CHAPTER 5

Defense

PURPOSE

DEFENSIVE OPERATIONS are undertaken to:

- ☐ Cause an enemy attack to fail.
- ☐ Preserve forces, facilities, installations, activities.
- ☐ Retain tactical, strategic, or political objectives.
- ☐ Gain time.
- ☐ Concentrate forces elsewhere.
- ☐ Wear down enemy forces as a prelude to offensive operations.
- ☐ Control essential terrain.
- ☐ Force the enemy to mass so that he is more vulnerable to our firepower.

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WHEN TO DEFEND

While it is generally true that the outcome of combat derives from the results of offensive operations, it may frequently be necessary, even advisable, to defend. Indeed, the defender enjoys many advantages. Among these are the opportunity to know the terrain, to site and carefully emplace weapons and units so as to minimize their vulnerabilities and maximize their capabilities, and to reconnoiter and prepare the defensive area in depth. In fact, the defender has every advantage but one—he does not have the initiative. To gain the initiative he must attack. Therefore, ***attack is a vital part of all defensive operations.***

FUNDAMENTALS OF THE DEFENSE

1. Understand the enemy.
2. See the battlefield.
3. Concentrate at the critical times and places.
4. Fight as a combined arms team.
5. Exploit the advantages of the defender.

1

Understand the Enemy. In Europe, Army forces, together with the NATO allies, face the combined armies of the Warsaw Pact. Elsewhere in the world, we may face forces organized, trained, and equipped by the Warsaw Pact countries. Every Army commander must study those weapons and the tactics and techniques for using them. The Soviet Army, for example, attacks on very narrow fronts in great depth, with artillery massed at 70 to 100 tubes per kilometer in the breakthrough sector. Against a US division in Europe, Warsaw Pact forces might throw as many as 600 tanks into the leading echelon, followed by an equal number shortly thereafter. This doctrine had its origins in World War II. It is deeply ingrained in the Soviet Army and if we should go to war in Europe, those are exactly the tactics we would face. Based on the battles of Kursk and Kharkov, the Soviet Army prefers deep converging penetrations to cut off and destroy large opposing forces. In any event, the enemy in battle is always worth studying. His strengths as well as his weaknesses must be known. Army forces, fighting outnumbered, cannot afford to learn these things after the battle starts. *The time to study and think is now.*

2

See the Battlefield. The outnumbered defender must know where to concentrate. If he does not—if he is surprised—he may be overwhelmed. In order to offset the numerical superiority of the attacker, our Army must see the whole battlefield more accurately than the enemy and see it continuously from before the attack starts until the attack is defeated. Smaller unit commanders do not have the capability to see far in front of the line of contact nor do they have the sensors and platforms necessary to do the whole job. However, each commander must do all he can and report promptly all he knows. The higher commanders—division and corps—have the chief responsibility, for it is they who must order the concentration of forces and order it in time. These commanders have a variety of sensors at their disposal and can call on even more from the USAF and from national level agencies and assets.

COMMANDERS MUST BE ABLE TO MAKE CRITICAL DECISIONS BASED ON INCOMPLETE EVIDENCE

Ideally, the intelligence, surveillance, and reconnaissance operation would be in full operation long before the enemy started his concentration of force. His radio nets would be continuously monitored. His electronic emitters identified and located, his movements monitored and recorded, his logistic

actions followed, and his posture kept under close scrutiny. In the real world of deception, countermeasures, and inadequate resources, only part of this program can be undertaken and only part of that will be successful. Thus, the corps and division commanders must make tough critical decisions based on incomplete evidence. The more the commander knows about enemy weapons, tactics, psychology, and the more he has studied the terrain, the better his decisions will be. *Bad or slow decisions at this stage of the battle can be fatal.* The staff can help, but the commander decides.

3

Concentrate at the Critical Times and Places. Generals must decide exactly when and where they will concentrate their forces based upon the results of their intelligence operations and their analysis of that information. They must also decide how much force will be required to cope with the enemy attack within the terrain and space limitations of the defensive area. As a rule of thumb, *they should seek not to be outweighed more than 3:1 in terms of combat power.* With very heavy air and field artillery support on favorable terrain, it may be possible to defend at a numerical disadvantage of something like 5:1 for short periods of time. In any event, the purpose of the defense must be to concentrate enough force, and the right kind of force, to destroy the masses of enemy armored vehicles in the assault.

BE WILLING TO TAKE RISKS ON THE FLANKS

To defend against breakthrough tactics, division commanders must not only concentrate at the right time and place, but they also must take risks on the flanks. A defense which spreads two brigades thinly across a wide area and holds one brigade in reserve for counterattack will be defeated by a breakthrough attack. It will in effect be defeated piecemeal because everywhere it will be too weak and thus overwhelmed.

Thus, for example, division commanders in Europe must be willing to concentrate firepower and up to six to eight of their maneuver battalions on one-fifth of their front to meet breakthrough forces of 20-25 battalions. They must cover the remaining ground with air and ground cavalry, remaining battalions, and attack helicopter units. If the forces and firepower are inadequate to achieve these combat power ratios, then an effective defense is not possible, and division commanders must trade space for time by going to the delay. Corps commanders can assist division commanders who face a main thrust by reducing the division's area of operation or providing more fire support and air support.

THE DECISION TO CONCENTRATE MUST BE TIMELY

The high mobility of armored and mechanized forces allows the division commander to reinforce rapidly, by using reserves from the rear and by moving units from less threatened flanks—if he decides early enough. The high mobility of attack helicopters and airmobile antitank teams permits the commander to move boldly. If he makes a mistake and starts to concentrate at the wrong place, he can countermarch his mobile elements quickly and rectify the error. *In fast-moving mounted warfare, the requirement for continuous, reliable, secure communications is absolute.*

Concentration of field artillery is equally important. Unlike tanks and infantry, field artillery fire can often be concentrated without moving batteries. In extended areas, however, field artillery also must be moved to positions within range of the enemy's main effort. Division commanders would certainly concentrate the fires of at least three of their four battalions and would expect to be reinforced by the bulk of the corps artillery.

Air defense batteries and platoons pose a special problem of judgment. Soviet doctrine generally calls for the use of front aviation (fighters and light bombers) beyond the area

covered by Soviet artillery. Thus, the first priority for deployment of divisional Chaparral/Vulcan in the defense should be the division command and control and the division support area, plus any reserves that may be held back. However, *Soviet fighters can be used against forward forces, and their aircraft are now being equipped with guided munitions which presumably will increase such use.* Additionally, armed helicopters will operate in forward areas. Therefore, some coverage of forward brigade areas by Vulcan units will be necessary. Air defense weapons must be echeloned forward to match the enemy's actual use of his close support aviation.

AIR DEFENSE PRIORITY SHOULD BE TO RESERVES, COMMAND AND CONTROL, AND SUPPORT FACILITIES

Under certain operational circumstances at the outset of hostilities, short range air defense systems (SHORAD), such as Chaparral/Vulcan, might be deployed to complement high and medium altitude (HIMAD) systems, such as Hercules/HAWK, defending the highest priority theater targets in the rear area.

PROVIDE MASSIVE CLOSE AIR SUPPORT

Close air support will be required for forward engaged elements in the area of the breakthrough attack. It must be provided massively, in time, at the critical point. The decision to provide massive close air support must be taken jointly by Army and Air Force commanders or by the Joint Force commander, and must include a jointly planned and conducted air defense suppression operation.

4

Fight As A Combined Arms Team. Colonels must organize their forces for combat according to the size and density of the enemy attack, the characteristics of the terrain to be defended, and the mix of the defending units. Generally, tanks and long-range antitank guided missiles (ATGM) are employed in the more open terrain; mechanized infantry in urban, wooded or less trafficable areas. However, the decision on how to cross-reinforce, or even whether to do so, depends upon how the commander decides to fight the battle. The defending commander organizes the area to be defended

into a series of battle positions. Battle positions, selected as a result of terrain and weapon analysis, are locations from which, or in which, units can defend, block, or attack. They may or may not be mutually supporting. They can be selected for occupation by units as large as battalion task forces and as small as platoons. The defending commander thus directs the fight by specifying which battle position his units will occupy and what they will do there—**defend, support, attack.**

UNITS ARE EMPLOYED BASED ON THEIR WEAPONS CAPABILITIES AND THE ENEMY'S MOVEMENT

As friendly units converge on the critical battle site, the battalion and brigade commanders commit them to combat according to their weapons capabilities and the movement of the enemy force.

The first increment of combat power available is usually the massed fires of all field artillery in range. Even if artillery fire does not destroy large numbers of armored vehicles, it buttons up tanks and reduces their effectiveness greatly (as much as 50%); thus the tanks cannot maneuver as easily or use the terrain as well, nor can they see defending weapons as well and thus cannot engage or suppress them as effectively. *Artillery can prevent enemy infantry from dismounting to attack our dismounted antitank weapons.* Artillery can also smoke the overwatching positions covering the enemy attack.

INCREASE COMBAT POWER WITH FIELD ARTILLERY AND ATTACK HELICOPTERS

The second increment of combat power available to the defending Colonels could be attack helicopters. Reinforcing from division and corps level at speeds up to 125 knots, attack helicopters have a high probability of killing enemy tanks at ranges beyond 3000 meters. The helicopters will be most useful when the enemy has moved out from under at least part of his air defense umbrella and beyond his preplanned artillery fires. Attack helicopters should operate under the control of engaged brigade or battalion commanders and be committed in relays on a sustained and concentrated basis.

If dismounted antitank guided missile teams can be moved into the battle by helicopter, they represent a valuable reinforcement, but one which must be employed carefully. Because the airmobile

TOW teams (from light infantry units or dismounted from mech units) are vulnerable to massed artillery, they should not be employed in the forefront of the initial defense. They should be kept out of areas which will probably be subjected to preplanned massive artillery fires. They should normally be employed on the flanks of penetrations and be separated from attacking armor by terrain obstacles such as rivers, woods, or steep embankments.

Whenever possible, they should be sited to deliver surprise attacks—crossing shots from reverse slopes or through saddles or from built-up areas so they will be protected to some extent from frontal suppressive fire. These ATGM teams must also be withdrawn, repositioned, and resupplied by helicopter. They must occupy positions which afford terrain cover to the helicopters which support them. *They must not be expected to move about the mechanized battlefield on foot.*

Close air support of engaged forces at critical times and places provides a quick and major increase in combat power. *However, close air support requires air defense suppression which will involve many support aircraft, coordinated joint electronic warfare, utilization of Army firepower and joint planning.*

As tank and mechanized battalions begin to arrive, the brigade and battalion commanders must organize them for combat and assign battle positions and missions. The brigade commander may decide to retain whole tank and mechanized infantry battalions under his direct control, without cross-reinforcing. When he does so, he must provide for the necessary coordination between battalions.

However, the repeated requirement for close interaction of tanks and mechanized infantry will normally lead the brigade commander to organize and employ cross-reinforced battalion task forces. The tank-heavy task forces are organized and employed in the best tank terrain; the mechanized heavy task forces on the flanks or more difficult terrain.

This same consideration repeats itself at the battalion level. The battalion task force commander may decide to retain pure separate tank and mechanized infantry companies, and to provide for tank/infantry coordination between companies. But if he visualizes companies moving *independently* from position to position within his overall defense plan, then he should cross-reinforce at company level. Cross-reinforcement below company level should generally not take place.

THE COMMANDER BASES HIS DECISION TO CROSS-REINFORCE ON HOW HE DECIDES TO FIGHT THE BATTLE

It is, of course, possible to cross-reinforce some elements and not others. For example, if the brigade commander plans to occupy a series of mutually supporting battle positions in depth to wear down the enemy, he may wish to do so by employing independently operating cross-reinforced companies. If he then plans to counterattack and destroy exposed or weakened elements, he could do so with cross-reinforced battalions under the tactical control of the battalion commanders, or even pure battalions under his own personal and direct control.

As the battle develops, the brigade commander must move his defending forces from one battle position to another so as to take maximum advantage of his weapons, the terrain, and such mines or obstacles that he has been able to employ. His defense must be elastic—must absorb the shock—slow the attack—weaken it—and then destroy it. Some enemy forces will penetrate the defenses and burst through into the rear. *Every element on the battlefield must be prepared to engage and destroy these small advance elements and not give way to panic when they appear.* For this purpose, the Dragon ATGM, along with the LAW must be plentiful in the rear areas.

The Colonel must resupply his forces with fuel and ammunition and provide for battlefield repair as far forward as possible.

5

Exploiting the Advantages of the Defender. The success of the defense will ultimately depend greatly on how well the companies, platoons, tank crews, and squads exploit all the built-in advantages of the defender. We depend on the Captain for this purpose.

EXPLOIT THE ADVANTAGES OF THE DEFENDER

He must see to it that each weapon is sited to take advantage of its range and special purpose and to minimize its vulnerability to counterfire or suppressive fire. His fighting vehicles must be covered and concealed, or at least be hull down. *They must fire first.* The terrain must be exploited and reinforced when necessary with mines and obstacles to slow down the enemy and improve the effectiveness of the defending weapons.

Each battle position must combine the characteristics of a defense and an ambush. Several battle positions in mutual support should multiply the strength and value of each. The combination of all these advantages repeated in each set of positions in depth, supported by field artillery, close air support and attack helicopters, should easily inflict very high losses on an attacking enemy.

Combined with strong, short counterstrokes against exposed and weakened enemy elements, this defense can and will succeed. Sweeping counterattacks which expose our forces to heavy losses as they surrender the advantages of the defender must be the exception. Such counterattacks are allowable only if terrain key to the defense must be regained. Even then, it may be possible to control such terrain by fire alone.

Although the active defense involves the utilization of successive battle positions in depth, to wear down and weaken the enemy, followed by counterattacks, it is necessary to maintain the coherence of the overall defense, including coordination on brigade and division flanks. To the extent that the defense can be conducted well forward in the main battle area, to that same extent will the problems of flank coordination be easier. In the best of all situations, the general line of

the FEBA can be maintained throughout the battle. If it cannot be maintained and the battle takes place in the depth of the defensive system, then brigade and division commanders must exercise continuous active coordination with adjacent units.

TANKS. Tanks engage enemy tanks, ATGM, armored vehicles, and dismounted infantry from covered and concealed positions. Tanks provide the combat power to move the team from one position to another in the face of enemy opposition or in counterattack. *Tanks and ATGM are the backbone of the defense.*

MECHANIZED INFANTRY. *Mechanized infantry supports and assists the defense by:*

- Destroying enemy tanks and armored vehicles at long ranges with TOW (3000m) and Dragon (1000m).
- Overwatching tank movement and counterattacks with ATGM.
- Suppressing enemy antitank weapons while friendly tanks are moving on the defensive battlefield.
- Conducting dismounted attacks against enemy infantry antitank weapons if they cannot be suppressed and it is necessary to move defending tanks in counterattack or to new battle positions.
- Blocking covered and concealed routes of enemy attack or infiltration.
- Patrolling and reconnoitering difficult terrain day and night.
- Securing tanks and ATGM at night.
- Holding wide frontages, in economy of force missions, and defending in terrain unsuitable for tanks, such as forests and cities.

INFANTRY. *Airmobile, airborne and other light infantry support and assist the defense by:*

- Defending forest, mountain, and urban areas.
- Reinforcing threatened sectors with airmobile antitank teams.
- Protecting tanks and antitank teams from advancing enemy infantry.
- Conducting patrols and manning outposts to gain information about enemy activities on and behind the forward edge of the battle area (FEBA).

FIELD ARTILLERY. *Field artillery supports and assists the defense by:*

- Destroying, smoking, or suppressing ATGM and enemy tanks in overwatch positions.
- Disrupting continuity of enemy combined arms formations by separating infantry from tanks.
- Destroying the momentum of assaulting forces by planned massed fires.
- Suppressing enemy tanks by causing them to button up, to get off roads, to slow down, and to lose their ability to bring fire rapidly on defenders.
- Suppressing or destroying enemy artillery and mortars by counterfire.
- Destroying or suppressing forward area enemy air defense weapons so that defending Army forces can utilize close air support.
- Scattering mines in the path of attacking forces to stop them where our fires can destroy them.
- Isolating parts of the battlefield with a variety of munitions so that counter-attacks may be mounted against exposed and weakened attacking forces.

AIR DEFENSE ARTILLERY. *Air defense artillery supports and assists the defense by:*

- Destroying or driving off close support aircraft and helicopters.
- Causing enemy aircraft to lose effectiveness (releasing ordnance at other than

optimum altitudes, ranges, speeds, and attitudes.)

- Denying or limiting aerial reconnaissance.
- Providing air defense protection for small unit lateral movement in the main battle area.
- Providing convoy security for maneuver, combat support, and service support elements.
- Providing, on order, suppressive fires against ground targets in the main battle area.

COMBAT ENGINEERS. *Combat engineers support and assist the defense by:*

- Creating obstacles and minefields to reinforce the defensive advantages of the terrain.
- Opening and closing lateral tactical routes.
- Blocking avenues of approach.
- Stopping enemy forces in the fields of fire of defending weapons.
- Undertaking combat construction to harden critical command, control and logistic elements.
- Operating as infantry, if required.

ATTACK HELICOPTERS. *Attack helicopters support and assist the defense by:*

- Overwatching armored counterattacks.
- Guarding open flanks.
- Reinforcing thinly held sectors.
- Raiding enemy rear areas when opportunities occur.
- Blocking, reinforcing, and counterattacking.
- Containing and destroying enemy elements that have broken through or bypassed the defense.

USAF AIRCRAFT. *USAF aircraft support and assist the defense by:*

- Providing intelligence on enemy concentrations through reconnaissance.
- Providing close air support at the critical times and places of enemy breakthrough attacks.
- Destroying enemy second and third echelon forces before they are committed.
- Interdicting enemy supplies of ammunition, POL, and replacement fighting vehicles.

ELECTRONIC WARFARE. *Electronic warfare (EW) forces support and assist the defense by:*

- Jamming enemy command and control.
- Jamming enemy air defense radars.
- Jamming enemy weapons systems which rely on electronic guidance or control.

NIGHT OPERATIONS. Night vision and thermal imagery devices enable tank mechanized infantry, and attack helicopter units to conduct the defense at night and under conditions of reduced visibility similar to the conduct of daylight operations. *With these devices, units will be able to:*

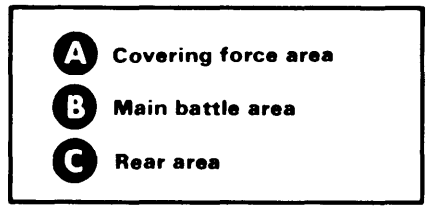
- Concentrate forces at speeds approaching those of daylight speeds.
- Move on or between battle positions.
- Engage enemy targets at ranges near the full weapon capability.
- Provide mutual support between battle positions.
- Fight at night as an integrated, coordinated combined arms team.

Light infantry will be able to exploit their weapons' range capability at night, but will continue to be restricted in movement and maneuver within and between battle positions.

The shift of night defensive operations from the more static employment of weapons to the employment of a fully integrated maneuverable team provides the commander new advantages. An enemy force of lesser night capability may be able to attack at night, but must do so at slower speeds and with limited maneuver and weapons range. The defender with full night capability multiplies his weapons effectiveness and, therefore, can defend against combat power ratios which otherwise might be greater than 3:1. He can also continue his active daylight defense into the night as he maneuvers his forces from battle positions to battle positions as the situation requires. Quick short counterattacks against weakened exposed enemy forces can be conducted at night before enemy forces can consolidate or be reinforced.

ORGANIZING FOR DEFENSE

The commander assigned a defensive mission usually organizes his forces for operations in three areas:





The Covering Force Area. The covering force has four basic tasks:

1 **Force** the enemy into revealing the strength, location, and general direction of his main attack. To do this, it will be necessary to strip away enemy reconnaissance and advance guard elements. Contact with the enemy main body is sought; a fight is started with enough intensity to force the enemy to deploy maneuver and fire support units and begin his main attack.

2 **Deceive** the enemy, or prevent the enemy from determining the strength, dispositions, and locations of friendly forces, especially those in the main battle area.

