A movement order is a type of operation order. It contains instructions for the movement of units from one location to another within a stated time. Preparation of the order normally follows reconnaissance and an estimate of the situation.

Information in the movement order includes the situation of friendly and enemy forces, destination, routes, rate of march, maximum speeds, order of march, start point, start point times, details of air and ground alert guards, scheduled halts, vehicle distances, time gaps, release point, critical points, service support, communications, location of the commander during the march, and strip maps. Other details may include route or unit markers to be used, control or check points, and locations of road guides. Some items listed above often become standard, and units include them as standing operating procedure. Repetition of these items is not necessary in the order.

A strip map is a sketch of the route of march and is normally included as an annex to the movement order. Enough strip maps should be reproduced to supply them to key personnel, including vehicle commanders and route guides. The amount of detail depends upon the purpose of the strip map and the unit level at which it is prepared. A strip map should contain the start point, release point, restrictions, and critical points with the distance between them. The following is a strip map.

---

**STRIP MAP**

CLASSIFICATION

ANNEX A (STRIP MAP) to OPORD 10-2-22 Cavalry.
Time Zone Used Throughout the Order: ALFA.

---

C-16
ROAD MOVEMENT GRAPH

A road movement graph is a time space diagram that depicts a movement from start point (SP) to release point (RP). It may be used during the movement's planning stage to avoid conflicts and discrepancies and prevent congestion along the route of march. It may also be used to prepare and check the road movement table. It shows the relative time and location of the head and tail of each march element at any point along the route, arrival and clearance times of march elements at critical points and restrictions, pass times, time distance, and rate of march. Preparation of a road movement graph is not mandatory, but it is of great value to the planner simply because it reduces mathematical calculations that would ordinarily be required to prepare march schedules.

Information derived from march formulas or obtained from march tables is transferred directly to the graph. To complete the road movement graph, the planner must have already organized the march column into serials or serials into march units, and determined time distance, arrival time, completion time, and pass times for each serial or march unit as appropriate.
A road movement table is normally an annex to a movement order. It is a convenient means of transmitting time schedules and other essential details of the move to subordinate units. It is particularly useful when the inclusion of such details in the body of the operation order would tend to make the order complicated or unduly long. Road movement tables consist of two parts: data paragraphs reflecting general information common to two or more march elements, and a list of serials or march units with all other necessary information arranged in tabular form.

Data from the road movement graph is transferred to the road movement table. The times serials or march units arrive at and clear critical points are particularly important to the march planner.

Other information included on the road movement table are serial or march unit number, date of move, units involved, number of vehicles, load, class of heaviest vehicle, routes to be used, and a remarks section to reflect any details not covered elsewhere. The following is an example of a road movement table scheduling the movement of a battalion-size unit.

### ROAD MOVEMENT TABLE NOTES

1. Only the minimum number of headings should be used. Any information common to two or more movement numbers should be included under General Data paragraphs. [Columns (f), (g), (h), (i), and (m) could have been omitted in this example.]
2. Since the table may be issued to personnel concerned with control of traffic, the security aspect must be remembered. It may not be desirable to include dates or locations.
3. If the table is issued by itself, and not as an annex to a more detailed order, the table must be signed or authenticated in the normal way.
4. Critical point is defined as a selected point along a route used for reference in giving instructions. It includes start points, release points, and other points along a route where interference with movement may occur or where timings are critical.
5. The movement number [column (a)] identifies a column (or element of a column) during the whole of the movement.
6. If an annex has the same distribution as an operation, it is not necessary to include the headings shown in this example.
7. To obtain due times for an MU, transfer times directly from road movement graph or calculate using time distance table and strip map.
8. To obtain clear times, add MU pass time to due time.
9. To complete the schedule for successive march units, add pass time plus time gap to due time.

**Example.** PST of MU1 is 9 minutes and time gap between MU1 and MU2 is 2 minutes = 11 minutes. Add the 8 minutes to the 0700 SP due time of MU1 to obtain the SP due time for MU2 which is 0711.
# ROAD MOVEMENT TABLE

## (CLASSIFICATION)

ANNEX B (ROAD MOVEMENT TABLE) to OPORD 10–2-22 Cavalry.


Time Zone Used Throughout the Order: ALFA.

### General Data:
1. Speed: 24 kmph.
2. Rate of March: 20 kmph.
3. Open Column.
4. Traffic Density: 15 VPK.
5. Time Gaps: 2 minutes between march units.
6. Halts: SOP.
8. From: FRIEDBURG MA812610.

