamese) weapon but only naturally fermented bee feces (although interestingly, the deaths apparently ceased after the allegations reached the world press coverage). Such weapons could also be used as agents of economic/agricultural sabotage without war being declared. Some of those agents cause long-term contamination of ground and water.

(2) Biological toxins pose a threat similar to chemicals but perhaps harder to defend against. Some toxins, such as the ergot derivatives, produce organic psychotic states. Others, like the mycotoxins, are terror weapons which produce a rapid, horrible death by uncontrollable bleeding.

(3) Infectious organisms create the added hazard (and psychological threat) of contagion and uncontrolled spread. The success of medical science in controlling the rapidly lethal epidemics of history may make the populace less familiar with how to face this risk. Hence, this unfamiliarity makes the populace more susceptible to panic or maladaptive reactions if newly created threat agents spread more rapidly than defenses can be fielded.

d. Chemical Warfare. Chemical warfare was employed in WWI and sporadically since throughout this century. Use of chemical weapons is most likely at the high and low ends of the combat continuum—in high-tech war, or against insurgents or minority groups in remote areas. United States' forces maintain a capability in this area only for deterrence. Chemical warfare presents some of the same complications as nuclear operations, although chemical agents are easier to defend against.

(1) Because chemical weapons are more widespread and the inhibition against their use is lower for some nations, US forces are more likely to face a chemical than a nuclear threat. Chemical weapons are inexpensive and can be produced by Third World countries which have factories that produce fertilizers, insecticides, or pharmaceuticals.

(2) Chemical agents can be lethal and devastating against those who lack adequate protection or training. Nerve agents in sufficient concentration kill within minutes with convulsive seizures. Blister agents rarely kill; rather they are employed as casualty-producing agents. Blister agents like lewisite and mustard can cause either immediate or delayed eye and skin pain, blister formation, and with severe exposure, lung and bone marrow damage. Choking agents cause the lungs to fill with fluid—"drowning on dry land." The potential for mass casualties is great among unprotected troops and civilians. The

nature of their deaths, while not more horrible than that from flame, blast, or projectile weapons, has an element of mystery. This may be especially unnerving to those who witness it or come on the scene later.

(3) For troops with adequate protective equipment, chemical agents serve primarily as a harassment which makes other combat and CSS operations much more difficult and time consuming. They also produce high rates of battle fatigue casualties (most of whom return to duty if properly treated) and sublethal chemical injuries (many of which may have long-term disability).

e. Stress Reaction to the Nuclear, Biological, and Chemical Warfare Threat. The threat of chemical-biological use will require frequent high levels of MOPP. Using protective clothing and other defensive measures against NBC warfare adds to physical fatigue, primarily because of heat, visual and auditory restriction, and impeded movement. The necessity for precautions will further reduce the time available for rest and sleep, increasing exhaustion. The threat of NBC warfare is a major source of stress whether or not NBC agents are actually used. The associated fear of the unknown, the high degree of ambiguity in detecting the threat, and the uncertain short- and long-term effects of NBC weapons add significant psychological stress to the physical/physiologic stress of MOPP. Stress itself contributes greatly to fatigue.

(1) *Overreactions.* Many soldiers may overreact to an NBC threat—that is, do more than the situation calls for. The reactions listed below were seen in WWI (when chemical weapons were used) and sometimes in WWII (although chemical weapons were not used). They have been seen in peacetime civilian populations, in response to the news about the Three-Mile Island and Chernobyl nuclear reactor accidents, chemical spills, dioxin and toxic chemical waste

dumps, and AIDS. Overreaction to NBC are discussed in the following paragraphs.

(a) *Increased sick call (hypochondriasis)*. People will overattend to physical sensations, looking for warning signs. They will find things that worry them and will bring them to the doctor or medic for reassurance or in hope of being sent to safety.

(b) *Increased "conventional" battle fatigue*. Uncertainty, lack of confidence in equipment and leaders, assuming a passive defensive posture, and new or surprise weapons all tend to increase battle fatigue symptoms of anxiety, depression, or simple exhaustion.

(c) *Nuclear, biological, and chemical battle fatigue*. This is battle fatigue with physical symptoms that mimic real NBC injury. The early US Army WWI ratio (in supposedly well-trained but inexperienced troops) was two "gas mania" cases for every one true exposure case (a 2:1 ratio). Epidemic hysteria can occur as the first anxious person hyperventilates (breathes too fast, gets light-headed, and has "pins and needles" sensations and muscle tenseness in face, fingers, and toes). Others, seeing this and believing him to be a true gas casualty, become anxious and hyperventilate, too.

(d) *Malingering*. Nuclear, biological, and chemical battle fatigue is, by definition, not a voluntary behavior. Soldiers who deliberately fake NBC injury, or who self-inflict minor chemical injuries to gain evacuation are malingering, a misconduct stress behavior. Exposing one's radiation counter to radiation artificially in order to raise the count and be relieved of duty also is malingering.