3 **Divest** the enemy of his air defense umbrella, or require him to displace his air defenses before attacking the main battle area.

4 **Gain** time for the main body, enabling it to deploy, move, or prepare defenses within the main battle area.

CONTACT SHOULD BE MADE AS SOON AS THE ENEMY ENTERS THE COVERING FORCE AREA

Units of the covering force should make contact as soon as the enemy advances into the covering force area, and fight there an action in depth which will draw the enemy out from under his forward air defenses and away from his forward artillery. This should be done in such a way that when the enemy strikes into the main battle area, his air defense and artillery support is significantly diminished.

Although any mobile force may be deployed and fight in the covering force area, it will be normal for covering forces to be predominantly armored cavalry and air cavalry, reinforced with sufficient tank, antitank, mechanized infantry, field artillery, air defense, artillery, engineer, and attack helicopter forces for the mission. For example, a reinforced armored cavalry regiment could expect to be employed as a corps covering force; or in the absence of a corps covering force, a division might use its organic cavalry squadron reinforced as a divisional covering force. As a deception measure, the covering force should always have field artillery fires available which are representative of the artillery supporting the force as a whole. Tactical air should also be used since it can increase the survivability and augment the destructive power of the covering force by attacking massed armor at critical points. As the enemy moves forward, his air defenses lose some effectiveness and friendly air attack is somewhat more effective.

FOR DECEPTION, ARTILLERY REPRESENTATIVE OF THE WHOLE FORCE SHOULD SUPPORT THE COVERING FORCE

The covering force may be under the command of the force commander who initially ordered the deployment. A reinforced cavalry regiment might be controlled by the corps commander even though it might not be deployed across a two-division front. The covering force could also be controlled by commanders subordinate to the one who initially ordered its deployment. Or, control of parts of a covering force spanning two units could be vested in the commander most directly affected; i.e., one part controlled by one division commander, the other part by another division commander. In some circumstances, brigade commanders in the main battle area could control all or part of a covering force.

Whatever the command relationships may be at the outset, as the battle progresses and the covering force closes on the main battle area, some or all covering force units will come under control of the brigades charged with defense of the main battle area. Tank and mechanized infantry task forces deployed to reinforce the covering force will probably take up positions in the main

ARMORED AND MECHANIZED UNITS USED TO REINFORCE THE COVERING FORCE WILL NORMALLY BE INTEGRATED INTO THE DEFENSE OF THE MAIN BATTLE AREA

battle area, and prepare to fight there. Cavalry squadrons from the covering force may be used as flank or rear security forces, to maintain contact between brigades, to reconnoiter, to locate and follow the movement of second and third echelons of the attacking enemy, or to take up battle positions in the main battle area. The considerable long-range antitank combat power of cavalry units, coupled with their flexibility, make them an attractive force to have for the fight in the main battle area.

THE COVERING FORCE TRADES SPACE FOR TIME

The commander assigning a mission to a covering force will normally tell the covering force to fight in a specified area for a specified period of time. For example, the covering force commander might be told he is to operate in the covering force area for 72 hours, for seven days, or until some action has been completed by the main body. The covering force must find ways not only to deceive the enemy as to main battle area dispositions, but also trade space for time—time for the main battle area force to get set to defend. Therefore, the covering force mission may be a delay which could be terrain-specific, time-specific, or both.

Even though the time specified for the delay has been achieved, *the covering force must not automatically retire from the covering force area.* Sufficient resistance must be presented to the enemy to force him to deploy his main forces. The covering force commander may be instructed not to allow himself to be so decisively engaged as to risk the destruction of his force. The main body commander may be willing to accept a lesser delay in order to preserve his covering force for later use.

Care must be exercised, however, in issuing orders within the covering force. Commanders at each echelon will have a different perspective on the battle. While this is always true, it is perhaps nowhere more true than in a covering force action. While the covering force commander may be told to delay forward of a river line for 72 hours, he may elect to tell his task force commanders to defend in certain battle positions—perhaps for a specified period of time, perhaps not. Judgment must be made at each level as to how the mission is to be described to

subordinate commanders. All too often a small unit commander, when told to delay, yields to an understandable urge to shoot too little, pull back too early, and move back too far. Thus it is imperative that each commander insure he has conveyed to each of his subordinates *precisely* what it is that he is to do in the context of the *overall* mission. At levels below battalion or squadron task force, the covering force fight is mainly a series of defensive battles, and is so described in orders and instructions.

B

The Main Battle Area. Behind the covering force lies the area in which the main battle will be fought. Terrain advantages may be used repeatedly in the forward zone to inflict casualties on a stronger attacking enemy force, and mounted elements can exploit their mobility to fight a succession of advantageous actions. However, the farther forward the battle can be fought, the better. The more the enemy is permitted to penetrate, the greater the chance of breakthrough, and the more difficult the coordination between adjacent units, including units of different nations, will be. If the active defense can maintain coherence along the line of the FEBA or in the tactical zone just behind it, the easier coordination on the flanks will be, and the more successful the total defense will be.

MAINTAIN COHERENCE ALONG THE FEBA OR IN THE ZONE JUST BEHIND IT

Nonetheless, the defense must be elastic—not brittle. Because the attacker will attempt to overwhelm the defense with a concentrated mass of tanks and armored vehicles supported by very heavy artillery fires, the success of the defense depends upon the destruction of enemy armor. The problem will be to destroy many targets in a short period of time. Thus the defense must be built around tanks and antitank guided missiles. These are the backbone of the defense. In order to cope with large numbers of targets the *tanks and ATGMs must be sited so that they can engage at maximum effective ranges and begin the attrition of the enemy early.* The use of mines or obstacles to slow down the enemy will afford more time for engagement.

DEFENDERS MUST DESTROY MANY TARGETS IN A SHORT PERIOD OF TIME

Defenders must be prepared to create strongpoints which are prepared to withstand a direct assault. These strongpoints can be established with reinforced companies or battalions when a particular piece of terrain is key to the defense or to the accomplishment of the mission. Sometimes a strong point must be established to set up a fire trap or ambush, or to provide a base or pivot around which other forces can maneuver or counterattack. Strong points are the exception, because they may be lost if bypassed or fixed by enemy attack. Nevertheless, there are times when they must be established to fight and win.

In the defense against the enemy's main effort, the battalion commanders become central to the conduct of the battle. Frontages or sectors are smaller. Forces are larger. Battle positions are often occupied by whole battalions. Battalion commanders exert continuous positive control over companies and often personally control tank infantry coordination. Cross-reinforcement at company level may or may not take place. The rapid pace of the battle—the constant requirement for suppression—the coordination of engineers, artillery, attack helicopters, and close air support all point to the necessity of battalion control and support of companies. In the economy-of-force sectors, the companies will operate more independently on wider fronts with more cross-reinforcement.

Counterattack in the Defense. Counterattacks should be conducted only when the gains to be achieved are worth the risks involved in surrendering the innate advantages of the defender. Because counterattacking forces give up most advantages of the defense, they must protect themselves from enemy observation and fires by judicious use of terrain, smoke, night, and bad weather and they must be supported by direct and indirect suppressive fires on every weapon system that can bring fire on them. Reverse slope and limited objective attacks should be the rule rather than the exception. Often, counterattacks will consist of moving tanks and ATGM to the flanks or even to the rear of exposed enemy elements. From these positions, enemy armored vehicles can be destroyed by long range fires alone. If it is necessary to close with the enemy position, the counterattack force should move by routes which protect it from the enemy's overwatching elements. Sometimes it will be necessary to counterattack to recapture critical terrain. In these cases all the principles of the attack should be brought into play.

C

The Rear Area. Behind the main battle area, there is an area from which supply and maintenance support must be projected forward. Here too are administrative echelons and communication centers. This area must be defended from air attack and from airmobile or airborne attacks. Air cavalry units, if available, can provide wide area surveillance of rear areas to detect these attacks. As enemy airmobile or airborne forces are detected, airmobile infantry or other available mobile forces can quickly concentrate to contain and destroy them. Additionally, attack helicopters can attack and destroy enemy armored elements that have broken through the defense. However, large forces cannot be reserved for these purposes and thus *support elements must be trained and prepared for self-defense, including defense against armored forces.* All rear echelon elements must use every possible measure of defense against detection from the air. Where possible, they should be hidden primarily in cities, towns and villages.

CHAPTER 6

Retrograde Operations

PURPOSE

RETROGRADE operations are undertaken to:

- ☐ Trade space for time—***DELAY.***
- ☐ Disengage from enemy contact—***WITHDRAWAL.***
- ☐ Move away from an area without enemy pressure—***RETIREMENT.***

WHEN TO CONDUCT RETROGRADE

At times, a command may have to move to the rear, or away from the enemy. This retrograde movement may be necessary when:

- There are insufficient forces to attack or defend, making it necessary to exchange space for time.
- The command is to be employed elsewhere or in a better position.
- Continuation of an operation no longer promises success.
- The purpose of the ongoing operation has been achieved.

The type of retrograde operation—*delay, withdrawal, retirement*—depends on the purpose of the rearward movement.

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DELAY

In a delay mission, a force conducts any or all types of combat operations in order to gain time for something else to happen—reinforcements to arrive, or forces to concentrate elsewhere. Combat operations executed in the delay mission may include attack, defense, ambush, raid, feint, or any others appropriate to mission accomplishment.

Normally a delay mission will be an economy of force operation so the delaying force may expect to fight outnumbered. If the force cannot defend successfully in place, it must trade space for time. Nonetheless, a commander assigned a delay mission should not assume that his force will always be defending or withdrawing. Indeed, the advantages of surprising the enemy, seizing the initiative, and generating uncertainties in the mind of enemy commanders may well indicate the desirability of attacking. The enemy generally is delayed the most when his losses are high, so *the delaying force seeks by whatever means possible to inflict maximum casualties on the enemy.*

INFLICT MAXIMUM CASUALTIES ON THE ENEMY

For larger forces (brigades and divisions) a delay is usually a time-limited or terrain-limited (or both) series of defensive actions. A delay operation denies the enemy access to a specified area for a specified time, inflicting on him the maximum possible casualties that can be expected given the strength of the delay force. Thus, a covering force might be ordered to fight the enemy forward of a specified obstacle (perhaps a river line) for a specified time (perhaps 72 hours).

THE DELAY DEMANDS THE UTMOST IN PLANNING AND EXECUTION

Further, the commander imposing time limits on the delay must carefully weigh the risks involved in setting the times. This is especially so for battalions and smaller units. A brigade commander tasked with delaying forward of a river line for 24 hours must deploy sufficient force to have a reasonable chance of carrying out his task. If he deploys a company team where a battalion task force is a better choice, he must do so fully cognizant of the risks he is taking. He is probably trading combat losses for time. *The delay is the most demanding of all ground*

combat operations. It requires highly competent, well-trained small units, and skillful small unit leaders.

FORCE THE ENEMY TO SLOW DOWN AND TO CONCENTRATE COMBAT POWER AGAINST SUCCESSIVE BATTLE POSITIONS

The concept of the delay is to force the enemy to take the time to concentrate enough combat power again and again, against successive battle positions to overcome each in turn. The delaying commander places platoons or companies in battle positions which optimize their weapons effectiveness while at the same time minimizing their vulnerability to enemy long-range observation and fires. The commander selects terrain which requires the enemy to travel along exposed approaches. When time permits, he reinforces natural terrain obstacles, creates new obstacles, and places mines to hold up enemy forces in the field of fire of defensive weapons. A platoon in a carefully selected and prepared battle position should be able to hold off at least an enemy company. This means the enemy must expend time to deploy the major elements of a battalion. Just when the battalion has been brought fully to bear, the delay force leaves, and the enemy must repeat the time-consuming process at the next delay position.

Obviously, a commander can trade space for time by occupying succeeding battle positions until he runs out of space. But he can do more; he can *trade time for risk.* He can fight harder at each position and hold each longer, thus gaining more time by accepting a greater risk of increased combat losses to each element of his force.

A COMMANDER CAN TRADE SPACE FOR TIME, OR HE CAN TRADE TIME FOR RISK

If a commander's orders require that he delay the enemy forward of a certain line until a certain time, he may be forced to stand and fight on key terrain—even beyond the point of prudent risk—to accomplish his mission. He may lose some elements of his force in such a situation. In these cases, while the overall mission of the force is to delay, smaller units missions are often told to defend until ordered to withdraw. Every commander must be sensitive to his responsibility in these cases—his

responsibility to his troops and to his mission.

Delay is also a mission frequently assigned units in a flank or rear guard or in a covering force.

WITHDRAWAL

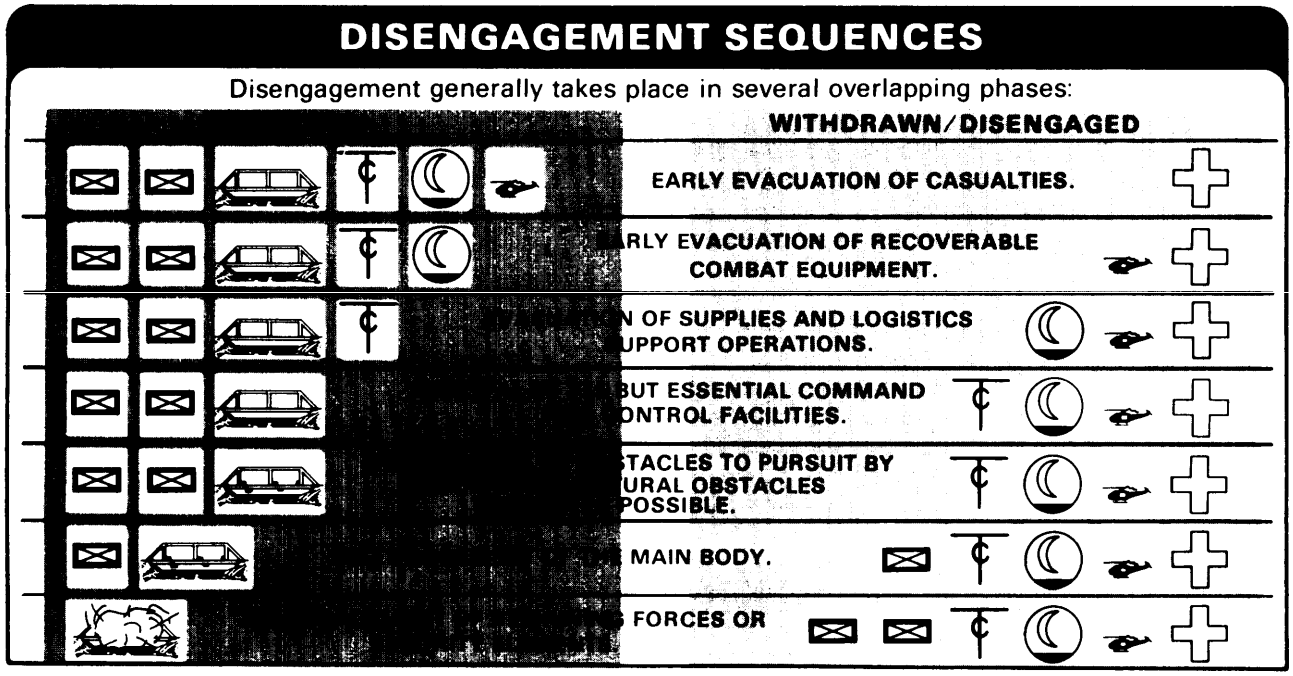
Withdrawal is a disengagement from the enemy. Disengagement is a difficult task; its timing is critical. *Waiting too long may make disengagement most difficult, even impossible.* It is desirable to break away quickly and with as little notice as possible. Sometimes, however, feints, diversions, and even attacks may be necessary to effect disengagement. Night and bad weather help the disengaging force to get away unnoticed, but at the same time make control of the disengaging force more difficult. Armor and mechanized units may be able to break away rapidly, quickly putting distance between themselves and the enemy before the enemy can react. Unarmored units, however, must usually depend on smoke, night, deception, clever use of terrain, or even attack to achieve a clean break. The routes of withdrawal must be kept clear of obstacles or congestion that would hinder movement of the units.

Normally radio silence should be imposed on units which have disengaged. Until disengagement is complete, the remaining forces should simulate, as nearly as possible, continued presence of the main body. They may do this by stepping up combat activity, electronic transmissions, other activity levels, or by attacking. This force must have specific instructions about what to do when the enemy attacks, and when and under what circumstances to withdraw. An armored unit may wait for the next enemy attack, then conduct a delay to facilitate withdrawal of the main body.

Army aviation is especially valuable in support of disengagement and the ensuing withdrawal. Air cavalry and attack helicopters can be used in feints, diversions, raids, on flanks, and to hold up attacking armored forces. Lift helicopters can assist in any or all of the disengagement phases.

RETIREMENT

Since, by definition, a retirement is conducted in the absence of enemy pressure, it is therefore a battlefield movement which should be conducted according to techniques of movement appropriate to the level of command.



CHAPTER 7

Intelligence

A PREREQUISITE TO WINNING THE FIRST BATTLE

THE INTELLIGENCE CAPABILITIES and assets of the United States constitute one of our main equalizers—one means of offsetting superior numbers of enemy forces and weapons. US Army commanders must understand that intelligence training and practice at all levels in peacetime is the price of success on the future battlefield. The commander must plan and execute intelligence operations just as he does tactical operations. He must also prevent the enemy from determining friendly intentions by maximizing the **operations security (OPSEC)** of US forces.

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THE COMMANDER MUST BE ABLE TO "SEE" THE BATTLEFIELD

In earlier chapters we discussed the lethality of the modern battlefield and the tactics needed by the US Army commander to win when outnumbered and outgunned. The first step in winning is *seeing* the battlefield. The commander requires intelligence to concentrate combat power at critical places and times. Concurrent with increased lethality in weapons, there has been a commensurate increase in intelligence acquisition capability. The commander must demand that all sources of intelligence, strategic or tactical, be orchestrated to support his mission.

As we can sense the enemy, he can sense us. Counterintelligence and OPSEC must be coordinated and executed concurrently with combat operations. Intelligence is sequential, time-critical, and event-oriented. Intelligence is the commander's responsibility and *provides the basis for tactical decision.*

INTELLIGENCE FOR THE MODERN BATTLEFIELD

Intelligence has three distinct disciplines. As the commander can mold infantry, armor, and artillery into a combined arms team, so can he weld his intelligence assets into a system derived from the ❶***electromagnetic spectrum;*** ❷***imagery*** from overhead platforms; and ❸***human intelligence*** (HUMINT) which includes direct observation.

Commanders recommend specific tasks for strategic systems, and control tactical systems organic or attached to their command.

❶ ***Electromagnetic intelligence*** is derived from electronic detection and exploitation of enemy emissions; i.e., signal intelligence (SIGINT) or enemy physical activity. Examples of processes providing intelligence derived

through detection and exploitation of *enemy electronic emitters* are:

- **Cryptanalysis**
- **Signal and communication analysis**
- **Direction finding**
- **Traffic analysis**

Examples of systems providing intelligence by detection of *physical activity* are ground surveillance radar (GSR) and remote sensors (REMS). Electromagnetic intelligence is generally timely, and has a 24-hour, all-weather capability. It is generally limited in its ability to define, classify, and accurately locate targets, and it is vulnerable to enemy deception and jamming. The same units which provide SIGINT now provide most of the offensive EW capability discussed in Chapter 9.

2 ***Imagery intelligence*** is derived primarily from radar, infrared, and photographic sensors carried by overhead platforms. To assure timeliness, intelligence derived from imagery must be disseminated to commanders *electronically* as opposed to photographically. Imagery data can be the most accurate for the production of intelligence, but it is limited by weather, hostile countermeasures, and, frequently, lack of timeliness.

3 ***Human intelligence*** encompasses the remainder of collection activity. Tactically, it is represented by the direct observation of forces in contact; multiple counterintelligence operations; deception; exploitation of prisoners, documents, and equipment; long range patrols; listening and observation posts; interface with local military or paramilitary forces; and, most important, reports of frontline friendly troops.

These three distinct disciplines provide unique types of intelligence. One source may tip off another source. Accordingly, the commander must insure that all three are fused and integrated to provide the best basis for tactical decisions.