### Critical Points:
- a. Start Point: RJ 275 at MA839754 (FAUERBACH).
- c. Other Critical Points:
  1. RJ 457 and 275 at MA98978 (RANSTADT).
  2. RJ 275 and 254 at NA828102 (LAUERBACH).
- d. Route Classification: 6 m x 60.
- e. Main Routes to SP: Hy 3 to Hy 275.

### Table

<table>
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<th>March Unit No.</th>
<th>Date</th>
<th>Unit</th>
<th>No. of Veh's</th>
<th>Load Class</th>
<th>Hv Veh's</th>
<th>From</th>
<th>To</th>
<th>Route to Map</th>
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<th>Route from RP</th>
<th>Remarks</th>
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<tr>
<td>(a)</td>
<td>(b)</td>
<td>(c)</td>
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<td>(f)</td>
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<td>(h)</td>
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<td>SP, CP1, CP2, CP2</td>
<td>0744 0838</td>
<td>0753 0847</td>
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</table>
ASSEMBLY AREA

An assembly area is an area in which a unit assembles to prepare for future operations. It is here that orders are issued, and the unit services and repairs vehicles, receives and issues supplies, and feeds soldiers. The assembly area, when used to prepare for an attack, is usually well forward. If possible, it should be out of range of enemy light artillery.

DESIRABLE CHARACTERISTICS

Desirable characteristics for an assembly area are:

- **Concealment from Air and Ground Observation.** Overhead concealment is important if the unit is to remain in the area for any length of time. Vehicles, equipment, entrances, and exits should be camouflaged to keep the enemy from detecting the location of the unit.

- **Cover from Direct Fire.**

- **Good Drainage and a Surface That Supports Vehicles.**

- **Good Exits, Entrances, and Adequate Internal Roads or Trails.**

- **Space for Dispersion of Vehicles, Personnel, and Equipment.**

- **A Suitable Landing Site Nearby for Organic, Attached, or Supporting Helicopters.**

ACTIONS IN AN ASSEMBLY AREA

Before the main body leaves the rear assembly area, the march commander sends a quartering party to the forward assembly area. During this movement, the quartering party provides its own security. A quartering party, on arriving in the forward assembly area:

- **Reconnoiters the area.** If the area is unsatisfactory (poor drainage, no concealment, poor routes, etc.), the quartering party leader contacts his commander and asks for permission to find another area.

- **Organizes the area.** The quartering party leader selects locations for subordinate units, command post, and trains, as appropriate. When selecting locations, the quartering party leader considers each unit's position in the march column. If a subordinate quartering party leader determines from his reconnaissance that his unit's area is unsatisfactory, he immediately notifies the senior quartering party leader and requests a change. If a change can't be made in the time available, the unit is located under the best available cover and concealment as soon as it arrives, and adjustments are made later.

- **Improves and marks entrances, exits, and internal routes within its capabilities.**

- **Marks or removes obstacles and mines.**
- Marks vehicle locations. Each platoon quartering party member marks the general area for mutually supporting vehicle positions. The exact positions are selected by vehicle commanders on arrival.

- Performs guide duties. Each platoon is guided from its RP into its sector of the assembly area by its quartering party member.

Occupation. Upon arrival of a unit at an assembly area, all elements move off the road and clear the route of march without slowing or halting. Posting of guides, selection of routes, and allocation of areas by the quartering party are done with this objective in mind. The march route must not be blocked while precise adjustments are made. After a march serial has cleared the route, adjustments of vehicles can be made without holding up traffic.

Security. Observation posts cover key terrain features and likely avenues of approach. Although an assembly area is not a defensive position, a unit must be ready to see and defeat enemy attacks. Local security is established as vehicles are positioned. Vehicle commanders and platoon leaders coordinate overlapping observation and fires. Crews prepare range cards. Crews and squads camouflage each vehicle and position to prevent detection from ground and air. Protective mines, when authorized, may be placed to provide close-in protection and warning of enemy approach.

Communications. The primary means of communication is by messenger and by visual signals. Radio is only used in an emergency when no other means of communication can be used. Each troop provides a messenger to the squadron command post. A regiment and/or squadron provides a liaison officer and messenger to the next higher headquarters.
RELIEF IN PLACE AND PASSAGE OF LINES

When combat continues over a prolonged period, or when the enemy situation has been developed, relief of a cavalry unit may be required. This may be done by relief in place or passage of lines. These operations are difficult and dangerous, since one unit has enemy contact and the other unit is expecting it.