(e) *Panic flight*. This may also be epidemic. It occurs when a group feels threatened, unprepared, and believes that the only defense is immediate flight. Some event

causes one soldier to run, after which the others in the group panic and run wildly.

(f) *Rumor*. The former Soviet Union, through their military literature, recognized and valued the threat of NBC warfare to "demoralize through rumor." These rumors were concerned with family and home, as well as with self and unit, in any perceived NBC war. Commanders must counsel the spreaders of rumor and ensure that the best available information passes through the chain of command and reaches every soldier. Covering up or withholding information can permanently destroy the leadership's credibility. Utilization of unit or attached public affairs personnel and a solid Command Information Program (CIP) can prevent rumors or stop them from spreading. A wide range of CIP products are available through public affairs channels. Commanders should avail themselves of these.

(g) *Excessive anxiety and "phobic" avoidance*. Soldiers may refuse to go into places or to use equipment which is wrongly believed to be contaminated. Even when they go, they may be too anxious and cautious to perform well. They may shun people who are believed to be contagious or contaminated.

(h) *Excessive decontamination ("obsessive-compulsive" cleaning)*. This wastes time and scarce supplies. This can even cause dermatologic problems if soldiers use caustic decontamination chemicals on their skin.

(i) *Congregating in safe areas*. People will naturally find excuses to stay in collective protection or safe areas. Headquarters personnel in such protection areas may get out of touch with the troops in the field. Medical teams which must work in collective protection areas may find many nonpatients giving reasons to join those who are working inside and being difficult to move out. The

misconduct stress behavior version of this is desertion to hide in safe areas.

(j) *Stealing protective equipment.* If there is not enough protective equipment or collective protection to go around, another potential misconduct stress behavior is stealing from or killing others to take over their protection.

(k) *Suspiciousness.* Vision and hearing are impaired in MOPP and everyone looks alike. Even friends may not be readily identified. People tend to develop a “paranoid” suspicion of the strange, monster-like figures; they may become jumpy and shoot at shapes or sounds without checking first. This requires emphasis on vehicle and other target identification training, challenge procedures, and passwords. Identifying labels may have to be added to personalize the MOPP gear.

(l) *Risks to leaders.* Mission-oriented protective posture requires much more active leadership. It hides the usual nonverbal cues of alertness, understanding, and readiness to act which leaders normally rely on. Leaders must move around, touch to get attention, and insist on information and confirmation. This movement increases the leader’s risk of heat exhaustion, carelessness, and being accidentally shot by a jumpy soldiers. Accidental fratricide (killing of leaders and other friendly personnel) has been alarmingly high in MOPP field exercises which use the multiple integrated laser engagement simulation devices. The same problem occurs in jungle and night fighting where vision and hearing are also reduced. Fratricide must be prevented by careful adherence to the TSOP, coordination between units, target identification, and the use of challenge procedures.

(m) *Isolation and loss of cohesion.* Mission-oriented protective postures interfere with normal friendly support, such as

conversation, sharing snacks, or simply smiling. As a result of the sensory and social isolation and encapsulation, soldiers tend to feel alone. They may feel surrounded by a totally hostile world in which even the air they breathe is against them. This isolation tends to make people become passive, insecure, and at high risk for battle fatigue unless it is actively counteracted. It requires a more active, verbal, and deliberate effort to maintain a sense of comradeship and unit cohesion.

(2) *Underreactions.* Underreactions may be more likely than overreaction in some situations.

(a) *Denial.* Things are too horrible for a soldier to think about, so he just thinks about something else.

(b) *Rationalization.* “No one would be so crazy as to use such terrible weapons, so why should we waste our time preparing and training for them?”

(c) *Fatalism.* “If anyone is so crazy as to use these weapons, they are so terrible that I can’t protect myself anyway, so why bother to prepare, and train?”

(d) *False alarm.* If there is a threat situation with frequent false alarms, troops may neglect alerts and fail to react, believing it “just another false alarm” when, in fact, it is the real thing.

(e) *Overconfidence.* “We have this one defense (or detector, or higher headquarters, or whatever) that’s going to warn and protect us. We can forget about everything else.”

(f) *“Pie in the sky.”* “The Strategic Defense Initiative, or immunization, or something will solve all these problems within the next year, so why train now?”

(g) *Intellectualization.* “This is so serious that we have to study it and do more research before we take any action to correct the problem.”

(3) *Consequences of the maladaptive responses.* Any of these maladaptive responses lowers the maximum advantage that

protective equipment and training can provide during accomplishment of the mission. Under-reactions may lead to discarding equipment and failure to follow the TSOP. Overreaction tend to disrupt a unit’s overall ability to perform its mission. Appendix A presents recommendations for how leaders can prevent or correct these maladaptive reactions to the NBC threat.