The USAF has additional capabilities primarily in the categories of tactical imagery and electromagnetic detection. The USAF reinforcement is provided by tactical reconnaissance elements using high-performance aircraft and drones. These vehicles (manned and unmanned) have greater range, speed, and penetration depth than Army assets. Strategic systems reinforce by providing greater area coverage from overhead collection.

The Army intelligence system is a part of the national strategic intelligence system comprising government agencies and the military services. The national system is a multiple collection effort which uses a variety of platforms including aircraft, ships, and ground stations. It produces intelligence under three politico-military conditions:

1. Static (peace)
2. Tension (increased threat)
3. Combat

Under static conditions, national systems focus on peacetime concerns of national decision makers. Their most important tactical function is the development of an accurate intelligence data base which identifies the military potential in areas where US forces are likely to be committed. Management of national intelligence resources is centralized, and security restraints limit access to some of its products. Strategic collection resources support demands of major commanders. During periods of increased tension, security restrictions on dissemination and use are relaxed.

In combat, centralized control is retained but commanders' demands receive a higher

priority. Senior tactical commanders are authorized to use the intelligence as they see fit with minimum security constraints. Intelligence from national systems and those of other services is integrated with intelligence from organic Army resources.

The USAF role is critical in meeting demands of commanders. For example, some intelligence problems require joint Army-Air Force effort. Air defense suppression requires such joint intelligence planning. Corps and USAF collection platforms can locate enemy air defense radars and communications. Strategic systems can locate components of enemy systems in those areas denied to tactical assets. Long-range patrols can locate elements which present no electronic signature. The composite is fused into an integrated, all-source product. The corps battlefield information coordination center (BICC) is the fusion point for the integration of intelligence data from all sources, including allied forces.

Commanders initiate the intelligence preparation of the battlefield prior to combat. Detailed knowledge of the enemy, terrain, and weather is mandatory. Included are such fundamental tasks as:

- **Identifying obstacles**
- **Identifying main avenues of approach**
- **Identifying battle positions**
- **Identifying possible assembly areas**
- **Insuring the accuracy of map grids**
- **Preparing detailed radar coverage charts**
- **Preparing trafficability studies**
- **Determining the most likely positions for artillery, air defense, and antitank elements**

These data are reduced to overlays for use in planning prior to the battle. They can also be stored in a data base for rapid retrieval and dissemination.

Weather and terrain, although uncontrollable, must be used to our advantage. Weather factors must be considered and worked into tactical operation plans. Commanders who understand the limitations and advantages of weather and terrain can combine this with their knowledge of the enemy to tilt relative combat power in their favor. Intelligence preparation of the battlefield enhances command and control, and multiplies our capability to defeat the enemy with fewer casualties.

INTELLIGENCE MUST BE EVENT-ORIENTED AND TIMELY

Intelligence must support the commander's requirements, and must be event-oriented. Intelligence summaries (INTSUM), periodic intelligence reports (PERINTREP), and schedule-driven briefings as we have known them cannot serve modern commanders who must have intelligence keyed to events in a rapidly changing situation.

THE INTELLIGENCE SYSTEM AS A PART OF THE TOTAL COMBAT SYSTEM

In order to understand the interaction of intelligence with operations, it is necessary to understand the difference between *INTELLIGENCE* and *COMBAT INFORMATION.* If raw data can be used for fire or maneuver as received, with no interpretation or integration with other data, it is **COMBAT INFORMATION.** If the raw data requires validation, integration, comparison, or any other form of analysis, no matter how rudimentary, it becomes **INTELLIGENCE.** In other words, the definition depends on how the information is handled and how it is used.

Once the combat engagement begins, nearly all of the intelligence acquired by modern armies is a by-product of combat operations. Much of the data can be used immediately by combat operations elements to bring combat power to bear against the enemy. Data so used is COMBAT INFORMATION. *If the data cannot be used*

immediately, but requires processing for use, it may then become INTELLIGENCE. COMBAT INFORMATION, even though used, may still be of vital importance as intelligence. In such a case, the same data can be both, but in sequence. Intelligence collection systems acquire a great deal of COMBAT INFORMATION. The systems must provide for immediate access to such data by commanders for combat action. Commanders must insure that linkages exist whereby intelligence collecting systems will rapidly feed COMBAT INFORMATION to the Captains and Colonels who need it. At the same time it is sent upward for processing.

Let us examine some of the many systems which collect and use combat information:

Basically, we start with the riflemen or weapons commander who sees enemy personnel, tanks, or other targets and engages them by fire. This sighting is combat information. When reported up the line, it can enter the intelligence system as information.

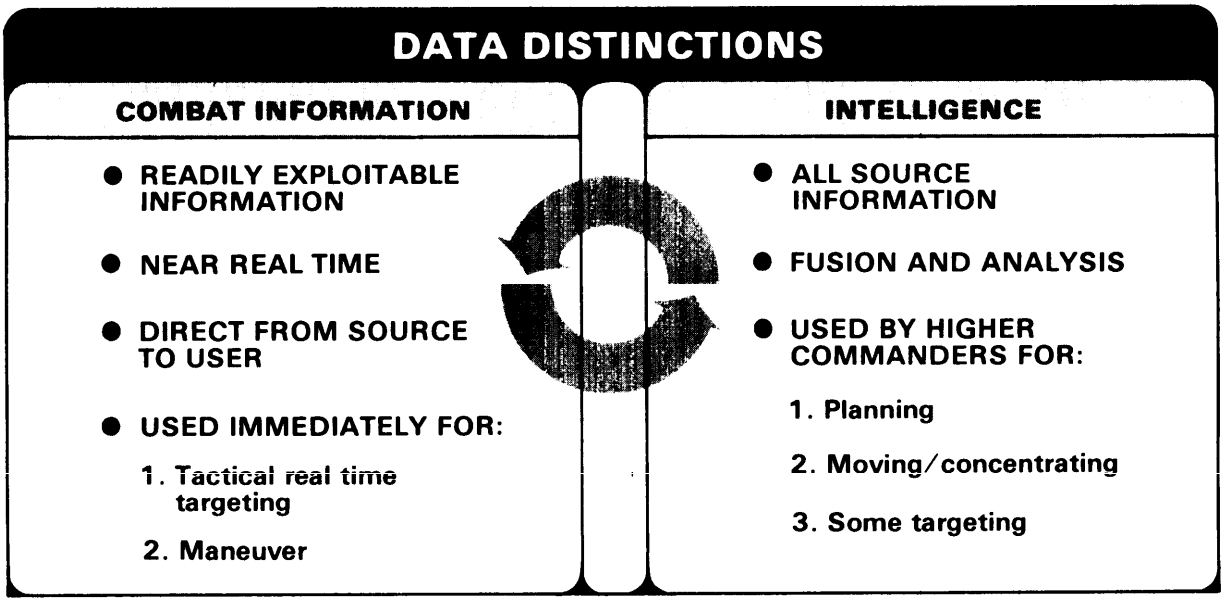
The artillery generates combat information through its *target acquisition system.* Data that can be fired upon is combat information. On the other hand, data that is not used for immediate firing is passed over to the intelligence/operations fusion center to be processed into intelligence. Data used for firing may also be processed into intelligence for use by a senior commander. The artillery counterfire system is a subelement of target acquisition specializing in locating and engaging enemy batteries. Its data follows the same pattern.

The air defense system finds and identifies enemy aircraft, and engages them with guns and missiles. The *immediate data,* coming largely from their radars, is combat information. The intelligence picture is filled when such data is passed for integration and processing within the intelligence/operations fusion center.

Other combat elements such as tactical air support, cavalry, and maneuver elements use and report data in keeping with their own roles and missions.

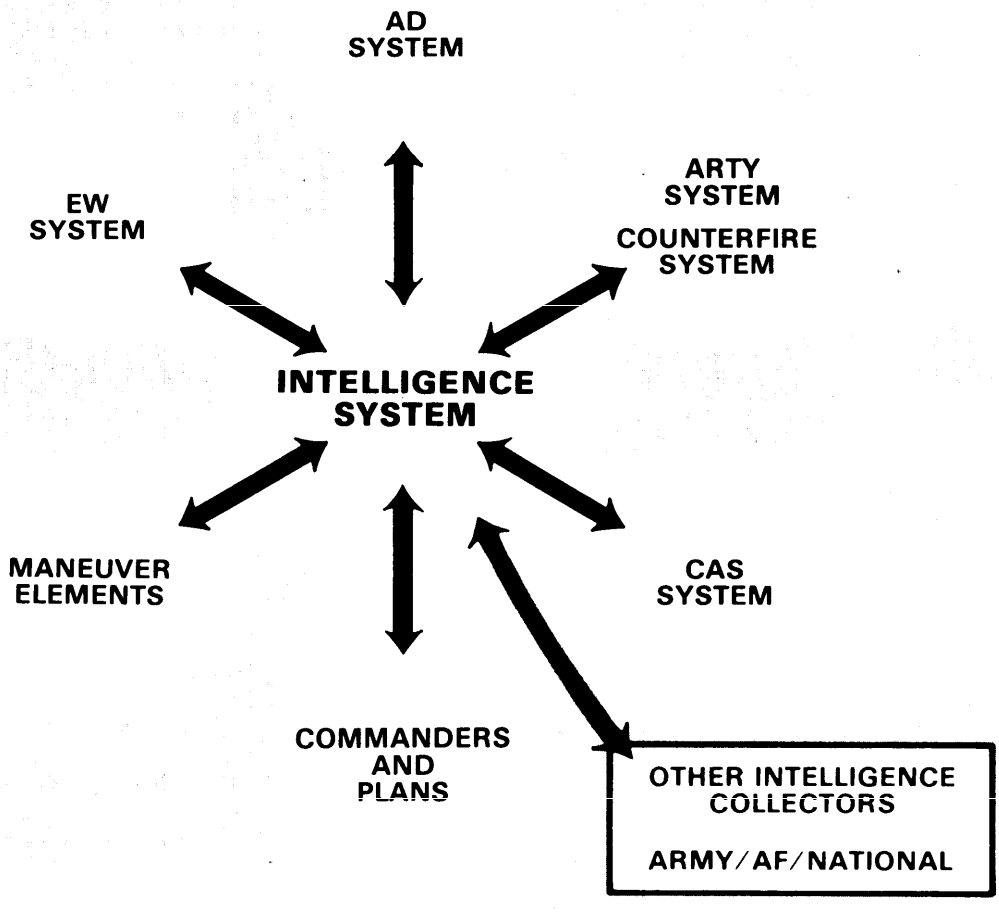
Sometimes, as in the case of EW, the collectors of data deal with both combat information and intelligence. Due to the technical nature of such data, some form of processing must always take place. Electronic data must be converted into usable information. When it is highly perishable and of immediate value, we have a case where intelligence becomes combat information.

This chart shows the distinction between combat information and intelligence.

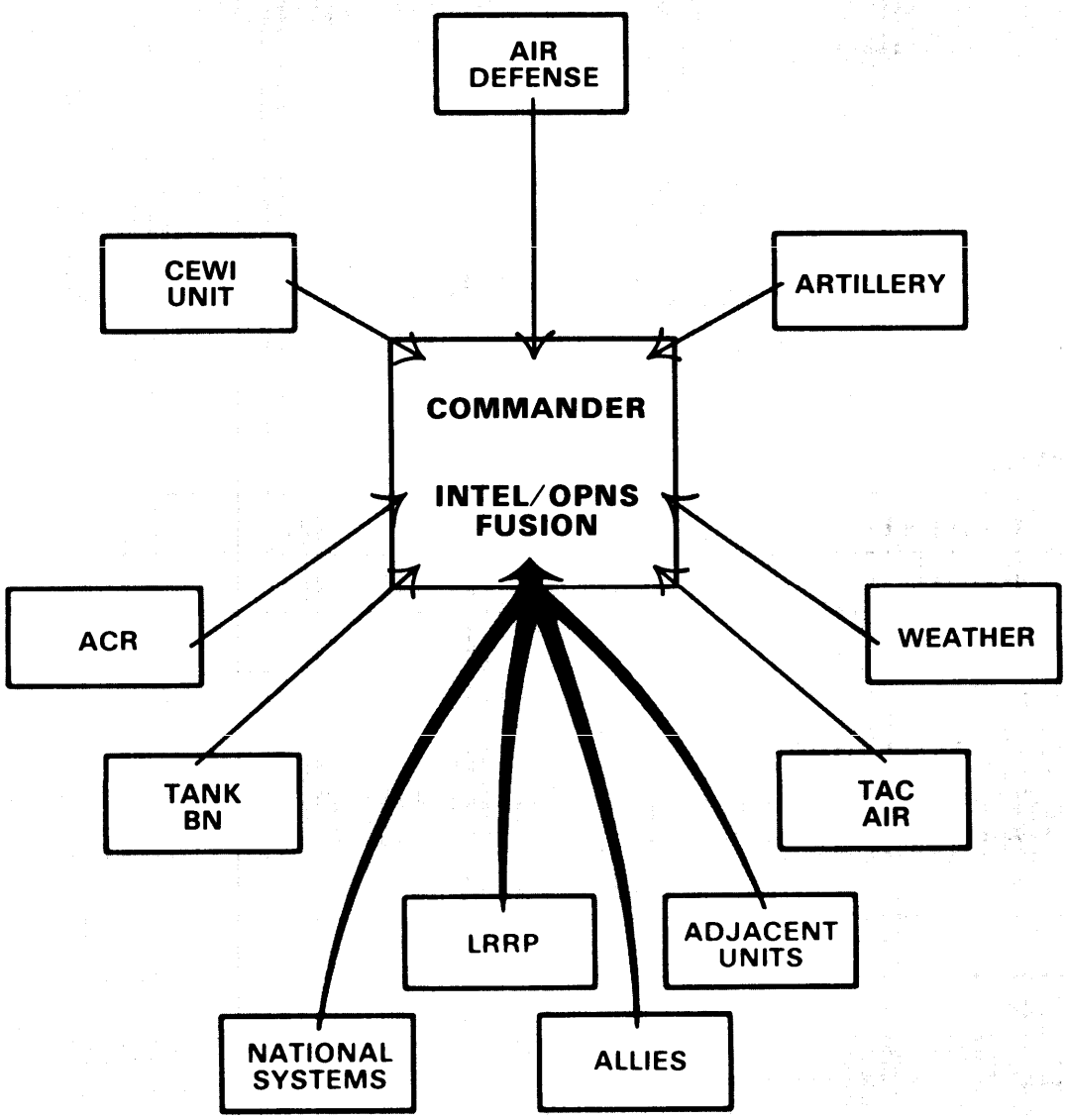


It is obvious that combat systems operators, commanders, and their staffs must interact and exchange data freely in order to insure that combat information is never withheld. Integration of intelligence and operations is necessary to provide the commander this assurance. Combat information is extremely perishable. The intelligence system must be geared to *immediate response* when it acquires combat information through its many collection systems.

Targeting for deep airstrikes, missiles, or long range artillery will most often be the product of intelligence rather than combat information. Such intelligence must be a fused, all-source product. The picture which emerges is one of operating (semi-self-contained) combat systems acquiring and using combat information from their own sensors—eyeballs, radars, electromagnetic systems, imagery, observation devices and others—and spilling that data into the intelligence/operations center as rapidly as possible. It can be pictured conceptually like this:



An example, using organization units, might look like this:



Information demands which cannot be fulfilled with organic resources must be satisfied by those of a higher commander. For example, national level collection supports corps requirements far beyond the scope of organic capabilities, and inputs both combat information and intelligence into the corps fusion center. Division and brigade centers similarly support their commanders' needs as well as those of subordinate commanders which exceed their organic capabilities.

The following chart depicts the various intelligence assets and organizations which work to satisfy the operational requirements of the Generals, Colonels, and Captains.

INTELLIGENCE ASSET AVAILABILITY

	GENERALS		COLONELS		CAPTAINS
	CORPS	DIVISION	BRIGADE	BATTALION	COMPANIES
ELECTROMAGNETIC SIGINT					
COMINT	★	★	★		
ELINT	★	★	★		
REMS		★	★	★	★
GSR		★	★	★	★
WEAPONS LOCATING RADAR		★	★		
IMAGERY					
PHOTO	★	★			
IR	★	★			
SLAR	★	★			
HUMAN OBSERVATION					
RECONNAISSANCE UNITS	★	★		★	
TROOPS				★	★
IPW	★	★	★		

*This chart illustrates the echelons at which these assets are normally assigned, attached, or in direct support.

TACTICAL COUNTERINTELLIGENCE

Tactical counterintelligence exists to support the OPSEC effort which thwarts the enemy's intelligence collection by denying and shielding our intentions and actions. The counterintelligence estimate assesses the enemy's view of our forces, identifies our vulnerabilities, and recommends corrective measures to be included in the commander's OPSEC annex. Based upon the execution of OPSEC, the commander can effectively direct measures to conduct bold and innovative deception operations.

To deceive the enemy, the commander must first know how the enemy collects information—what systems he depends upon and trusts; which assets he neglects. The commander can determine how to exploit enemy vulnerabilities by deception through this knowledge of enemy intelligence collection and analysis practices. Tactical counterintelligence and OPSEC must be coordinated, concurrent, and continuous with all tactical operations.

The threat from enemy intelligence is real and must be neutralized. The Soviets also collect intelligence using the three primary intelligence disciplines.

The *HUMINT threat* can be minimized by aggressive counterintelligence and security practices, assisted by territorial security forces—local military, paramilitary, police, and intelligence organizations.

The success of *imagery* from hostile overhead platform can be lessened by rigid cover, concealment, and camouflage discipline.

It is, however, the *electromagnetic* collection threat that looms as the primary Soviet tactical intelligence capability. This formidable threat has developed steadily over the years. It was the Russians who were decimated by the Germans at Tannenberg during WWI due to exploitation of communications intercept—a combat lesson not forgotten. Communications discipline and security are the basic means by which we

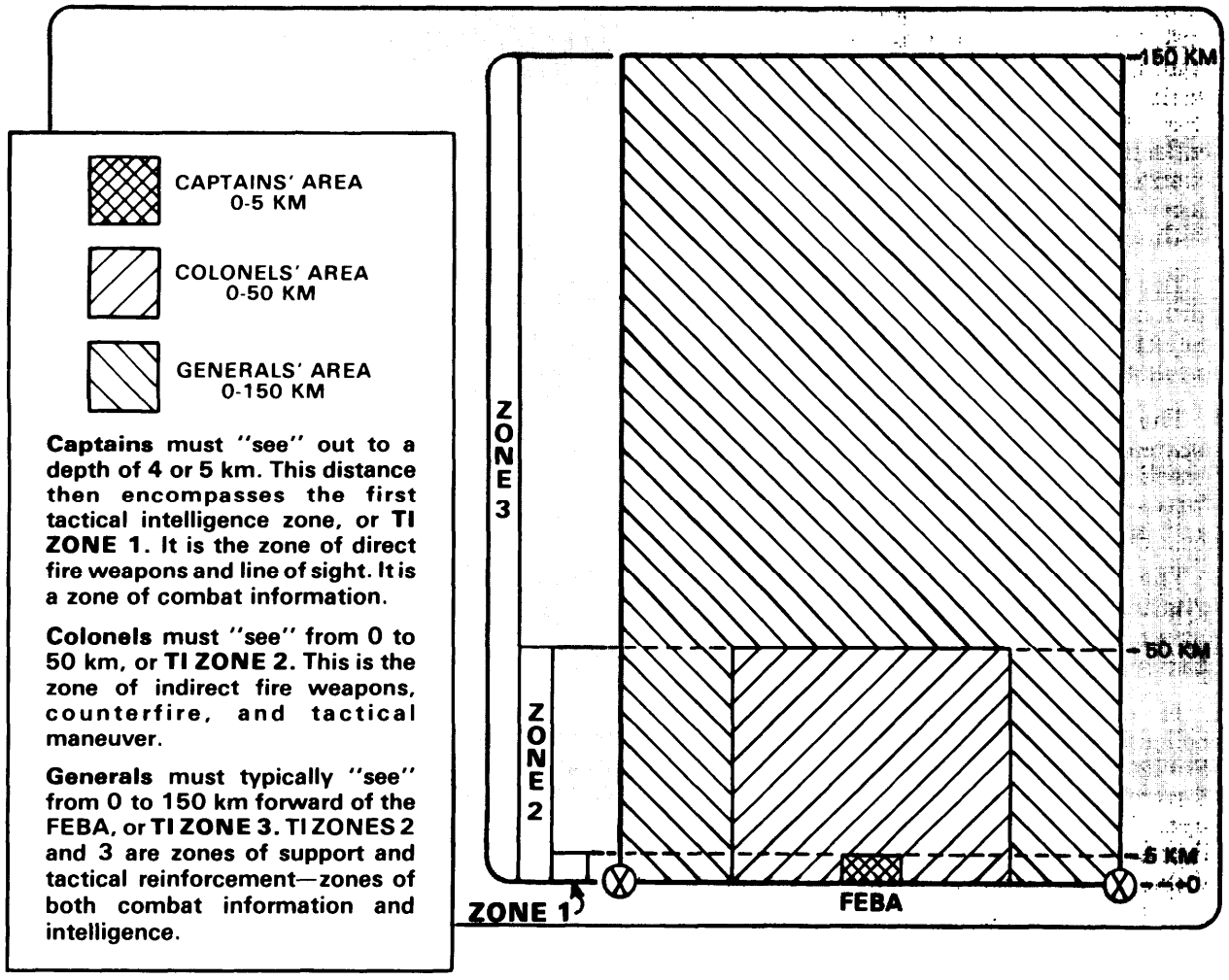
THE SOVIET'S PRIMARY MEANS OF COLLECTING TACTICAL INTELLIGENCE IS THROUGH THE ELECTROMAGNETIC THREAT

shield our intentions and actions from hostile electromagnetic observation. These actions can help to reduce casualties.