A relief in place occurs when all or part of a defending unit is replaced in position by another unit. Only on rare occasions is a cavalry unit relieved in place or required to relieve another unit. A relief in place by or of a cavalry unit should be conducted only when a passage of lines is not tactically feasible.

A passage of lines is movement of one unit through another when one is in contact with the enemy. A cavalry unit frequently makes, or helps other units make, a passage of lines during reconnaissance and security operations.

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RELIEF IN PLACE

Congestion and intermingling of units inherent during relief in place operations requires detailed planning and coordination to prevent:

- Confusion.
- Enemy detecting the relief.

Commanders ordering a relief in place must specify time for starting and completing the relief and routes to be used. A relieving unit (incoming unit), regiment through troop, usually establishes a CP element, or leaves liaison personnel in the vicinity of the CP of the unit to be relieved (outgoing unit). This should be done as soon as possible after the warning order is issued. Key personnel of the relieving unit must become thoroughly familiar with existing defense plans, including fire support, barrier, and counterattack plans.

BASIC CONSIDERATIONS

Time. Time for planning, coordination, and reconnaissance is essential.

Plan. A detailed plan coordinated between incoming and outgoing units is necessary to accomplish a relief quickly without being detected. Primary considerations are:

- Relief at night or during periods of reduced visibility.
- Use of smoke to obscure enemy observation.
- Maintaining radio listening silence in the relieving unit while continuing normal radio traffic in the unit being relieved.
- Limiting size and composition of reconnaissance parties.
- Completing relief rapidly to reduce enemy detection and reaction time.
- Use of indirect fires to cover sound of armored vehicle movement.
- Fire support during relief.
- Time or circumstances when command passes from outgoing to incoming commander.

Reconnaissance. Incoming commanders and key personnel, preferably through platoon leaders, reconnoiter routes to be used and familiarize themselves with the terrain and enemy situation. Usually, this reconnaissance is deferred until after the outgoing and incoming commanders have conferred. This permits an orderly approach and prevents confusion. Outgoing commander(s) and platoon leaders normally remain in position while subordinates reconnoiter withdrawal routes and subsequent rendezvous points and assembly areas.

Liaison Personnel. An incoming unit usually locates personnel through company/troop/battery level with counterpart elements to be relieved. These personnel keep abreast of the situation and prepare to meet and help guide their unit into position. They also gather pertinent information concerning:

- Peculiarities of the defense position.
- Terrain.
- Enemy activities, including pattern of operations.
- Friendly and enemy patrolling activity.
- Lessons learned unique to the situation at hand.
Exchange of Equipment. Vehicle reference and aiming stakes are left in place and range cards exchanged (FM 17-12). The outgoing unit leaves its pre-positioned ammunition and field fortification materiel.

Minefields. The outgoing unit must inform the incoming unit of all mines in the area.

Movement into the Area. In cavalry, scouts reconnoiter and mark routes. An incoming unit should use routes other than those used by the outgoing unit. This will significantly reduce confusion and simplify planning and coordination. On order, the incoming unit moves forward on assigned route(s) to release points. Each company/troop/battery is met at its release point and guided by its own personnel to a release point for platoons. A platoon is guided from the platoon release point in its battle position by personnel from the unit being relieved.

Rendezvous Points and Assembly Areas. A route of withdrawal and rendezvous point not under enemy observation is designated for each platoon being relieved. An assembly area is designated several kilometers rearward for each troop-size unit being relieved. Teams of an armored cavalry platoon, or sections or squads of other platoon, when relieved, move directly to their platoon rendezvous point. When a platoon has reassembled, it moves on its assigned route to the assembly area.

Intelligence. The incoming unit obtains all possible information of enemy and terrain, including the location of friendly obstacles and minefields from the outgoing unit.

SEQUENCE OF RELIEF

Sequence at Regiment/Squadron Level. A regiment or squadron phases a relief in place to permit as orderly a transition as possible. Reserves may be relieved first, followed by relief of forward elements or vice versa. Artillery with regiment or squadron usually remains in position until relief of maneuver units is complete. This ensures that artillery familiar with local fire support is in position during the relief. For a discussion of relief in place of artillery units, see paragraph b below. The actual sequence is determined by analyzing:

- Enemy situation and capability to detect the relief and react.
- Terrain.
- Time available.
- Degree of concentration of forces acceptable.

Once a sequence of relief is determined, the unit being relieved decides the sequence of relief for forward elements. The sequence may be relief of:

- Flank units followed by relief of center unit(s).
- Center unit(s) followed by relief of flank units.
- Relief of all forward units simultaneously.
Sequence of Relief at Company/Troop/Battery Level.