Tactical counterintelligence operations supported by an intelligence data base and a detailed preparation of the battlefield are prerequisites to deception. As OPSEC helps thwart the hostile intelligence threat, a parallel effort is focused on the enemy's collection apparatus to assist with the deception plan. For deception, damaged equipment and weapons can be realistically positioned. While dummies cannot often deceive imagery, real inoperative equipment can, when placed in realistic, covered, and camouflage positions. Operation of phantom nets by specially trained and equipped units can deceive and mislead the enemy. These operations present fictitious order of battle and tend to overload his acquisition system. Tactical counterintelligence and OPSEC operations require central management by the senior tactical commander and can be highly successful, cost-effective multipliers of combat power.

INTELLIGENCE TO FIGHT THE BATTLE

The battlefield forward of the FEBA is viewed to different depths by different commanders for different purposes. The perspective differs by echelon of command and is discussed in terms of Tactical Intelligence Zones (TI ZONES), as shown in this chart.



As the perception of the battlefield differs by echelon, it also varies according to the tactical situation. Intelligence from all sources, fused and processed, is contained within the data base available to the commander. Decisions should be based on all available information and caution exercised with regard to enemy deception operations.

Captains are interested primarily in their area of operations projected within TI ZONE 1. Within this area, they need combat information for direct fire weapons and tactical suppression of enemy fire and maneuver elements. Captains need highly accurate and timely data for targeting. Most of this information is derived from line of sight, visual contact, weapons sights (both day and night), and small tactical radars or remote sensors.

The Colonel's area of intelligence interest includes both TI ZONE 1 and TI ZONE 2. In order to direct combat operations, Colonels need intelligence and timely and accurate combat information of a greater scope than Captains. Colonels must see enemy movement, reinforcement, artillery locations, air defense positions, assembly areas, armor and other significant tactical indicators and targets.

Generals focus their intelligence requirements on TI ZONES 2 and 3 while closely following the action in ZONE 1. In order to concentrate forces they must demand intelligence and, in certain circumstances, combat information relating to the density of enemy forces, direction of enemy movement, and air defense suppression throughout their area. (See later section on templates.) Generals control and direct those intelligence collection assets having the greatest range and coverage. Generals must seek supplemental coverage from USAF, allied, and national systems and focus them to fill those gaps not covered by their own resources.

The intelligence required by commanders does not vary significantly for the offense, defense, or retrograde. Such operational variances do, however, impact on tactical intelligence collection capabilities. For example, commanders in the defense can use more fully all of their resources. As mobility increases, certain types of collection systems become less effective. For example, REMS and GSR become limited to flank screening and rear area security. Those systems not capable of realtime intelligence are of little use. In the retrograde, timeliness, accuracy and usability of intelligence are of extreme importance. As movement is rearward, it is possible to employ some collection resources in a "stay-behind" mode as long as they operate in realtime. In both offensive and defensive operations, commanders should "leap-frog" or "jump" their collection resources so that they have continuous coverage to meet their needs.

ENEMY "INTENTIONS" MUST BE CONSIDERED ALONG WITH CAPABILITIES AND PROBABLE ACTIONS

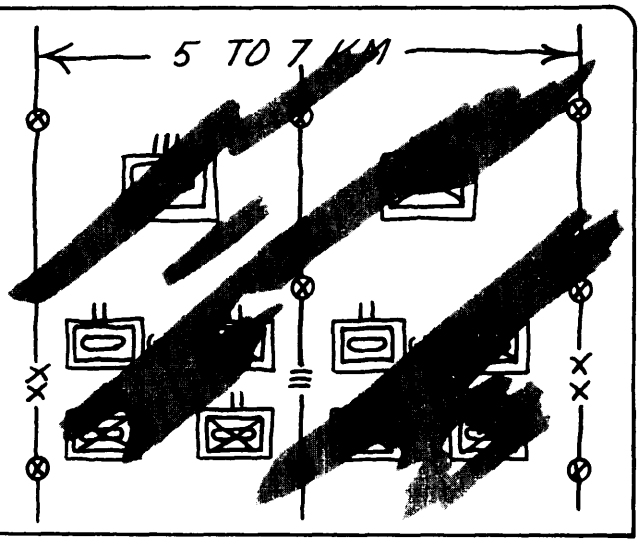
As Generals, Colonels and Captains must continually be able to "see" the enemy across their areas of intelligence interest, they also need to think imaginatively in terms of what the enemy is doing. It can be assumed that all armies reveal activity patterns and deployment variations tied doctrinally to different tactical operations. However, commanders can no longer be satisfied with considering enemy capabilities and probable courses of action based on deductive analysis of past occurrences. Commanders must *always* seek the enemy's intentions.

For example, Soviet offensive doctrine calls for massing of up to six divisions echeloned in depth across a 10-12 km front. At the same time the entire artillery of this force is normally deployed forward. *Such a set clearly indicates a breakthrough attempt.* Locations of certain emitters, in conjunction with other elements known to be organic to specific echelons, reveal a preparedness to pursue a given tactic. Templates designed to reflect enemy tactics and doctrine in a variety of situations can help commanders to estimate intentions in the context of capabilities.

INTELLIGENCE TEMPLATING

Intelligence templating is an analytical tool used to relate enemy activities to terrain and weather. On the rapidly changing modern battlefield, the commander needs more than just raw intelligence—he needs quick answers. Therefore, he must focus on the product of intelligence rather than on the process. However, while commanders are not interested in the details of intelligence processing, they should be familiar with the methodologies used in arriving at the final product or intelligence estimate of enemy intentions. If the product is not credible, the commander will not rely on it as the basis for tactical decisions.

Templating, therefore, is an integral part of the commander's intelligence preparation of the battlefield. An attack template of a combined arms army showing frontages, depth, echelon spacing, composition, disposition and strength of subordinate elements can be prepared in graphic form, to scale, and moved about over a military map. Based on previous terrain analysis, focus can be placed on specific areas or avenues of approach. Inductive judgments can be made as to where the enemy could position his forces, assembly areas, command posts, air defense and artillery weapons. Enemy courses of action in executing the attack will begin to be revealed. Below is an example of a doctrinal template depicting a motorized rifle division in the breakthrough:



This template is provided to the commander by his intelligence section. It may be prepared on acetate and used over an enemy situation map or displayed on a computer assisted cathode ray tube (CRT). Doctrinal templates can be prepared for any enemy capability; i.e., attack, defend, withdraw and reinforce, and for each specific course of action available to the enemy within the constraints of terrain and weather.

An event template can serve as a model against which enemy activity can be compared. The purpose is to determine which course of action the enemy will adopt based on an analysis of the activity indicators. An example of an event template is below:

EXAMPLE OF COMMANDER'S EVENT INDICATORS FOR ENEMY ATTACK AT THE OUTBREAK OF WAR

(Enemy Events in Reverse Order)

	TIME*
1. Intensified Reconnaissance and Surveillance	D-7
2. Replacement and Supply	D-5
3. Movement of ADA forward from rear TI Zones	D-1
4. Movement of 2d echelon forces forward to assembly areas in TI Zone 2 from TI Zone 3 or adjacent zones	D-1
5. Lateral Movement of 1st echelon forces to concentrate for the attack	H-12
6. Movement to LD	H-2
7. Deployment into attack formation	H-1
8. Assault	H-hour

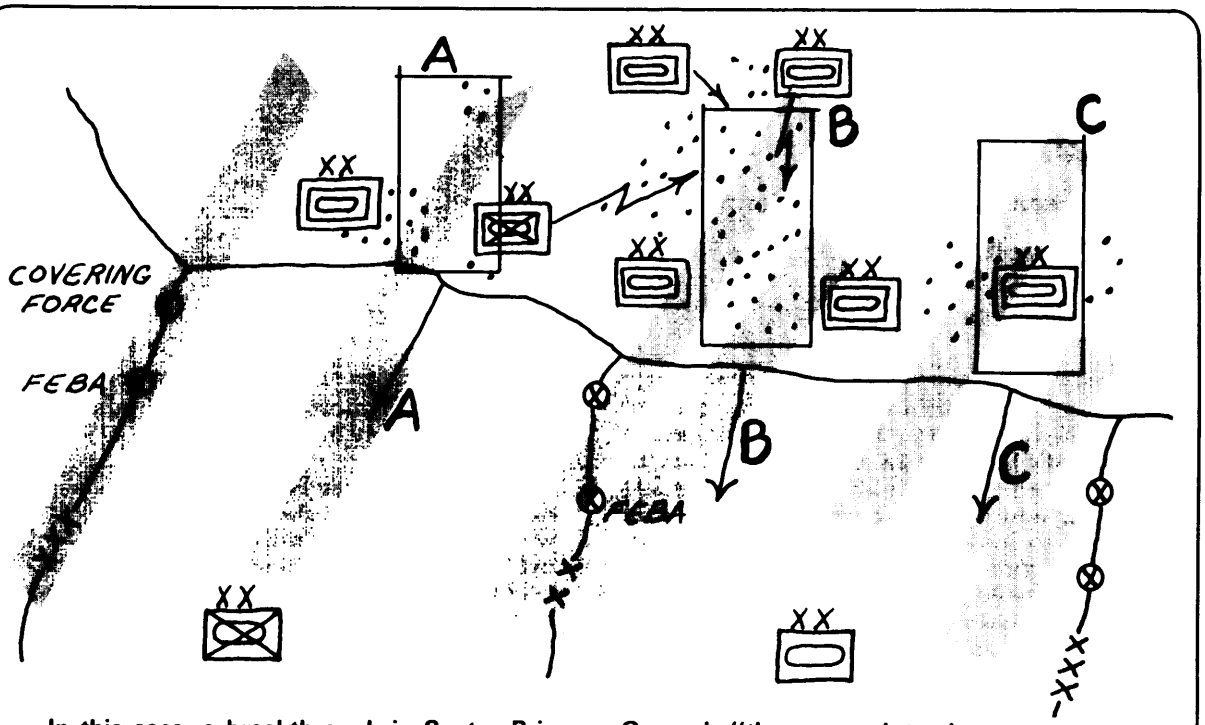
**Timing does not necessarily reflect Soviet doctrine.*

An event template relates an enemy course of action to time and space on the battlefield. If the commander is to "see the battlefield", then he must know where to look, when to look, and what to look for. Event templates can be as general or as detailed as the commander requires. They provide the commander the capability of determining critical activity areas and critical activity indicators which drive his intelligence collection and processing system. He can plan the allocation of scarce collection resources to critical areas and against critical information requirements. The commander can determine the optimum resource mix that will accomplish the collection task. He can insure by prioritizing critical information requirements, that his intelligence processing system is not inundated with non-essential reporting.

An event template is similar to an IBM card with pre-punched windows. Each window is an indicator. As the indicators are answered either through reporting or analysis, the adoption of a particular course of action relative to other courses of action by the enemy becomes apparent. An event template concerning where the breakthrough will occur, when and with what force, might be appropriate to more than one course of action and sector of the battlefield. When the enemy employs deception as a means of confusing the commander, event templating can assist in identifying those enemy deception activities as they relate to the commander's courses of action.

At corps level, the General receives combat information and intelligence directly from tactical and national systems. Templates can be developed which permit the corps commander to pass combat information to his division commanders before the detailed information has been analyzed and turned into intelligence. For example, the General's Tactical Intelligence Zone (TI ZONE 3) can be templated so that when actual conditions reach a predetermined threshold (i.e., number of emitters - number of tanks - number of vehicles in a certain area) the corps commander can quickly inform his division commanders or take action himself. The enemy's signatures, whether electronic or physical, provide the keys for templates.

An event template of a breakthrough might look similar to the one below:



In this case, a breakthrough in Sector B is anticipated while alternate courses of action may exist for Sectors A and C, such as deception and reinforcement. Density of forces, combat power, range of weapons, and rate of movement are important considerations in using an event template as a means of reaching a commander's decision point. The intelligence estimate must tell the General: "the enemy intends to execute a breakthrough at Sector B with five armored divisions within (hours or minutes)." The commander must insure that his intelligence system has the capability to determine enemy intentions in sufficient time for him to allocate his combat resources to blunt the breakthrough.

In gathering data for templates, the commander can focus his collection assets so they provide continuous surveillance of those areas of enemy activity and key terrain which will indicate the enemy's intentions as to where, when, and how he will attack. The commander's SIGINT assets must continuously monitor the enemy's command and control nets, search for his radars, and monitor logistics activity to identify and locate major weapon systems and troop concentrations. When they are identified and located, the commander can begin to assess the enemy's intentions. He must call in all resources available, national as well as tactical. Imagery can locate tank and artillery build-ups. Imagery from overhead platforms can search to the rear of the enemy's area of operation to reveal preparation for an attack in depth. PWs, refugees, and other human sources can provide information about the enemy's intentions. Properly directing his intelligence system, the commander can gain the information needed in his decision-making process.

THE COMMANDER'S ROLE

Commanders must plan and control intelligence operations with the same level of interest and personal involvement as they normally devote to combat operations. Intelligence must respond to commanders.

OPSEC supported by tactical counter-intelligence is vital for economy of force and surprise. Commanders must think of the enemy in terms of the enemy's tactics and doctrine, and seek to detect indicators of his intentions as well as his capabilities. *On the modern battlefield, no commander can succeed unless he demands and receives the intelligence and combat information he needs. He must go after it personally.*

Finally, the commander is the one who makes the ultimate decision based on the best information available. He will never have all he wants and it will seldom be unambiguous. Nonetheless, he must decide—take risks—and act decisively.

CHAPTER 8

Air-Land Battle

INTRODUCTION

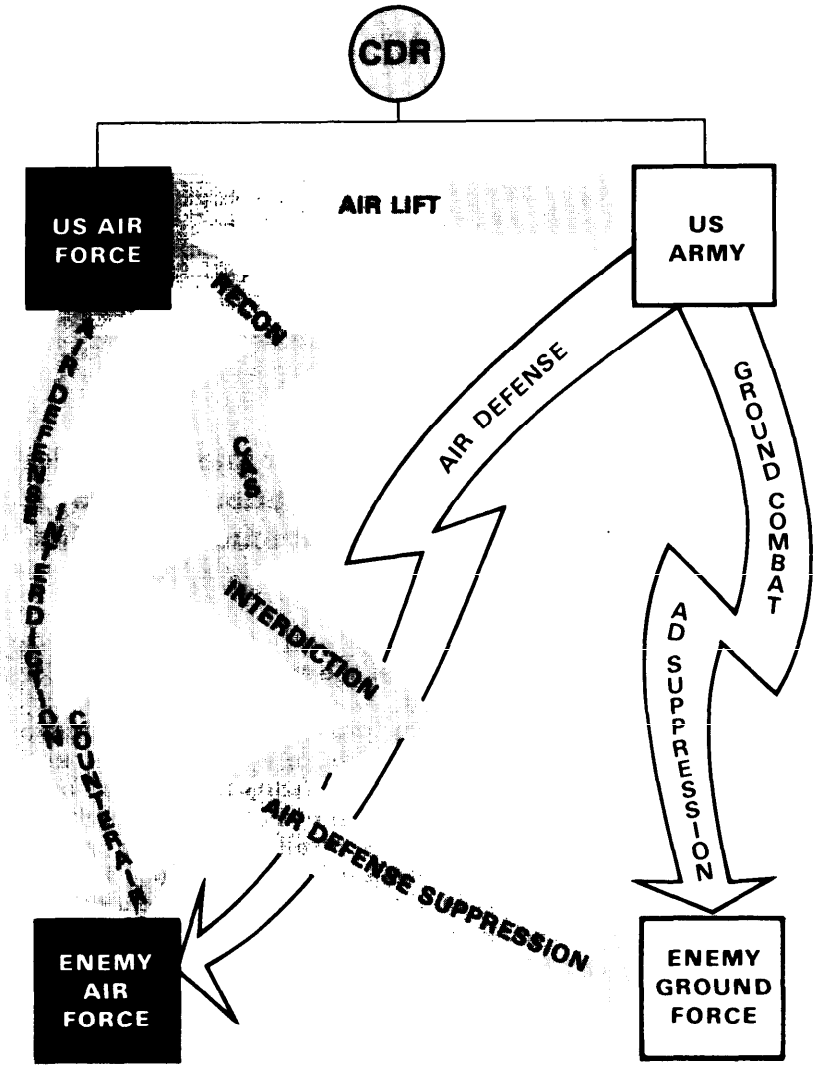
MODERN BATTLES are fought and won by air and land forces working together. The interaction and cooperation between air and land forces extends into almost every function of combat.

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Both the Army and Air Force deliver firepower against the enemy. Both can kill a tank. Both can collect intelligence, conduct reconnaissance, provide air defense, move troops and supplies, and jam radios and radar. But neither the Army nor the Air Force can fulfill any one of those functions completely or by itself. Thus, *the Army cannot win the land battle without the Air Force.* In fact, the Army consciously avoids the development of weapons or equipment to perform functions which the Air Force can perform more effectively.

Given the complex and important interaction between air and land forces, the requirement for cooperation and teamwork is very great. Because the Army and Air Force are separate services which come together on the field of battle under joint commanders, the requirement for an air-ground communications system and an agreed employment concept (followed by joint training in operation procedures and frequent exercises) is absolutely essential.



THE AIR AND LAND FORCES INTERACT AND COOPERATE IN ALMOST EVERY COMBAT FUNCTION

The Air Force contribution to the air-land battle may be described in five main categories:

1 Drive enemy air forces from the battlefield so that Army forces can exploit their mobility and mass at the critical places and times.

2 Provide reconnaissance and intelligence to the Army and the Air Force regarding enemy locations, concentrations and movements.

3 Conduct battlefield interdiction operations—that is, ground attack—against enemy reserves, fire support elements, command posts, and supply points. This is probably the most effective use of tactical air forces because targets are plentiful and attacks may be concentrated and sustained. The defeat of second and third echelon attacking forces before they even reach the line of contact is a main objective of such operations.

4 Provide close air support, wherein tactical fighter aircraft attack targets designated by the ground commanders. Close air support is increasingly difficult, but when the engaged Army forces require close air support to accomplish their mission, it must be provided regardless of difficulty and regardless of cost.

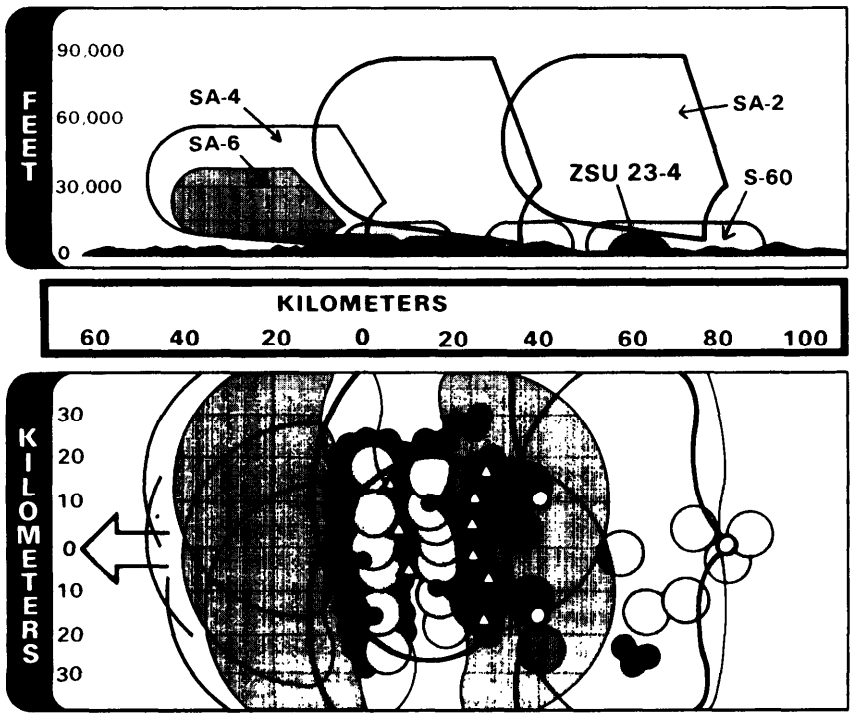
5 Provide tactical airlift—that is, the movement of troops and supplies on the battlefield.

The coordination of air support to Army forces—or more accurately, the coordination of the air-land battle—takes place through the *Air-Ground Operations System*. This system is well established and has proved effective in two wars. However, it is now confronted with a new and more demanding environment created by the growth in size and effectiveness of enemy air defense systems.

ENEMY AIR DEFENSES

The Soviet Union and the Warsaw Pact nations have tried to offset or reduce our Air Force's combat power effectiveness through the use of extensive and sophisticated mobile air defenses—defenses involving mixes of guns and missiles which provide overlapping coverage. Warsaw Pact air defenses now provide a mobile umbrella which accompanies each echelon of the Pact Armies, including forward deployed battalions. The variety and numbers of air defense weapons accompanying a typical Warsaw Pact Army of 4 or 5 divisions are impressive.

WEAPON	TYPE	UNITS	WEAPONS LAUNCHERS
[illegible]	AAA	32 Btrys	128
[illegible]	AAA	23 Btrys	138
[illegible]	SAM	5 Btrys	15
[illegible]	SAM	9 Btrys	27
[illegible]	SAM	3 Btrys	18



This figure portrays a typical Soviet Combined Arms Army air defense system 50 kilometers wide and 100 kilometers deep. Shoulder-fired SA-7 and vehicle-mounted SA-9 launchers common to all units are not shown, but provide a dense blanket of low altitude air defense which complements the other systems.

LEGEND

- SA-2 — 3 Batteries
- SA-4 — 9 Batteries
- SA-6 — 5 Batteries
- S-60 — 23 Batteries
- ZSU 23-4 - 32 Batteries
- ZSU 23-2 - 19 Batteries
- ZSU 57-2 - 6 Batteries

SUPPRESSION OF ENEMY AIR DEFENSES

Whenever and wherever the heavy use of airpower is needed to win the air-land battle, *the enemy air defenses must be suppressed,* or losses of aircraft will be too high and the effectiveness of air support too low. Suppression operations may include temporary neutralization of selected facilities and short-term degradation of other installations, as well as the planned destruction of critical defensive elements. The overall aim is to reduce friendly attrition to an acceptable level. The suppression of enemy air defenses requires a coordinated Air Force/Army effort to locate the enemy positions and communications vulnerabilities, and to plan and execute a suppression operation with all available firepower and electronic means.

INTELLIGENCE FOR SUPPRESSION

The Army/Air Force team at each appropriate echelon mounts a combined intelligence campaign to locate enemy air defense weapons, radar, communication links, and control centers. All available Army and Air Force collection and locator systems will be employed.

Air Force systems include:

- **Reconnaissance aircraft equipped with infrared (IR) mapping**
- **Side-Looking Airborne Radar (SLAR)**
- **Real-time sensor and data links**
- **Camouflage film**
- **Drones with cameras and signal intelligence receivers**
- **Position locating systems**
- **Tactical electronic reconnaissance elements**
- **Airborne warning and control systems**

The Army will demand information from:

- **Forward observers**
- **Sound and flash systems**
- **Locating radars**
- **Airborne photo and IR platforms**
- **Ground and airborne emitter locators**
- **Remotely piloted vehicles**
- **Standoff target acquisition systems**

Information collected from these systems are fed into a common center which "fuses" the data into a composite picture that is as near real-time as possible.

PLANNING FOR SUPPRESSION

Working as a team, Air Force and Army counterparts prepare a **suppression plan.** This will be a comprehensive, all-out, air defense suppression effort aimed at degrading enemy air defenses to an acceptable level, and then keeping them down. The effort goes after the air defense weapons themselves, critical communications, control links, and radars.

EXECUTION OF SUPPRESSION OPERATIONS

The suppression plan identifies which segment of enemy air defenses will be attacked and suppressed, and in what priority. Execution of the plan requires explicit timing. Suppression operations also require an immense application of artillery and surface-to-surface missiles on those identified targets that are within range. These ground weapons are employed at the same time that penetrating aircraft use a sophisticated array of antiradiation missiles, standoff precision guided missiles, conventional bombs and ECM pods, as well

as supporting airborne jammers. The target priorities are to first destroy enemy air defense command and control centers, then systematically reduce the surface-to-air-missiles (SAM) and antiaircraft artillery (AAA) sites in the vicinity of targets to be struck by the fleets of follow-on aircraft or in the corridors to be opened.

Electronic warfare is an essential part of suppression operations. The Army is well equipped with communications jammers; the Air Force possesses the preponderance of *non*-communications jammers. Thus integrated planning and execution of the EW component of the suppression operation is essential. Generals are responsible for the detailed plans for orchestrating these collection and countermeasure systems primarily because they originate at corps or division level in the Army, but the Colonels and Captains need the products to fight the battle.

Once the suppression operation begins, an obvious tactic would be to barrage jam as much of the enemy's forward sector as possible, leaving the deeper ECM targets to the airborne suppression force. The proper application of the time-phased attacks on each successive, critical enemy air defense control point will disorganize his carefully planned defenses. Signal intelligence must concentrate on monitoring the air defense control nets, and seeking targets of opportunity to be attacked by field artillery, air strikes, or jammers.

CLOSE AIR SUPPORT

During the last three wars we had at least local air superiority over our battlefields. Captains, Colonels, and Generals must understand that this will not automatically be the case on the modern battlefield. *The first battle of the next war will not resemble, in any fashion, what we have come to accept as the norm—unopposed close air support whenever we want it.*

- Enemy ground-based air defenses may prevent our aircraft from orbiting or loitering over the main battle area (MBA).
- Enemy aircraft may challenge and engage close air support missions.
- Airborne and forward air controllers (FAC) may have to stand-off from enemy air defenses.
- Strike flights will probably come in low, pop-up to attack targets, and return to very low altitude for egress. Subsequent attacks will probably be at low altitude from a different direction.

The density and lethality of enemy air defenses force us to adopt new procedures to direct close air support. The airborne FAC is still necessary but must operate at low level and at a safe distance from the FEBA, perhaps as far as 15 kilometers back. Obviously he must have "eyes" in the battle area with whom he communicates and to whom he hands off the attacking aircraft for precise target identification. *It is the ground FAC or Army forward observer who identifies the target.* The request is then transmitted via the Air Force air request net. The observer or controller must attempt to identify enemy air defenses that could endanger the incoming aircraft, see that the pilot is warned, and assist in suppressing those defenses with artillery and other fires.

Requests for and control of close air support will follow prescribed air-ground operations procedures and make full use of the Air Force communication nets. Requests and guidance must be complete, but concise because of enemy jamming potential. Ground FACs and observers provide the bomb damage assessment back to the airborne FAC, or to appropriate control facilities, so decisions can be made to restrike or divert sorties to other targets.

NEW AND IMPROVED AIR FORCE MUNITIONS MEAN A GREAT INCREASE IN ANTIARMOR LETHALITY

Improved Air Force munitions, such as Maverick and Rockeye, have greatly increased **antiarmor lethality.** Maverick, in conjunction with cockpit guidance systems, allows strikes of close support targets from standoff distances up to 20 kms. In the near term, new glide bombs will be capable of striking targets 50 kms from the launch point. Other aircraft will strike the target directly with conventional bombs and tank-piercing 30mm cannon fire.

Ground and airborne FACs, scout helicopters, FOs, and many strike aircraft will be equipped with target designators to maximize our advantage in precision guided munitions. FAC controlled radar beacons enable tactical fighters to strike targets during night and adverse weather conditions.

In marginal weather, attack helicopters with antitank guided missiles may provide the only quick reaction capability, while Air Force area antitank munitions will be more effective against larger massed enemy forces.

All commanders must integrate all available Army and Air Force fire support with the maneuver of their forces. Close air support is part of the inventory along with tank and artillery fire, ATGM, and attack helicopters.

Close air support will be available to the ground commander when he needs the additional firepower:

- **To defeat engaged forces.**
- **To achieve assigned objectives.**

AIRSPACE MANAGEMENT

The purpose of airspace management is to maximize joint force effectiveness without hindering the application of combat power by either Service. Friendly aircraft must be able to enter, depart, and move within the area of operations free of undue restrictions on their movement, while artillery fires in support of the ground force continue uninterrupted. The tempo and complexity of modern combat rules out a management system that requires complicated or time-consuming coordination. Also, the likelihood of poor or enemy-

jammed communications dictates maximum reliance on procedural arrangement. To meet the requirements of simplicity and flexibility, our airspace management system operates under a concept of *management by exception*. Joint Air Force and Army management elements at corps and division provide the framework for implementing the system.

Each service is free to operate its aircraft within the theater airspace. Army aircraft at low altitude operate under the control of Army commanders. Air Force aircraft at medium and high altitude operate under control of the Tactical Air Control System. The boundary between low and medium altitude regimes is flexible and situation-dependent. Only when aircraft pass from one regime to another is traffic coordination required. Generally, Army aircraft operate without restriction below coordinating altitudes forward of the division rear boundary. Conflicts are generally avoided by passing information about major movements or high concentrations of fire—but risks are taken.

Airspace management in the forward combat area accepts:

- ***The necessity for coordination being met by SOP wherever possible to reduce the need for detailed, time-consuming coordination and use of communications.***
- ***That the maneuver brigade and battalion does not need a dedicated staff element for airspace management; they will be assigned airspace management functions only on a by-exception basis.***
- ***That the maneuver unit commander is responsible for using good judgment in the application of air support and other firepower in the same place and time.***
- ***That weapon rounds in flight are not considered a significant danger to aircraft. These rounds are under control of the ground commander requesting or ordering weapon fires and are coordinated through his fire support coordinator (FSCOORD) and air liaison officer (ALO).***
- ***That controls of Army aircraft will also be governed by SOP and other procedures to reduce reliance on communication and reduce interference with combat operations.***

THIS CHAPTER PROVIDES AN OVERVIEW OF EW OPERATIONS. SPECIFIC INFORMATION ON THE CONCEPT OF EW EMPLOYMENT, CAPABILITIES, AND PRIORITIES IS CONTAINED IN SUPPLEMENT FM 100-5A (SECRET).

CHAPTER 9

Electronic Warfare Operations

THE ELECTRONIC BATTLEFIELD—

THE COMMANDER must view the electromagnetic environment as a battlefield extension where a different type of combat takes place. This invisible but very real struggle is **electronic warfare (EW).**

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WHAT IS ELECTRONIC WARFARE?

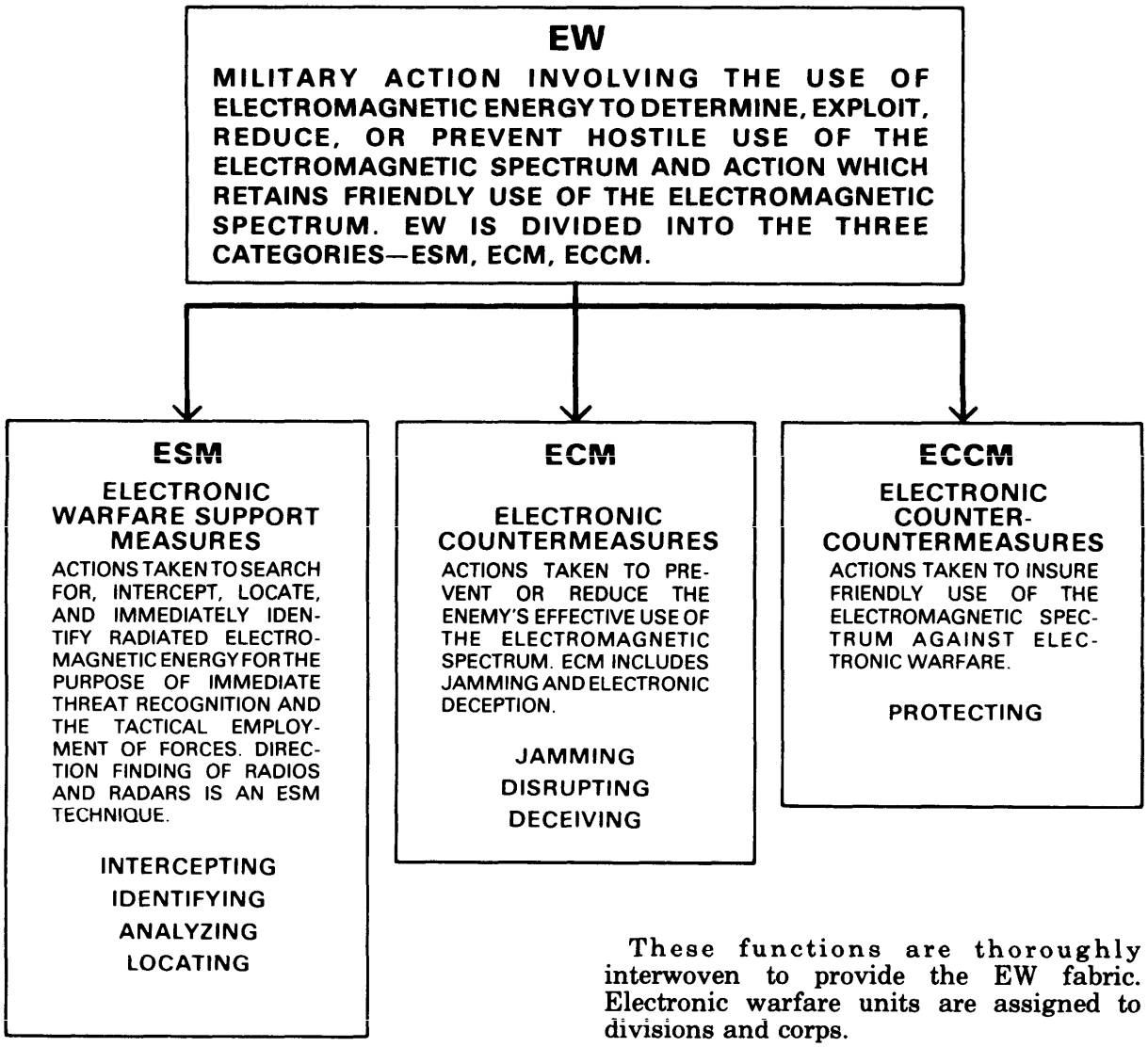
Electronic warfare is a combat power element having two facets—*electronic combat* and *defensive EW.*

1 *Electronic combat* is the primary role of EW and includes:

- **Electronic Warfare Support Measures (ESM)**—signals intercept and direction finding to provide target acquisition data for jamming and for applying other forms of combat power.
- **Electronic Countermeasures (ECM)**—jamming and deceiving enemy command, control, intelligence, and weapon systems using electronic emitters.

2 *Defensive EW,* also known as **Electronic Counter-Countermeasures (ECCM),** refers to the electronic tactics to protect our emitters from the enemy's jamming and target acquisition efforts.

The relationship is shown in this chart:



These functions are thoroughly interwoven to provide the EW fabric. Electronic warfare units are assigned to divisions and corps.

THE SOVIET EW CAPABILITY

The Soviet army, or armies based on the Soviet model, applying radio-electronic combat can *selectively deprive adversaries of control of the electromagnetic environment.* These forces will first analyze communications with signals intelligence and select key communication terminals, links, and relays which serve as keystones upon which the command and control of tactical forces depend. They assign priorities and attempt to destroy or disrupt our communications accordingly. Targets which are not fired upon may be selected for intense spot and barrage jamming. The electromagnetic signatures of command post elements provide very lucrative targets for these tactics.

COMMUNICATIONS CAN BE DESTROYED OR DISRUPTED ON A TARGETED BASIS

Soviet-type emitters may lack sophistication by US standards, but they will be present in adequate numbers and with considerable redundancy. Their emitters are simple, reliable, rugged, and highly effective.

US commanders who understand the enemy's capability and tactics, and who emphasize countertactics can effectively cope with the Soviet-type EW capability.

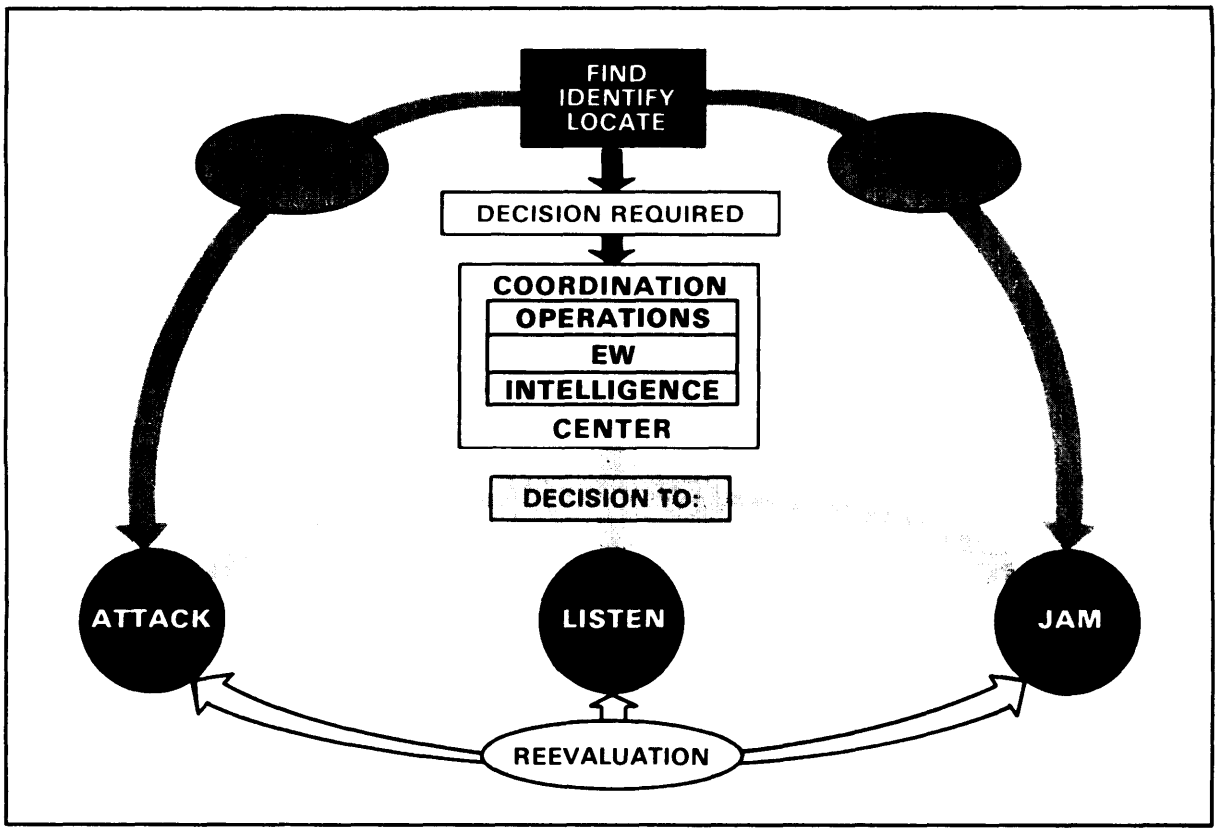
OPERATIONAL CONCEPT

The commander must understand the enemy's use of electronic systems. He must see these systems as a target array in which each enemy net or weapon system using electronic emitters has a relative importance. He then evaluates each with respect to its value to the enemy or its contribution to his combat power.