1. The incoming company/troop/battery moves under radio listening silence and blackout to its release point, where it becomes subordinate to the outgoing troop commander. Without delay, it is guided by its own personnel to a release point for platoons.

2. Troop CP and trains move to and locate with counterparts.

3. Guides from the unit being relieved lead each platoon from its release point to team release points. Elements of each team are "walked" into position and oriented.

4. As a team or section is relieved, it moves to the platoon rendezvous point. When the outgoing platoon has assembled, it moves rapidly to the troop assembly area. The outgoing troop or company commander remains in place until relieved of responsibility.
In cavalry, artillery of the unit being relieved usually remains in position until maneuver units have been relieved. In any case, liaison officers and forward observers of relieving artillery locate with artillery to be relieved as soon as possible to become familiar with fire plans. If sufficient area is available, relieving artillery units may occupy new positions. In this case, relieving artillery usually moves into position by battery. If relief requires more than one night, relieving artillery usually moves at least one piece per battery forward the first night to secure registration data. Until command passes, the commander of the artillery being relieved controls registration and all other fires of the relieving artillery. Headquarters ordering a relief may direct artillery with the unit being relieved to remain in position to support the subsequent operations of the relieving unit. In this case, if additional artillery moves into the area, dispersion is a primary consideration.

**Command Control.** Execution of a relief in place is controlled by the commander of the outgoing unit. He is responsible for the defense of the area until relieved by higher headquarters. If enemy attacks before relief is completed, elements of the relieving unit in position are controlled by the outgoing commander. Commanders of incoming and outgoing units should be together until relief is completed. Relieving elements must monitor communications frequencies and call signs of their counterparts in the outgoing unit. The relieving elements maintain radio listening silence until in position. Once in position, they break radio listening silence and transmit as required. At this time, elements of the outgoing unit assume and maintain radio listening silence until relief is completed.

## PASSAGE OF LINES

A passage of lines may be either *forward* or *rearward.* A forward passage of lines is when a unit moving to contact passes through a unit in contact. A rearward passage is when a unit breaking contact passes through a unit not in contact. A forward passage of lines may be required to attack with more than just the unit in contact. Zone reconnaissance, or an advance covering force operation for a moving force, often evolve into cavalry units helping main body units make a forward passage of lines. On the other hand, a cavalry unit conducting reconnaissance and security operations, or attacking, frequently makes a forward passage of lines. A cavalry unit returning from area reconnaissance forward of friendly lines, or participating in an advance covering force or guard operation for a force deploying for defense, must make a rearward passage of lines.
CONSIDERATIONS FOR PASSAGE OF LINES

Headquarters directing a passage of lines normally establishes priorities on routes and areas and designates passage and contact points. If it does not, commanders concerned must come to an agreement. Information concerning routes, passage and contact points, and areas should be disseminated as early as possible.

Contact Points. A contact point is designated for each passage point by the commander ordering passage. Additional contact points may be designated by commanders. A contact point must be located in an easily identifiable location beyond range of, or protected from, direct fire of the unit being passed through. The unit being passed through must man each contact point with communications equipment and guides. In cavalry, scouts are used. Initial physical contact with a passing unit takes place at contact points. The passing unit is then guided to and through a passage point.

Passage Points. Passage points are points where a passing unit moves through another unit. They must be easily recognizable. A passage point also provides a means of reporting locations and information relative to traffic control. At night or during periods of limited visibility, ground surveillance radar may be used to vector units to a contact or passage point. The passing unit must inform the unit passed when it has completed its passage.

Routes. Routes are designated from contact points through passage points. During a rearward passage, routes to assembly areas are designated.

Traffic Control. The commander of the unit moving to passage point(s) is responsible for traffic control before reaching the contact point(s). The unit manning the passage point(s) assumes this responsibility at contact point(s). At night and in close terrain, it may be desirable for elements to be guided from a contact point through a passage point.
Considerations for Aircraft. Passage of air cavalry and Army aviation units must be controlled as closely as that of ground vehicles. As in all operations, flight of Army aircraft is in accordance with the Theater Airspace Management Plan. Cavalry operations require:

- **Air corridors** for aircraft moving to air passage points. This prevents interference with other aircraft and fires of artillery and air defense artillery. An air corridor terminates at a specific point (landing/laager area, terrain feature, etc.). Different corridors are usually established for aircraft with the unit manning the contact and passage points to avoid confusion.