THE COMMANDER MUST EVALUATE THE RELATIVE IMPORTANCE OF ENEMY ELECTRONIC EMITTERS

At corps and division, the commander is confronted with an enemy electronic array comprised of thousands of emitters and hundreds of communication nets. Emitters should be sorted by their function, position in a net, and capability to affect the combat plan. Nets must be further sorted to show the commander those options which may be effectively employed to destroy or disrupt them.

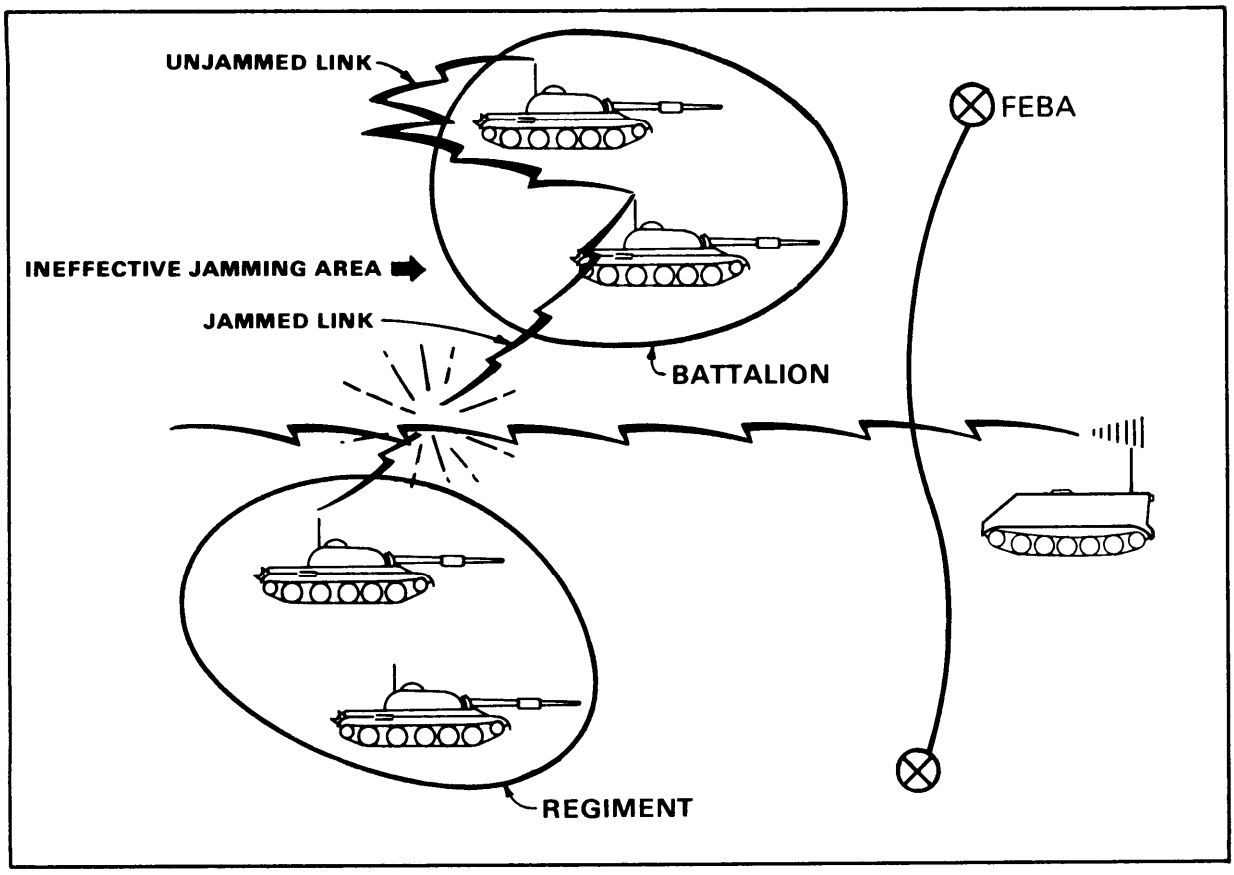
Conceptually the EW system at corps and division looks like this:



DECIDE TO JAM OR EXPLOIT, AND THEN, CONTINUOUSLY REEVALUATE DECISION

As can be seen, once the enemy emitter is found, identified and located, this information flows to the coordination center at division or corps where an interface occurs between intelligence, operations, and EW. Here a decision is made whether to jam, destroy, or exploit for intelligence. If the decision is to listen for intelligence purposes, at some point this decision must be reevaluated—that is to continue listening or jam. Commanders should identify certain nets that have high tactical value to the enemy but have little or no intelligence value. Enemy fire direction nets usually meet this criteria and should be jammed per SOP. As such, when these nets are identified and located, they are automatically jammed and the coordination center is so informed. In other cases, the commander may direct that certain targets, such as enemy jammers, be fired on by SOP once identified and located.

When making these decisions, commanders must understand that certain communications cannot be jammed or if jammed require an inordinate amount of power. For example:



Here the signals within the enemy battalion are being transmitted over short distances at relatively high power, thus making jamming very difficult if not impossible. On the other hand, the communications links between battalion and regiment or regiment to division extend over longer distances and are weaker, permitting them to be jammed.

The commander must continually keep in mind that *jamming must complement his concept of operations.* Jamming will only be effective for short periods of time until the enemy takes evasive action or executes countermeasures.

Jamming assets are used to:

- **Disrupt key command and control nets, thus reducing the enemy's combat power in critical sectors.**
- **Provide deception.**
- **Deny the enemy the ability to react to change on the battlefield; i.e., commit reserves—change direction.**
- **Reduce the effectiveness of enemy fire support.**
- **Deny the enemy use of his air control nets.**
- **Disrupt the enemy's flow of critical supplies—(ammunition and POL).**

Direction Finding and Target Acquisition are also components of EW and are applied to *determine the approximate location of emitters.* These locations provide valuable information for targeting command posts, key control points, and weapon systems. They assist in determining enemy intentions by providing a picture of the battlefield. Direction finding may also be used to help locate friendly units which have become isolated from command and control. Due to vulnerability factors, ground vehicle radio direction finding will be the nucleus of divisional electronic combat. At corps and division level, airborne direction finders are important for locating enemy radios and battlefield radars.

COORDINATION OF OVERLAPPING TARGET AREAS IS A CORPS-LEVEL RESPONSIBILITY

The corps commander allocates corps-level EW and intelligence resources to support the battle plan. He is concerned with severing or exploiting enemy command and control between division and higher echelons. *The division commander severs or exploits enemy command and control between division level and lower echelons.* Coordination of corps and divisional EW assets is especially important, however, because EW is dependent on radiated power and distance. It is the responsibility of the corps fusion center to coordinate overlapping target areas.

TARGET PRIORITY SELECTION ON THE BATTLEFIELD IS DETERMINED AT DIVISION-LEVEL

The division commander focuses on battlefield EW operations. To accomplish this, he is supported by a staff and organic EW resources. He selects EW target priorities in accordance with the threat to his command and with regard to the target's vulnerability to EW. Enemy communication links that connect regiments to divisions, and forward operations posts to regimental and division command posts are of particular importance because these links control the enemy's scheme of fire and maneuver.

The enemy's use of low power, high frequency and very high frequency, tactical communications may dictate the deployment of ground-based, high frequency EW assets in the division forward area. EW units must therefore accompany brigades and battalions, and be equipped and trained to deploy within sight of the line of contact.

Brigade and battalion commanders, in coordination with the G3, are responsible for the positioning of EW assets within their areas. They should not preoccupy themselves with the execution of EW operations except for those times when EW elements operating in their sectors have combat information that directly affects their direction of the battle.

Commanders of battalions and companies use defensive EW for protection.

DEFENSIVE EW TACTICS AND OPSEC

A command post or weapon system cannot survive on the modern battlefield if it is easily identified and located by the characteristics of its electronic emitters. Their survival is dependent on good defensive EW tactics which conceal emitters or deceive the enemy as to their identity and location.

The commander has several means available to manage the electromagnetic spectrum.

- The **Communications-Electronics Operating Instructions (CEOI)** are used to assign specific frequencies to specific elements of a command. A frequently changing CEOI is highly effective in defeating hostile ESM activities by increasing the difficulty in identifying targets for exploitation.
- **Emission Control (EMCON)** is used by the commander to restrict use of the electromagnetic spectrum to certain critical systems or prohibit use altogether (partial or complete silence). This tactic prevents the enemy from collecting data on our emissions during a specific period and eliminates the probability of unintentional interference by friendly emissions with those from critically important systems.
- **Manipulative Electronic Deception (MED)** is employed to alter an electromagnetic profile of a unit or weapon system or to simulate a notional one to support a commander's countersurveillance or operations security (OPSEC) plan.

  The commander should also consider locating his elements so as to provide shorter communications links, thus making jamming more difficult.

Jammers are also very high power radios and, in exceptional circumstances, commanders may be required to use jammers to ram critical communications to units isolated by enemy electromagnetic interference.

There is also a potential for tactical jammers to be used to protect friendly

emitters from being heard, seen electronically, and located by enemy radioelectronic combat units. A well-designed jammer with a highly efficient and directional antenna may operate in the same frequencies as our own communication systems and still protect them from enemy intercept by providing signal maskings. To do this, jammers are located very near the forward battle positions between the friendly emitters and the enemy EW units, where they carefully direct high intensity signals toward the enemy while allowing friendly emitters to communicate effectively. This tactic is dependent on both ingenuity and the availability of special antennas.

Ground mobile EW elements must be mounted in highly protected vehicles that are compatible with and of equal mobility to the other elements of the combined arms team—***they must be able to survive on the modern battlefield.***

EW is perhaps the only element of combat power that, subject to the constraints of security and governmental regulations, can be used in peacetime for training *exactly as it would be used in war,* without causing casualties to personnel or damage to equipment. Commanders must conduct tactical exercises in the same EW environment that they can expect in war.

ON THE USE OF JAMMERS

Commanders must also remember that *jammers are targets.* Because of the large amount of power and heat they radiate, jammers are easily identified by enemy intercept and locating equipment. If jammers are to operate effectively and survive, they must be protected, highly mobile, and their missions must be capable of being shifted from jammer to jammer.

Jamming units must be able to perform electronic combat missions while deploying and when in contact with the enemy. Antennas must be able to be raised and lowered in seconds, not minutes. All equipment must be simple to operate and to maintain.

CHAPTER 10

Tactical Nuclear Operations

INTRODUCTION

FOR NEARLY 25 YEARS the US Army has had nuclear weapons deployed as an integral part of the weapons inventory, and such weapons are also deployed to support allied nations. The Soviet Union and other countries have also fielded a nuclear capability for battlefield use. The use or threatened use of nuclear weapons will have a profound effect on the modern battlefield. The combat power provided by nuclear weapons could mean the difference between victory or defeat, or could cause an enemy to terminate his attack by altering his perception of an easy victory.

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Even when used in low yields, nuclear weapons can quickly and decisively alter combat power ratios and change the course of the battle. They can help counter an overwhelming conventional attack, rupture tough defenses, or be used to respond to an enemy's nuclear attack. However, since the strategies of major nuclear powers imply that threats of escalation to general nuclear war could be associated with the limited use of nuclear weapons, employment of these weapons must be selective and restrained.

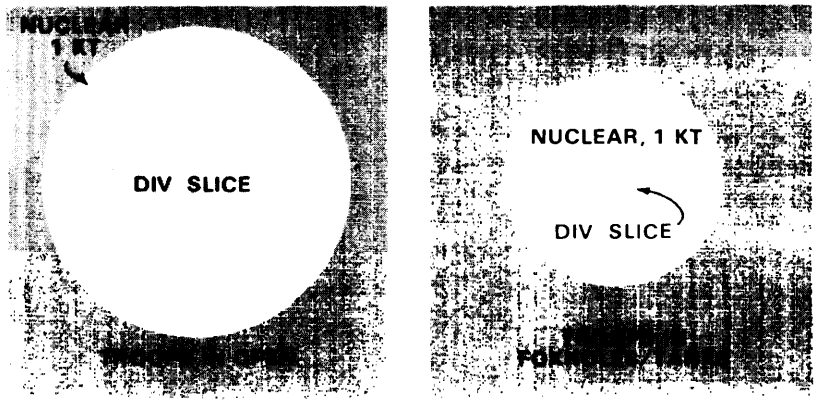
In any battle, we must have the capability to use nuclear weapons effectively, along with our conventional weapons, in support of the land battle. We must be properly trained and equipped to survive an enemy nuclear attack—to minimize the disruption, to maintain effective command and control, and to continue the execution of the assigned mission. This level of training is enhanced through combined conventional-nuclear operational training exercises.

NUCLEAR WEAPONS EFFECTS

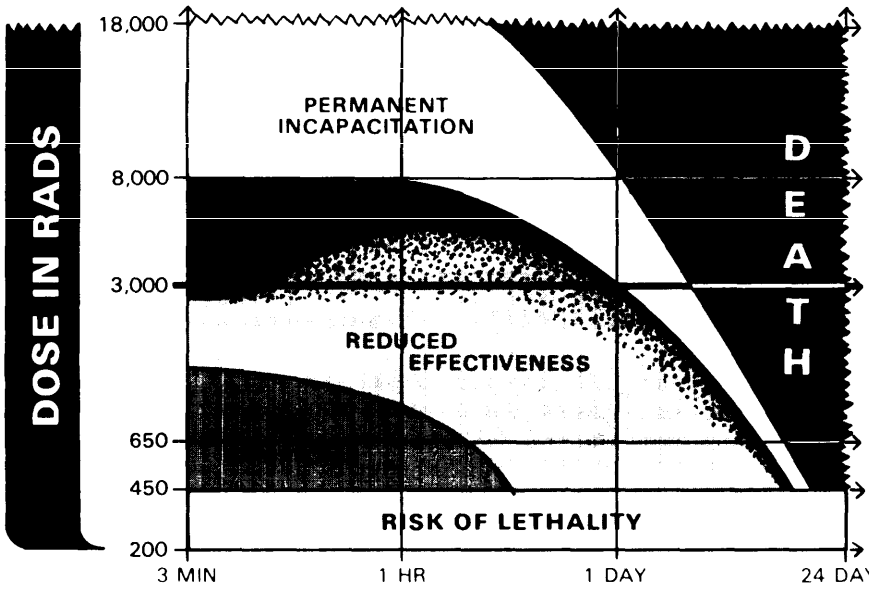


Nuclear detonation effects present new phenomena and increased destructiveness on the battlefield when compared to conventional firepower. Blast effect is vastly increased, and, in the smaller yields, radiation has the most significant effect on troops in the open, in armored vehicles, or in foxholes. Thermal radiation is an added danger to unprotected soldiers. The *electromagnetic pulse* (**EMP**) which emanates from a nuclear burst can damage radios and other electronic equipment, seriously interfering with command and control communications and target acquisition systems. Fallout can also produce casualties, delay movements, and deny terrain to units that are unprepared to detect residual radiation and protect themselves from its effects.

DIVISION SLICE ARTILLERY CAPABILITY vs. 1 KT NUCLEAR WEAPON
IMMEDIATE LETHALITY



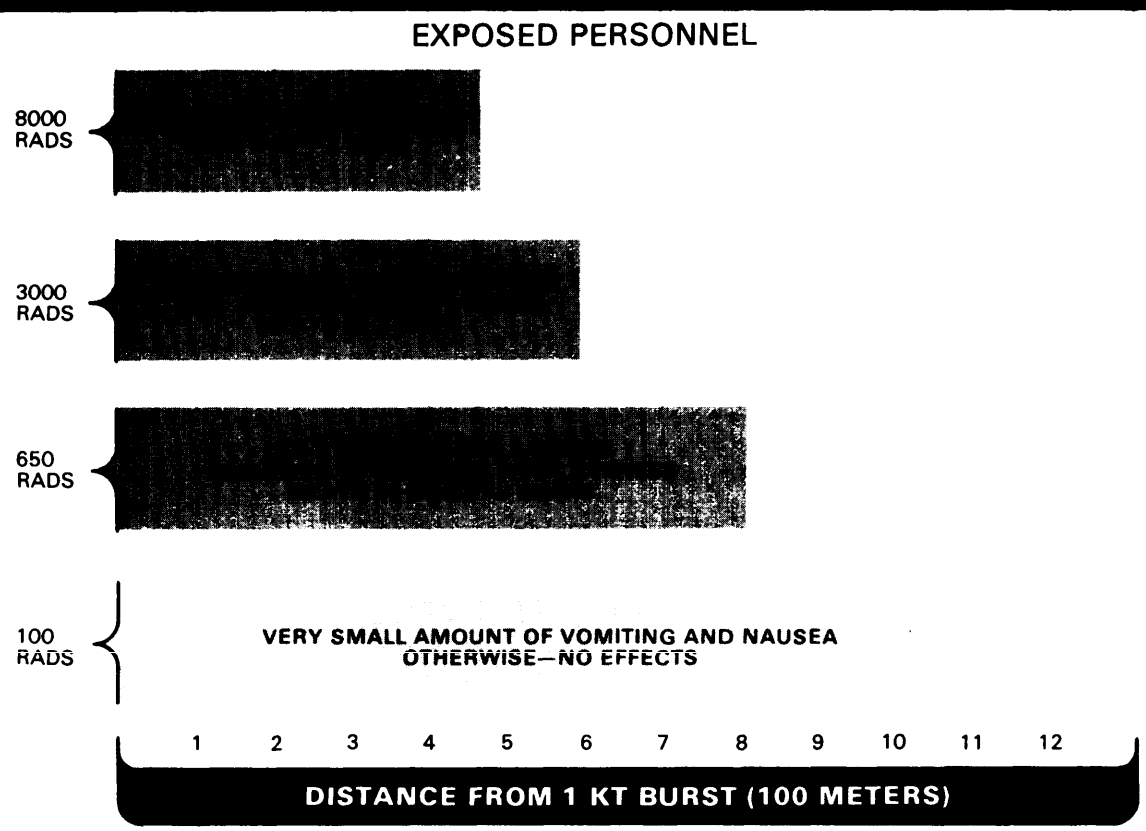
A nuclear weapon with a yield of 1 Kiloton (KT) (2,000,000 lbs) has approximately the same lethality against troops in the open as seven artillery battalions (type division slice of artillery—five 155mm battalions and two 8-inch battalions) firing improved conventional munitions in a single volley. Against troops in foxholes or tanks, however, the 1 KT weapon is much more effective, having 20 to 30 times the lethal area coverage of one division slice volley.



Although thermal effects begin to dominate troop safety at about 3 KT, for the yields of most interest on the battlefield (1 to 10 Kilotons), radiation is the main killer. This figure shows how a dose of radiation affects soldiers performing typical combat tasks.

The immediate incapacitation radiation level is 8,000-18,000 rads (unit of measure for radiation) but, an active soldier suddenly exposed to 3,000 rads could become incapacitated within 3-5 minutes. He may recover to some degree in about 45 minutes, but due to vomiting, diarrhea, and other radiation sickness symptoms, he would be only partially effective until he dies within a week. A soldier exposed to 650 rads initially shows no symptoms, but loses some of his effectiveness in about two hours and can be expected to die in a few weeks under battlefield conditions. Exposure in the 100 rad region usually has little effect. Accordingly, in conventional-nuclear combat it would be prudent to subject front line enemy to 3,000-8,000 rads or more, enemy to the rear to 650-3,000 rads, and avoid subjecting friendly forces and civilians to an unacceptable dose level (100 or more rads).

RADIATION EFFECTS FOR A 1 KILOTON (KT) NUCLEAR WEAPON



The intensity of initial radiation is reduced by the protection provided by tanks and foxholes, and also by each 100 meters of distance from the burst. For example, this figure shows that a 1 KT burst incapacitates exposed soldiers (within five minutes) out to 600 meters. It only does so out to 500 meters for troops in tanks or foxholes. The 1 KT nuclear weapon causes reduced effectiveness to exposed soldiers (after two hours) out to about 800 meters. Soldiers in tanks or foxholes are usually safe beyond about 1,100 or 1,200 meters. Ten-KT weapons are about 50 percent more effective than 1 KT weapons; however, the safe distance increases to about 5,500 meters due to the thermal effects coming from larger weapons.

In addition to the immediate effects of nuclear weapons, commanders must also be concerned with residual radiation resulting from fallout, rainout, and induced radiation. When a nuclear weapon detonates too near the surface of the earth, dust debris and heavy particles which are sucked up into the air fall to the ground and create areas of lethal radiation. Similar results could occur when the cloud from a nuclear burst, even at a fallout safe height (about 50 meters for a 1 KT), passes through rain which then carries radioactive particles to the earth. To minimize fallout, friendly nuclear weapons will normally be employed as airbursts. However, *radiological monitoring is essential to detect areas contaminated by rainout, induced radiation, or by fallout if enemy policy is different.*

THE NUCLEAR BATTLE

The use or threatened use of nuclear weapons will significantly influence every phase of the battle, to include purely conventional operations. Planning and preparation for their use or counteruse must be continuous. The use of nuclear weapons begins a new phase in operations—a combined conventional-nuclear phase of uncertain length during which a clear distinction between offensive or defensive use of nuclear weapons could be difficult. With nuclear strikes, *either side could deliver instantaneously crippling combat power.* Depending on the deception, surprise, target acquisition, and boldness of the user, such weapons could change the course of battle very quickly.

IT MAY BE DIFFICULT TO DISTINGUISH BETWEEN OFFENSIVE OR DEFENSIVE USE OF NUCLEAR WEAPONS

Once conventional-nuclear operations begin, personnel and materiel losses could occur more rapidly, with much higher casualty and materiel loss rates in both forward and rear areas. If limited numbers of weapons are used, the total losses may not go higher than in extended periods of severe fighting on the lethal conventional battlefield, but they would occur in a shorter time. There could be severe shortages of critical supplies and medical treatment, placing a severe strain on logistical support systems. The effects of nuclear bursts may cause temporary failure or permanent damage to some communication and data processing equipment, thus placing a premium on remaining services, *unless units practice techniques that improve protection and reduce vulnerability to EMP.* The time and resources required to dig protective shelters, move between dispersed sites, decontaminate supplies, replace casualties and other related reconstitution activities will slow rear area operations.

Control of nuclear weapons requires swift and reliable reconstitution of communications. Time-saving procedures must be developed and practiced. When enemy nuclear strikes are probable, all units on the battlefield must protect themselves by terrain shielding, digging in, and when possible, avoiding easily targeted massed forces. Radiological monitoring and reporting is required, and cover and concealment become extremely important.

THE PROTECTION AFFORDED BY COVER AND CONCEALMENT MUST BE STRESSED

CONTROLS ON NUCLEAR RELEASE

Release, or the authority to use nuclear weapons, will be conveyed from the **National Command Authority (NCA)** through the operational chain of command. In order to dampen the escalatory effects of using nuclear weapons, release will normally be approval to employ preplanned packages of weapons to be fired within a specified time-frame, and within specified geographical areas according to the constraints established by the releasing authority. Unwanted destruction can be minimized by careful selection of targets, weapon yields aim points, and delivery systems. Retaliatory attacks by the enemy are also of primary concern. The danger of such attacks can be reduced by a proper disposition of forces and a strong counterretaliatory capability.

The precise circumstances that may require the use of nuclear weapons will be determined by the developing battle. Ideally, normal operational reports will provide the required current battle information. Special reports, sent when the tactical situation indicates the need to employ nuclear weapons, will detail what has happened, what has been done to reinforce the defense, and assess the seriousness of the problems.

HIGHER AUTHORITY WILL REQUIRE SUBMISSION OF SITUATION REPORTS AND SPECIAL REPORTS PRIOR TO AUTHORIZING NUCLEAR WEAPONS USE

Situation reports and special reports complement one another and must provide the required information to portray a complete picture of the situation for higher authorities. These reports should describe how a particular package of nuclear weapons, when requested, would be used to counter the developing threat and permit resumption of effective operations. Commanders should send request messages when they judge that the use of nuclear weapons will be essential for accomplishment of their mission. It is possible that the information and the situation will be such that a higher level of command may direct the use of nuclear weapons without a request from a corps commander.

NUCLEAR PLANNING

Advanced planning for nuclear strikes or counterstrokes is essential to timely employment. Training, planning, logistic support, and other arrangements to allow units to use nuclear weapons must be done before the outbreak of hostilities, or before deployment. Where the use of nuclear weapons by either side is a possibility, the headquarters of the deployed force must develop, refine, and update contingency plans for the employment of nuclear weapons based on guidance from higher echelons of command and the battlefield situation.

At the time authorized commanders request the use of nuclear weapons, they must be able to foresee a situation developing which will be sufficiently grave to require their use. One of the criteria to be followed in requesting release of nuclear weapons is that the overall defensive capability must not be allowed to deteriorate to the point where available forces cannot conduct effective conventional-nuclear follow-on operations after the strike.

Although many weapons will probably be available, release may be expected for only the numbers and types of weapons included in planned "packages" of nuclear weapons. A package is a group of nuclear weapons of *specific yields* for employment in a *specified area,* within a *limited timeframe* to support a *tactical contingency.*

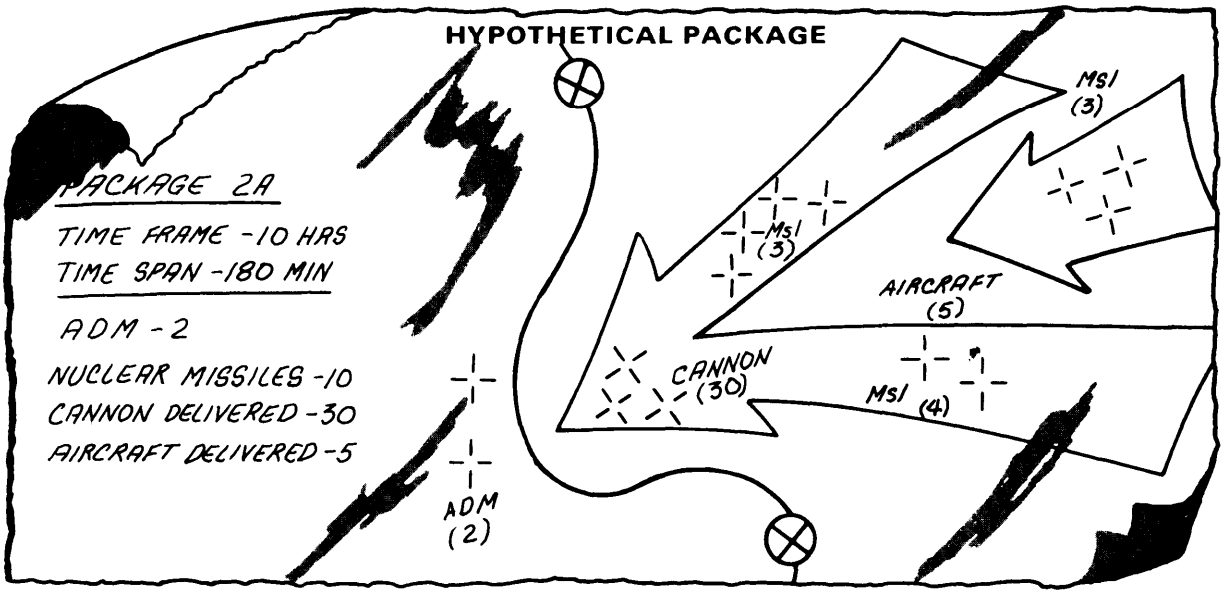
PLANNING A "PACKAGE" OF NUCLEAR WEAPONS

Sufficient nuclear weapons should be planned in each package to alter the tactical situation decisively, and to insure accomplishment of the assigned mission.

The package will be planned for employment in a timeframe, normally expressed in hours, to insure full integration with other military and diplomatic actions. Within the specified timeframe, all nuclear weapons will be employed as a "pulse" within a shorter timespan, normally expressed in

minutes. The timespan for the pulse of nuclear weapons will depend on the technical capability for proper command and control, warning, tactical flexibility, operational necessity, and national approval. Continuous updating and refining of packages is essential if they are to be employed effectively within the timespan approved or directed by the releasing authority.

Planning must reflect the contraints and directives of higher authority, *and must also include the procedures for warning friendly units* and the responsibilities for post strike analysis. Since aircraft may be designated to deliver some of the weapons, and the other services must arrange to warn friendly aircraft to avoid areas scheduled for nuclear strikes, planning and coordination will be a joint effort. *The echelon which will control employment of the requested package is responsible for disseminating the warning*— this requires an adequate and survivable command and control communications system.



EMPLOYMENT

The first use of US tactical nuclear weapons would probably be in a defensive mode based on prepared defense plans. Later use could include nuclear support for offensive operations to destroy the enemy or regain lost territory. Tactical advantage may be gained by neutralizing lead elements in the enemy second echelon, and by eliminating his committed echelon's support and supporting fire systems. This can defeat the enemy tactic of echelonment by destroying the follow-up reserves for the breakthrough, and by weakening enemy support. This will reduce pressure on friendly units in contact so they can contain engaged forces by conventional means and control the battle.

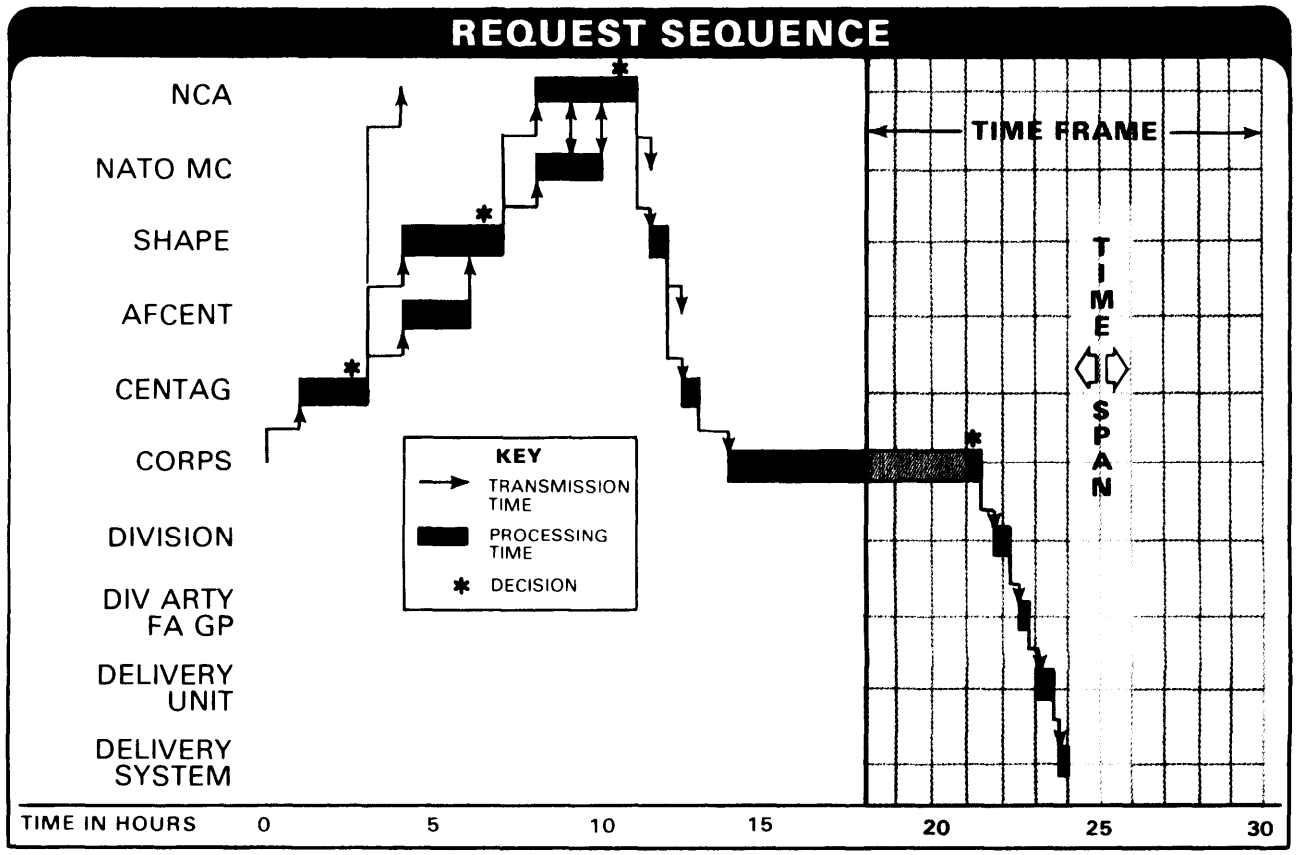
In general, the logical targets are:

- **Committed enemy units**
- **Reserves**
- **Lead elements of second echelon forces**
- **Enemy nuclear systems**
- **Field artillery**
- **Air defense artillery**
- **Selected command and control elements**
- **Support forces rearward of the committed elements**

Groups of targets on avenues of approach, along the FEBA, and in likely areas of enemy breakthrough attacks constitute the basis for a weapon package.

Plans are prepared to identify avenues of approach where the enemy is likely to concentrate, and areas where breakthrough attacks are most likely to occur. Divisions target their weapons, including atomic demolition munitions, in these areas, avoiding inhabited areas and public facilities where civilian casualties and other undesirable collateral damage would exceed levels allowed in planning guidance. For the safety of friendly forces and civilians, target areas closest to the line of contact or population centers should be targeted with low-yield weapons. Corps will review division nuclear fire plans for tactical suitability, and integrate them into appropriate corps weapon packages.

Commanders will make a timely request for approval of a nuclear weapons package, specifying the desired timeframe and firing timespan. To convey to the enemy that we are using nuclear weapons in a limited manner, all weapons in a package should be fired in the shortest possible time. The package must be employed *on time, in the approved areas, on high priority targets.* While not a substitute for strong conventional forces, nuclear weapons provide the commander the capability to generate instantaneous combat power of enormous magnitude that can negate the enemy's offensive advantage and deny him his objective.



Successful conventional-nuclear operations require—that commanders understand the effects of these weapons, and plan carefully in advance to minimize personnel and material vulnerability.

CHAPTER 11

Chemical Warfare and Nuclear, Biological, and Chemical (NBC) Defense

INTRODUCTION

DURING WWI, the first large-scale chemical attacks were made, achieving results that led to a major use of chemical weapons on the battlefield. During that war, ***chemical weapons proved to be four times as effective*** in producing nonfatal battlefield casualties as high explosive (HE) weapons. Although extensive protective measures were devised, over 1,300,000 casualties (4.6 percent of the total casualties) resulted from chemical warfare (CW) operations. As an example, WWI Russian fatalities from chemical agents exceeded US losses in Vietnam and the total Russian chemical casualties (fatal and nonfatal) were more than the current US force strength in Europe.

Since 1918, however, toxic chemical weapons have not been used on a WWI scale. The use of chemical weapons since WWI has essentially been restrained by the threat of retaliation in kind. Many nations, however, now possess the capability to employ these weapons.

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US POLICY

There is a commonly held misconception that ratification of the 1925 Geneva Protocol completely removes the chemical warfare threat to the Army. This is not the case. The Protocol limits the "first use" of lethal chemicals, but does not address the production and stockpiling of such weapons.

The Geneva Protocol of 1925 prohibits the use in war of asphyxiating, poisonous or other gases. It ***does not*** *prohibit the production of chemical warfare agents, the development of weapons that deliver chemical agents, the stockpiling of chemical munitions, or the development of chemical warfare protective materiel and decontamination equipment.*

The US did not ratify the Geneva Protocol until 22 January 1975, and, like other signatories to the treaty, reserves the right to retaliate with chemical agents should chemical warfare be initiated against our nation and its armed forces.

The current US national policy on chemical warfare is based on the Presidential decisions of 25 November 1969. Specifically, the President reaffirmed the long standing unilateral US position of no first use of lethal chemical weapons; extended this no first use policy to include incapacitating chemical agents; and renounced the use of biological agents and weapons, and all other methods of biological warfare. In February 1970, this renouncement was extended to include biological toxins, which are chemical substances.

Consistent with the President's renunciation of the "first use" of lethal and incapacitating chemical agents, the objective of the United States chemical warfare program will be to deter the use of chemical agents by other nations and to provide a retaliatory capability should deterrence fail.

The above instructions were promulgated by the Department of the Army in July 1970

to implement the President's decision. Inherent in these implementing instructions are two basic requirements:

1. **US forces must be organized, trained and equipped to survive and operate effectively in a chemical warfare environment.**
2. **US forces must have the capability to retaliate in kind and scope sufficient, at least, to balance a like capability of the enemy.**

Commanders must be prepared to support and execute our national chemical warfare policy. This can be done best by maintaining a visible, responsive capability to fight and win the first battle in a chemical warfare environment.

THREAT

Soviet and Warsaw Pact forces are well trained and equipped for both the offensive and defensive aspects of chemical warfare, and for nuclear and biological defense.

Soviet military doctrine describes chemical agents as "weapons of mass destruction" and treats their use as an integral part of warfare. The Soviet Army is well organized and equipped for chemical warfare operations either in toxic areas imposed upon them, or to exploit their own use of chemical agents. As an example, the latest Soviet tanks and APCs have built-in air filtration systems, while the majority of other equipment has, as a minimum, partial protection. Soviet commanders at all levels learn how to conduct their missions under chemical warfare conditions. CW agent detection is a routine part of unit reconnaissance training and large-scale chemical agent decontamination exercises are regularly conducted. In addition, chemical staff personnel are assigned down to battalion level, and organic chemical decontamination units are assigned at all military command levels from *Front* down to tactical company.

SOVIET AND WARSAW PACT FORCES TRAIN AND EQUIP FOR CHEMICAL WARFARE AS IF IT WERE INEVITABLE

Soviet tactical doctrine stresses the following:

1. SURPRISE
2. SECURITY
3. RECONNAISSANCE
4. SUPERIOR FIREPOWER

1 *Surprise*

Surprise denies the enemy time to react. Nuclear, chemical, and/or conventional fires would be employed with surprise to increase their shock effect. Surprise is achieved by secrecy in planning, camouflage, deception, rapid combat preparation, the execution of decisive and unexpected maneuvers, and rapid delivery through adequate and effective weapons systems.

2 *Security*

Security against a chemical or nuclear counterstroke is achieved through dispersion, careful selection of assault areas, and in-depth organization of defense forces and fires.

3 *Reconnaissance*

Reconnaissance for exploitation of chemical strikes is employed well forward of the FEBA to acquire enemy nuclear weapon sites, airfields, depots, and troop assembly areas. Soviet ground troops are extensively rehearsed in reconnaissance of and movement through contaminated areas. During a high-speed advance, contaminated areas are by-passed or traversed in sealed tanks and armored personnel carriers to maintain the momentum of the attack.