- **Air passage points and recognition signals** to prevent engagement of friendly aircraft. Normally, recognition signals are given and acknowledged before aircraft pass through an air passage point. Air passage points must be readily identifiable from the air and ground and in or at the end of an air corridor.

The width of an air corridor depends on the terrain, cover and concealment opportunities, and artillery concentrations.
SPECIAL CONSIDERATIONS FOR FORWARD PASSAGE OF LINES

* When possible, passage should be through elements not in contact, or in an area lightly held by friendly forces. This technique helps prevent congestion.

* A unit manning contact and passage points must provide information concerning minefields in the area, safe lanes, and, if necessary, guides.

* Artillery supporting units manning passage and contact points usually integrates into the fire support plan of the unit passing through.

RECOGNITION SIGNALS FOR REARWARD PASSAGE OF LINES

Recognition signals are included in the order for passage. They are based on Communications Electronics Operation Instructions (CEOI) in effect and unit SOP’s. Recognition signals should be known to all personnel of units involved in the passage. Examples of recognition signals are:

* Flashlights with colored filters.

* Flag signals.

* Pyrotechnic signals.

* Sound signals.

* Radio signals (CEOI).

* Use of colored smoke grenades.

* Challenge and passwords.
MILITARY OPERATIONS IN BUILT-UP AREAS (MOBA)

Many areas of the world, especially Western Europe, have experienced a massive growth in built-up areas and manmade changes to the natural landscape. These changes significantly affect potential future battlefields. Avoidance of built-up areas is no longer possible. Rather, military operations in built-up areas are an integral part of combat operations and present special opportunities and challenges to the squadron commander.

Due to increasing urbanization, the squadron will frequently be required to operate in areas interspersed with many small villages and towns, some larger towns, and even major urban complexes.

There are four different types of built-up areas and each presents special problems and opportunities to tactical commanders:

- **Small villages** (population 1,000 or less), especially in Europe, are characterized by stone, brick, or concrete stores, houses, and barns in a cluster with a number of more modern and more lightly constructed houses on the outskirts. Villages provide ready-made cover for platoons and troops, and in some cases even for the squadron.

- **Strip areas** are generally interconnecting built-up areas between villages and towns along roads and valleys.

- **Towns and small cities** (population up to 100,000) which are not a part of a major urban complex.

- **Large cities** with associated urban sprawl (population between 100,000 and several million covering 100 or more square miles.)

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Villages, small towns, and strip areas will be a common occurrence to the squadron. The larger towns and small cities will have an impact on the operations of brigades and divisions. Large cities and major urban complexes will affect operations at division or corps level. The squadron can normally expect to operate in larger towns, cities, and major urban complexes only as part of a larger force.

The defender has the advantage in the use of a built-up area. He has protection from direct and indirect fire, as well as concealment and covered routes of movement within the area. The built-up area itself is an obstacle to the attacker and with mines, craters, and rubble, the effect can be multiplied. The attacker can isolate and bypass some built-up areas but will be required to move through others. He is then faced with the prospect of fighting from the outside into a well-defended position. Both attacking and defending forces will take advantage of built-up areas to locate command posts, stocks of supplies, and combat service support units.

Whenever possible, a cavalry unit should bypass defended cities, because urban combat operations are characterized by house-to-house fighting, restricted observation and fields of fire, and restricted maneuver space for ground vehicles. As a result, most combat in such areas consists of infantry actions. On the other hand, a cavalry unit must frequently reconnoiter to determine if a city is defended. (Reconnaissance operations are described in chapter 5.) At times, a cavalry unit may be required to participate in an operation to subdue enemy defending a city. As the (or part of the) envelopment force, cavalry should help seal off the area to prevent enemy reinforcement or escape. An air cavalry unit may be used in this role, but should not be committed to city fighting. If an armored cavalry squadron must fight in a large city, it should be reinforced with infantry. City fighting is generally a slow, laborious process and planning must be detailed and well coordinated. Troops must be carefully briefed and informed concerning characteristics of city fighting.

**CRITICAL SYSTEMS**

Once inside built-up areas, dismounted infantry becomes the key system. While attacking, they routinely lead, often fighting from house to house and room to room. In the defense they occupy and strengthen forward positions inside buildings.

*Scouts* usually dismount to reconnoiter or screen the flanks of either an attacking or defending force.

*Tanks* may move forward for a rapid thrust through light construction, but their vulnerabilities must be recognized. In heavier construction, tanks must use the cover of cleared buildings in order to support the movement of the infantry by fire. If the squadron is also responsible for terrain outside the built-up area, the majority of tanks may be used there to capitalize on their mobility and range.