4 *Superior Firepower*

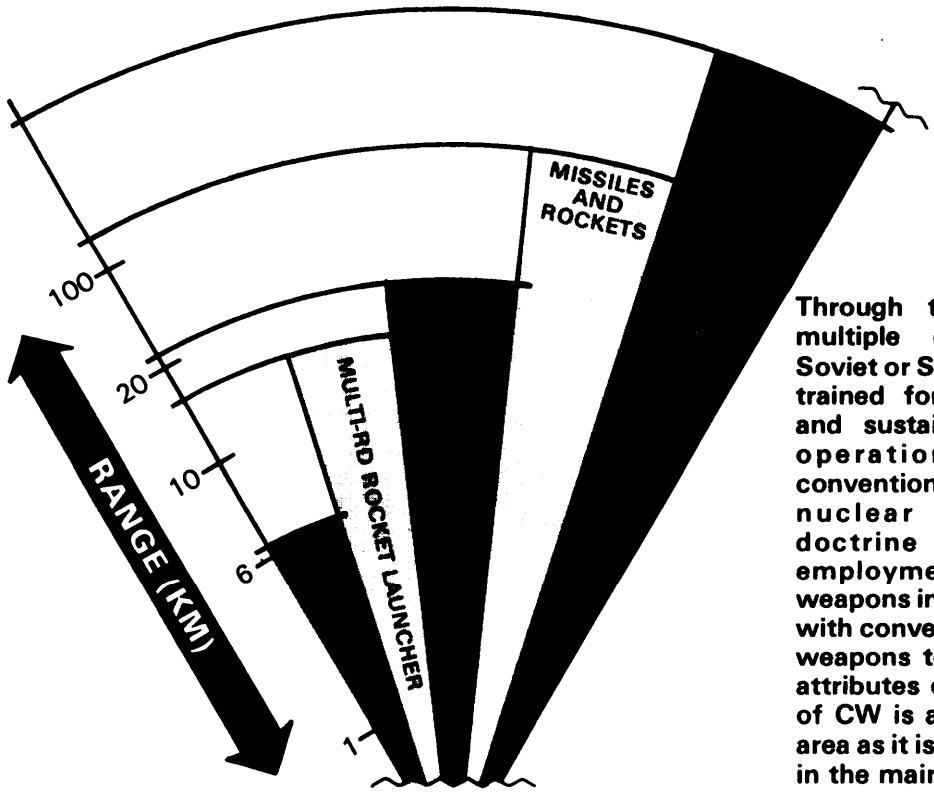
Superior firepower is reflected in the organization of chemical weapons in a Soviet division and stressed in their military doctrine. Soviet tactics have been geared to the nuclear as well as chemical battlefield. An initial massive nuclear and/or chemical strike in great depth has been viewed by the Soviets as a means to gain surprise, achieve a major penetration, and destroy effective resistance.

SOVIET TACTICS OUTLINE IN DETAIL THE USE OF CHEMICAL WEAPONS ON THE MODERN BATTLEFIELD

The modern persistent and nonpersistent chemical agents used by Soviet forces can be delivered by a variety of weapon systems providing great flexibility of employment:

- **Tactical aircraft**
- **Surface-to-surface tactical ballistic missiles (SCUD)**
- **Free-rocket-over-ground (FROG)**
- **Multiple rocket launchers (MRL)**
- **Tube Artillery**
- **Mortars**

SOVIET CW OFFENSIVE CAPABILITY (PROBABLE)



Through the use of these multiple delivery systems, Soviet or Soviet-equipped and trained forces could initiate and sustain large-scale CW operations in either a conventional or conventional-nuclear conflict. Their doctrine emphasizes the employment of chemical weapons in close coordination with conventional and nuclear weapons to capitalize on the attributes of each. The threat of CW is as great to the rear area as it is to forces operating in the main battle area.

US FORCE SURVIVABILITY

The objective of US policy is to deter the use of chemical weapons by other nations. *If this deterrence fails*, and the use of chemical weapons is authorized by national command authorities, the primary objective is to achieve early termination of CW operations at the lowest possible level of intensity. US forces must, therefore, be prepared to:

- ***Detect and protect against chemical and biological munitions and agents***
- ***Conduct operations in an NBC environment***
- ***Use chemical weapons in retaliation***

Some casualties will inevitably result from the employment of chemicals, even against a fully protected force. Additionally, US forces will suffer serious degradation of performance caused by the requirement to continuously wear chemical protective clothing and equipment. Unless well-trained and conditioned, our soldiers will be less effective during NBC operations. The problems associated with wearing protective equipment (heat stress, respiratory strain, psychological stress, reduced mobility, visual acuity, and manual dexterity) will adversely affect mission accomplishment. Soldiers wearing chemical protective equipment have a limited tolerance time for hard work and must be allowed to attend to body functions. Therefore, *the dual vulnerability of forces to both the effects of the chemical agent and the stresses from the protective equipment can result in an unacceptable degradation of combat effectiveness and attrition of the force.* This degradation can be reduced through training, and by use of the **Mission-Oriented Protective Posture (MOPP)** as described in FM 21-40, NBC Defense.

Chemical protective clothing and equipment provides protection from biological attack also. There are two additional aspects of biological defense with which the commander must be continuously concerned. The first is an aggressively enforced immunization program. Such a program provides immunity to a wide variety of potential biological warfare agents, but to be effective, it must be enforced *prior to an attack.* The second aspect is rigorous adherence to good field sanitation practices. This type is effective both before and after attack in reducing losses to disease.

Effective defense against nuclear attack is dependent on the training of the individual soldier to react properly at the time of attack. Common field fortifications provide the best shelter available to the soldier in nuclear as well as conventional attacks, and the preparation of such fortifications must be routine for soldiers in rear areas as well as for those engaged in the battle area. Each aspect of NBC Defense is covered in detail in FM 21-40.

Training in CW and NBC defense must be integrated into individual and unit training programs and into higher echelon tactical exercises. Training objectives must be designed to develop and evaluate the readiness of forces to operate in an NBC environment and to insure proficiency with all available offensive and protective materiel. Emphasis must be placed on performing all operational missions while using NBC detection, warning, and protective equipment. Toward this end, agent simulants should be used whenever possible to provide realism.

Units, materiel, and supplies must also be protected. Mobility, dispersion, and use of terrain will minimize some of the dangers and effects of chemical attack. Detection and early warning of such attacks will be important to survivability. While NBC defense specialists will be at work at each level of command, soldiers must also assist in the overall NBC defense effort. They must thoroughly understand decontamination procedures so that actions to accomplish the mission continue.

Some essential military tasks cannot be performed at all in full protective equipment; however, if the protective equipment is removed, a force could sustain sufficient casualties to render it ineffective in a very short period of time. If we lack the ability or means to retaliate, enemy forces need only be

encumbered with protective equipment in areas they attack with chemicals. Conversely, without knowing where these first attacks will come, our forces will have to be encumbered everywhere.

To negate this enemy advantage, our countermeasures against a chemical attack must be directed against enemy chemical delivery systems and agents—prior to and following the first attack. We must make a maximum effort to locate and destroy enemy chemical warfare munitions and related delivery systems. If successful, this action could prevent the first attack or result in early termination of chemical conflict.

SUPPRESSION OF ENEMY DELIVERY SYSTEMS AND DESTRUCTION OF AGENT MUNITIONS IS IMPERATIVE

To survive in the chemical warfare environment, it is essential that commanders assure that their forces are provided the highest degree of protection against the CW threat. While these measures will save lives, commanders must realize that as the degree of chemical protection increases, the efficiency and endurance of their troops to accomplish the mission decreases.

FUNDAMENTALS OF EMPLOYMENT

Only the national command authorities can decide when to retaliate with lethal and incapacitating chemical agents. That decision will be relayed, along with guidance and policy for the use of chemical weapons, to field commanders.

The initial use of chemical munitions should comprise a retaliatory response of sufficient magnitude to discourage the further use of chemicals by the enemy. The response should be planned and executed to produce casualties, impose mobility restrictions, and degrade enemy mission effectiveness in an intensity sufficient to:

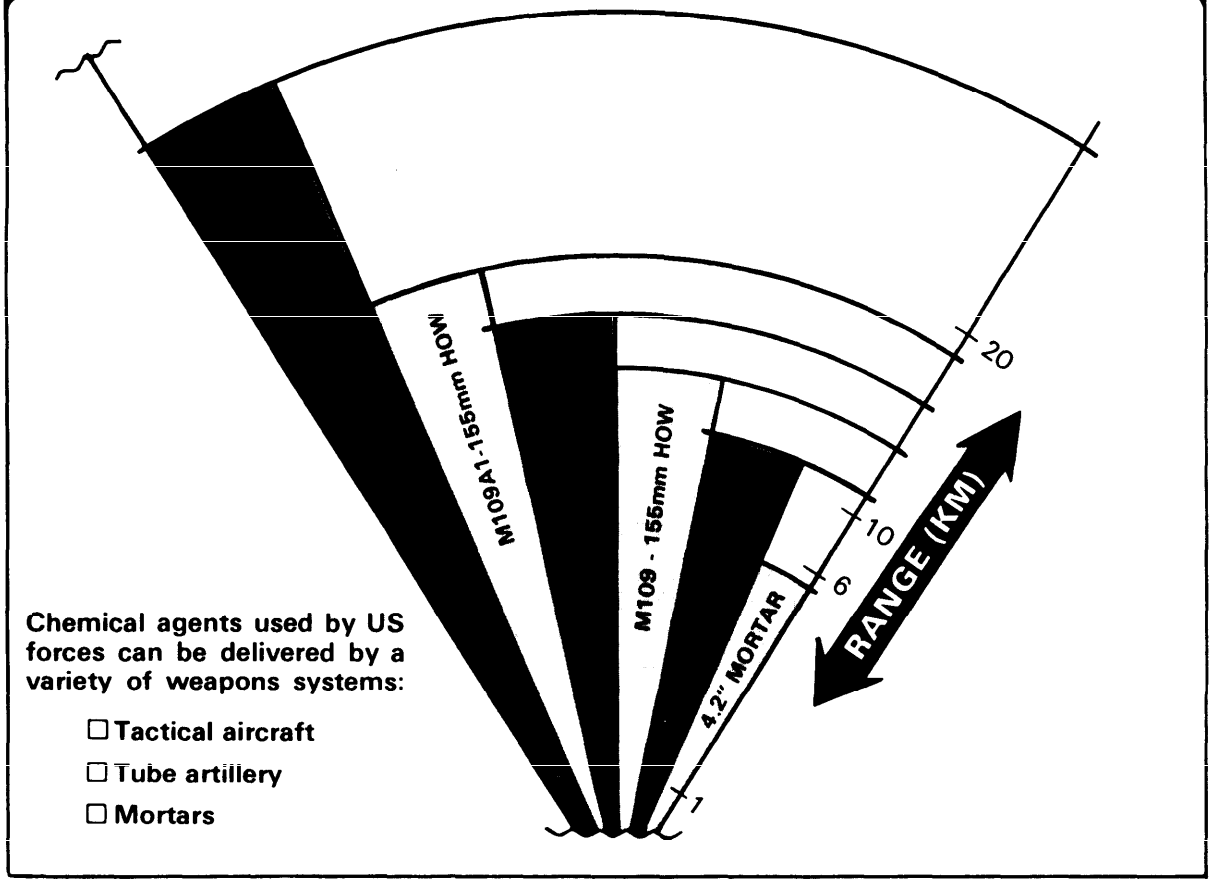
- **Stop enemy successes and deny him mobility and combat effectiveness advantages by forcing the same chemical protection restrictions on him.**
- **Convey the message of high resolve to**

win, with the use of chemicals if necessary.

- **Convince the enemy that it will be to his advantage to terminate chemical warfare.**

The advantage of this concept lies in its flexibility, wherein the level of response can be controlled according to the prevailing military and political circumstances. This permits a response intensity ranging from retaliation against limited, specific targets up to a theaterwide effort. However, the use of chemical weapons in conjunction with either conventional or nuclear weapons will require directed or self-imposed intensity and geographic restrictions in order to prevent escalation or undesirable collateral casualties and contamination.

US CW OFFENSIVE CAPABILITY



Chemical weapons are basically area weapons that have effects ranging from mild incapacitation to high lethality. Political and military considerations may dictate such restrictions as:

- *Types of agents that may be employed.*
- *Types of targets that may be attacked and areas where chemical weapons may be employed.*
- *Extent of collateral effects permitted.*

When selecting chemical agents, commanders must strive to cause the enemy to use protective clothing thus degrading his performance.

CHARACTERISTICS OF TYPICAL CHEMICAL AGENTS

This chart shows typical US agents and their effects. Threat forces use similar agents with similar effects.

NERVE AGENT	**GB**	VAPOR OR AEROSOL	A FEW MINUTES	LETHAL EFFECT ON UNMASKED TROOPS	VERY SHORT. DEATH MAY OCCUR WITHIN A FEW MINUTES IF AGENT IS INHALED
NERVE AGENT	**VX**	LIQUID	A FEW HOURS TO A WEEK	LETHAL EFFECT ON TROOPS, CONTAMINATION OF TERRAIN AND EQUIPMENT	A FEW HOURS (DELAYED CASUALTIES)
BLISTER AGENT	**HD**	LIQUID	USUALLY A FEW DAYS, POSSIBLY A FEW WEEKS	INCAPACITATION OF TROOPS, CONTAMINATION OF TERRAIN AND EQUIPMENT	A FEW HOURS (DELAYED CASUALTIES)

Use of these chemical agents provide commanders with the ability to:

- **Cause casualties among unprotected or poorly equipped and trained personnel.**
- **Cause decreased effectiveness by requiring enemy forces to wear protective equipment.**
- **Restrict the use of terrain.**
- **Channel forces into a specific area.**
- **Delay an advancing enemy force.**
- **Attack targets normally protected against conventional munitions.**
- **Produce casualties or restrict the use of equipment or real estate through contamination without destroying structures or installations.**

Even if an enemy force is prepared for a chemical attack and sustains few casualties, it will be less effective because of the need to wear protective equipment, the resultant increase in time to complete normal tasks, and the time required for decontamination. Once chemical operations have commenced, authority to use chemical weapons is normally decentralized to the lowest echelon that is responsible for the area within which the casualty producing effects of the agent will extend and that is capable of controlling, coordinating, and exploiting their use. This authority will normally be retained at division level; however, in some cases, it could be delegated as low as brigade.

PLANNING FOR CHEMICAL WEAPONS EMPLOYMENT UTILIZES THE SAME PRINCIPLES AND PROCEDURES USED FOR FIRE SUPPORT COORDINATION

When planning to employ chemical weapons, commanders must coordinate with adjacent units over whose zone or sector toxic clouds are expected to pass. This planning requires adherence to the same basic principles and procedures that apply to the employment of other weapons systems. Chemical weapons employment planning is a part of fire support planning and the principles and procedures of fire support coordination remain unchanged. These requirements do, however, assume increased importance because of the relatively large area covered and the wide variation of effects that can be achieved. When analyzing potential targets for chemical weapons employment, commanders must, as a minimum, consider the:

- ☐ *Restrictions on use imposed by higher HQ.*
- ☐ *Effect on the overall mission.*
- ☐ *Impact on future operations.*
- ☐ *Effects desired (persistent or non-persistent).*
- ☐ *Time to produce casualties (prompt or delayed).*
- ☐ *Influence of weather.*
- ☐ *Collateral effects.*
- ☐ *Safety of friendly forces.*

OFFENSE

In the offense the commander would consider using chemical weapons to:

1 *Attack enemy first echelon defending forces with nonpersistent agents.* Nonpersistent agents will obtain rapid casualty production; cause the enemy to mask, degrading his ability to defend; and eliminate the possibility of residual contamination through which attacking forces would have to pass.

2 *Attack enemy reserves with persistent and nonpersistent agents.* Engage reserves constituting an immediate threat, or occupying an area to be used by friendly forces with a nonpersistent agent. Reserves which are a more remote threat or in areas which friendly forces intend to by-pass are engaged with a persistent agent.

3 *Protect the flanks of the axis of advance with persistent agents.* The degree of flank protection that can be obtained is directly dependent on two factors—first, the enemy commander's willingness to cross a contaminated area despite the risks involved, and second, the level of chemical defense preparedness of the counterattacking force. Commanders cannot expect absolute flank protection from persistent agents alone.

4 *Attack enemy command and control facilities with persistent and nonpersistent agents.* Nonpersistent agents are employed against those facilities in which rapid casualty production and/or penetration of hardened sites is desired. The use of persistent agents against such facilities may cause some casualties, but more important, restricts the use of them and causes the enemy to have to take time for their decontamination.

5 *Attack enemy fire support with persistent and nonpersistent agents.* The principle in this case is similar to attack of command and control facilities. Counterfires to interrupt the mission of an enemy battery would use nonpersistent agents, while fires intended to add to the enemy's logistical problems would use persistent ones.

When using chemical weapons in the offense, the commander must consider the impact on his operations. The weapons selected must complement his plan and not cause obstacles to his own movement.

DEFENSE

In the defense the commander would consider using chemical weapons to:

1 *Contaminate probable enemy avenues of approach using persistent agents.* As in the case of flank protection, the effectiveness of this measure is dependent on the determination of the enemy commander and the CW status of his troops. Nevertheless, even well-trained, well-disciplined, and well-equipped troops will lose momentum in traversing a contaminated area. The commander must not depend on chemical contamination to serve as a barrier to enemy movement.

2 *Attack enemy second echelon forces with persistent and nonpersistent agents.* By so engaging the enemy second echelon, its momentum is slowed, the enemy assault elements become "shallow", unable to depend on the second echelon for timely reinforcement, and the entire force is made more vulnerable to friendly counterattack. Nonpersistent agents are used against those elements presenting the most immediate threat and those occupying territory over which friendly forces must pass. Persistent agents are employed against those elements which present a lesser threat or which occupy areas to be avoided by the counterattacking force.

3 *Attack enemy command and control facilities with persistent and nonpersistent agents.* The principles governing these attacks are the same as those governing such attacks in the offense.

4 *Attack enemy fire support with persistent and nonpersistent agents.* The rationale for these attacks is the same as for those conducted in the offense.

5 *Attack enemy logistic systems with persistent and nonpersistent agents.* The logistical momentum required for a successful offense is sensitive to chemical attack. Nonpersistent agents are employed against targets in which the potential for high casualty production is great; for example, a replacement facility. Persistent agents can be very effective in diverting logistical effort to large-scale decontamination of supplies and equipment. When such agents are used against logistical complexes, the enemy is caused to expend a great deal of additional effort in attempting to sustain the forward movement of materiel.

When using chemical weapons in the defense, care must be exercised to preclude cloud drift of toxic chemicals over friendly forces. When using agents of high persistency to contaminate areas, the commander must consider the impact of such contamination on his plans for counterattack.

RETROGRADE

In the retrograde, the commander would consider using chemical weapons to:

1 *Slow the attacking enemy force with persistent and nonpersistent agents.* Nonpersistent attack is used to slow forces that constitute an immediate threat by forcing them into chemical protective clothing and equipment and creating immediate casualties. Persistent agents are used for much the same reason, but, because of their delayed casualty production, are used on forces constituting a lesser threat.

2 *Restrict the use of specific terrain to the enemy with persistent agents.* As with flank protection and contamination of avenues of approach, the degree of restriction depends on the enemy commander and the readiness of his force. Even the best prepared force, however, would be required to expend effort to decontaminate an area for occupation.

3 *Contaminate with persistent agent those supplies or equipment that may have to be abandoned.* Commanders must keep two things in mind in considering this course of action—first, international law forbids the destruction of certain types of supplies and equipment (most notably, medical supplies and equipment). In general, supplies, particularly foodstuffs, petroleum products, and textiles, should be considered "destroyed" when contaminated with a persistent agent. Equipment, particularly major end items and repair parts, can be decontaminated and used by the enemy. Consequently, even though contamination of supplies and equipment to be abandoned is a valid consideration for the commander, destruction of such materiel will normally be found more feasible using more conventional methods. In all cases, the commander must consider the collateral effects resulting from his use of chemical weapons and he must insure that these effects are consistent with his planning guidance.

The commander must insure that his forces are properly equipped and trained to operate in a chemical environment. If US forces are prepared for both defensive and offensive chemical warfare operations, the probability of an enemy using chemical weapons on the modern battlefield will be reduced.

Finally, the commander must be constantly aware that the systems which deliver chemical agents are the systems which also deliver his conventional and nuclear fires. Fire planning must be continuous, and must make the most efficient use possible of all types of fires available in order to effect the maximum sustained impact on the enemy's ability to continue the battle.