*TOW's* are also most effectively employed on surrounding terrain features to isolate the built-up area and prevent enemy reinforcement. At times, however, the best fields of fire and protection may be from inside the built-up area. Like tanks, TOW's can use the cover of cleared buildings, exposing themselves only long enough to engage the target. TOW's can also be dismounted and placed inside buildings if sufficient space exists.

Available *engineer* elements are especially valuable in built-up areas. They create and breach obstacles and barriers, help squadron elements with explosives, clear away rubble, maintain routes for combat vehicles, and breach walls to permit move-
ment through buildings. Combat engineer vehicles (CEV) are ideal for destroying buildings and creating rubble to impede enemy attacks.

When defending in, or attacking through a built-up area, squadron mortars will normally consolidate and provide general support to the squadron. Because of their high angle of trajectory, mortar rounds may frequently be used to engage targets masked by buildings and protected from artillery fire. Mortar WP rounds can assist in disengagement, screen the movement of units, and ignite combustible buildings occupied by the enemy.

Field artillery units support from outside the built-up area unless the area is extremely large. High angle fire is used. The decision to use preparatory fire in an attack is made by the division or corps commander after determining the effect that rubble and burning buildings will have on movement. To destroy buildings housing enemy strong points, artillery may also be used in the direct-fire role.

Tactical air reconnaissance missions can provide detailed intelligence on enemy dispositions and capabilities. Air photos are useful, especially if recent maps are not available. Close air support can provide the ground commander with selective and discriminating air-to-ground fire support. In addition to general purpose bombs, cluster bomb units, rockets, and guns, the Air Force uses several guided bombs and missiles especially suited for engaging hard point targets.

**OFFENSE**

*Actions Appropriate for Villages, Towns, and Cities.* In accordance with the cardinal principle of offense—attack where the enemy is weak—defended built-up areas should not be attacked if they can be suppressed or bypassed. However, due to the number of built-up areas, it will often be necessary to eliminate resistance from an area which blocks a supply route or which could inflict losses on a force attempting to bypass.

There are three phases of the attack, any of which may be altered or eliminated based on the commander's intent, enemy strength, size and type of construction in the built-up area, and soldiers and equipment available.

**PHASE 1. ISOLATION.**

Cavalry isolates the enemy by securing dominant terrain around the built-up area and restricting the enemy's ability to resupply or reinforce. The size force required depends on the availability of dominant terrain and observation. If the mission is only to contain the enemy, isolation becomes the overall concept of the operation.
PHASE 2. SECURING A FOOTHOLD.

Cavalry secures a foothold in the built-up area which provides cover from enemy direct observation and fire and allows for the displacement of forces and equipment, including forward supply points and aid stations. This action is required each time the attacker must move from a position of inferior cover and concealment (from open terrain to a residential area or from a residential area to a business district). The foothold is normally one or two blocks assigned to a troop or company as an intermediate objective. The inferior cover and concealment, initially characteristic of this phase, should be offset by isolating the objective with fire and smoke or by attacking during periods of limited visibility. Cavalry can secure a quick foothold in a residential area, but should not operate in this role in a dense business district or if prolonged fighting is anticipated.

PHASE 3. CLEARING THE BUILT-UP AREA.

There are two basic methods of clearance used to secure either a small built-up area or an assigned zone in a larger one. These are the rapid advance and the systematic clearance. Both require dismounted operations to root out any defending enemy. If an exhausting search of every room of every building is required, the attack in either case will progress very slowly.

- Rapid Advance. This type of advance may be used when a critical objective has been identified. This critical objective may be a public utility, bridge, airfield, or any facility, structure, or terrain feature which provides a definite advantage. A strong, rapid advance force drives toward the critical objective as
quickly as possible, clearing only that part of the zone necessary to sustain the advance. As this force moves forward, the remainder of the attacking force clears the zone, including the areas hastily cleared by the rapid advance. Disruption of the enemy's system of defense by the rapid advance force should make zone clearance easier. Ideally, the rapid advance force moves through an area of known enemy weaknesses. Local air superiority and suppression of enemy air defense weapons may permit insertion of the rapid advance force on or near the critical objective by helicopters.

- **Systematic Clearance.** If no critical objective has been identified, or if a strong enemy or densely built-up area prevent a rapid advance, the systematic method of clearance may be used. In this method cavalry should be used as in a phase 1 operation on dominant terrain around the built-up area to isolate the enemy and restrict his ability to resupply or reinforce.

**Actions Appropriate to Strip Areas.** Lightly defended strip developments must not be permitted to slow the advance of the attacker. They are not easily bypassed, but weak points can be isolated by suppression and obscuration. Heavy concentrations of direct and indirect fire should support a penetration through the strip by fast moving armor forces. If the enemy force does not withdraw after the penetration, suppression and obscuration of the flanks must continue to let the attacker pass through. Such areas must be eventually cleared by follow-on forces.

**DEFENSE**

A squadron may be given the mission to defend in a built-up area when it can:

- Control an avenue of approach, especially when the area is a chokepoint or restricted area through which the enemy must pass.
- Cover an obstacle, such as an unfordable river, by fire.
- Cover an area by fire into which an enemy force can be canalized by obstacles or fires from other units.
- Deny the enemy access to a critical installation.

When defending inside a built-up area, the defender must recognize that fields of fire for direct-fire weapons are short, and mutual support between units is difficult to achieve. These conditions necessitate considerably more forces to defend a given area than would be required in open terrain. Conversely, if holding the built-up area is not critical, it can be effectively used as an economy-of-force area.

**Defense of a Sector in a Large Built-up Area.** In a large town or city the squadron, reinforced with infantry, may be given a sector to defend. Three or four city blocks would be typical. This, however, should not be done routinely. A series of battle positions (buildings or groups of buildings) is normally established and prepared for all-round defense. Although mutual support between battle positions should be maintained, the very nature of built-up areas often allows the enemy to infiltrate between positions. Thus, the defender must identify:

- Positions which enable him to place surprise fires on the enemy.
- Covered and concealed routes be-
between positions (subways and sewers) which facilitate rapid movement of dismounted forces.

- Structures which dominate large areas.
- Areas such as parks, boulevards, rivers, super highways, and railroads where AT weapons have fields of fire.
- Firing positions for mortars.
- TOC locations which offer cover, concealment, and ease of command and control.
- Protected storage areas for supplies.

Normally, two or three mechanized infantry platoons are positioned in depth to block avenues of approach. This force or part of it may be given the mission to reinforce forward infantry and conduct immediate counterattacks. Tanks occupy firing positions where they can augment the fires of forward infantry and assist counterattack efforts. When attacking large built-up areas, the enemy’s reconnaissance elements attempt to identify defense weaknesses to be exploited by his first echelon forces. His forces try to bypass strongly defended areas in order to get into the defender’s rear, isolate defending elements, and destroy the integrity of the defense. To avoid being bypassed and isolated, the squadron must identify alternate and supplementary positions and be prepared to occupy them as the attack develops.

Defense of a Small Town. The considerations of gaining fields of fire and cover are often conflicting. The forward edges of a town usually offer the best fields of fire, but in most cases they are easily targeted by enemy overwatch and supporting fire. These areas often contain residential buildings constructed of light material. Factories, civic buildings, and other heavy structures which provide adequate cover are deeper in the town and have limited fields of fire.

Since the forward edge of a small town is the obvious position for the defender, it should be avoided unless:

- Terrain limits the enemy’s ability to engage it with accurate fires.
- The forward edge of the town contains strongly constructed buildings which offer protection.

A cavalry troop or squadron may initially take battle positions on the forward edge of the town to gain early warning of the enemy’s advance, engage him at long range, and deceive him as to the location of the defense. However, cavalry must withdraw in time to avoid decisive engagement. If observation is not feasible from the forward edge, cavalry should position itself on more favorable terrain forward or to the flanks of the town.

To deny the enemy the ability to bypass or encircle the town, particular emphasis must be placed on control of surrounding key terrain and coordination with adjacent forces. This is an excellent mission for cavalry in a built-up area.

Supplementary positions and covered routes should be prepared to allow a rapid shifting of forces to meet an enemy attack from any direction.

Using Strip Areas in the Defense. If visibility is good and sufficient fields of fire are available, cavalry can occupy positions within a strip and deceive the enemy into thinking it is an extensive defense line. Tanks and ATGM’s can inflict high losses on attacking enemy armor elements and slow their advance. Strips also afford covered avenues of withdrawal to the flanks.
**Incorporating a Village into the Defense.** The commander may position part of his force in a small built-up area to gain cover and concealment or to make maximum use of the built-up area's obstacles.

In the following example, a village is situated on a chokepoint in a valley, dominating the only high-speed avenue of approach through the sector. The buildings in the village are strongly constructed and provide excellent protection against both direct and indirect fires. Placing a troop, or preferably a mechanized infantry company in the town, while controlling adjacent terrain with the remainder of the squadron can form the basis of a formidable defense.

When the squadron defensive scheme incorporates a village, adequate forces must be available to do the job. Infantry elements will be at a premium, both to occupy buildings in the village and to block possible dismounted enemy bypass attempts.

Since villages are often only 2,000-4,000m apart, squadron ATGM's and tanks may be able to provide mutual support to other villages. Thus, battle positions within a group of neighboring villages could provide a system of prefabricated and mutually supporting positions in depth. Enemy armored forces would likely be able to bypass one village, but would probably take high losses in attempting to bypass the entire group. Therefore, enemy units will be forced to develop a combined arms attack against a village or a group of villages. Such attacks are costly to the enemy in time and casualties.
OBSERVATION POSTS

During security operations, cavalry units frequently establish observation posts (OP's) for surveillance of a specific area to obtain early warning. In cavalry, an observation and listening post are the same thing. An OP withdraws only on order. An OP engages the enemy in self-defense, and uses supporting fires to harass, impede, and destroy him. Personnel manning an observation post use their weapons only in self-defense or for suppression to cover their withdrawal.

Reporting, requesting, and adjusting suppressive fires requires good communications. Radio, wire, or a combination thereof may be used.

When possible, use wire as the primary means of communication from the OP to reduce the chance of enemy interception and subsequent suppressive fires. A wire line from an OP should lie flat on the ground. This makes it more difficult for an enemy patrol to find. A wire line found by an enemy patrol may be cut or followed to the terminals. The enemy will often attempt to take prisoners by cutting a line and lying in wait for a repair party. Never send one man to check a line. If a wire must be checked, one man checks the line while being overwatched.

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SITE SELECTION

The mission and a map study will indicate the general area and covered and concealed routes. Select the OP site after actually seeing the terrain.

Primary Considerations. Primary considerations for site selection are:

- Field of view.
- Cover and concealment.
- Covered and/or concealed entrance and exit routes.
- Avoidance of landmarks.
- Overlapping fields of observation and other OP's. If overlapping fields of observation are not possible, use patrols to periodically reconnoiter areas which can't be observed from an OP.

Guidelines. Usually, a site higher than the surrounding area is selected to obtain a wide and deep view. It may be a building or a hill slope. Never select a conspicuous area which naturally draws the enemy's attention, such as abandoned equipment, a lone tree, a small isolated grove of trees, a lone building, or a small group of buildings at a road junction or desert way station. The site must not be skylined. It may be located on the forward slope or topographical crest of a hill. If a hill is heavily wooded, a forward slope position generally permits OP personnel greater freedom of movement and usually permits them to be closer to their vehicle(s). Sometimes an OP must overwatch an approach in the desert, or must locate in a valley, draw, or dense woods. The deciding factors are terrain and mission.
MANNING REQUIREMENTS

The number of men at an OP depends on their availability and the number of OP's and patrols required. Two men are required at each OP as a minimum. Three to five men are desirable to reduce fatigue level and provide local security for the observer. In ground cavalry, OP's are manned by scouts. A ground cavalry platoon can maintain six OP's for a limited time. During sustained operations, a ground cavalry platoon should not be assigned an area requiring more than three OP's. In air cavalry, the reconnaissance platoon can also establish OP's. The platoon is equipped and manned to establish four OP's for sustained periods. More can be established if additional radios (and/or telephones) and binoculars are provided. Normally, eight is the limit for sustained periods.

OCCUPATION OF AN OP SITE

*Actions on Arrival in the Area.* On arrival in the general area, halt in cover and concealment and visually search for signs of the enemy and routes. Select the route providing the best cover and concealment and intermediate stopping places from which the area can be observed. Sometimes the best route is not the most direct. Approach the site from the rear. Dismount and move to the exact site by a covered and concealed route. (In desert or great plains areas affording little cover or concealment, it may be desirable to remain mounted.) Remain undetected.
Location of Vehicles. When cover and concealment are available, ground vehicle(s) are usually left to the rear of the site, placed to facilitate movement out of the area and to permit OP personnel to withdraw under overwatch. If movement to the OP is by helicopter, dismount some distance from the actual site on a reverse slope or behind tall trees to prevent alerting the enemy. After dismounting OP personnel, a helicopter should leave the area. On call, the helicopter retrieves OP personnel at a predetermined rendezvous point.

ACTIONS AT AN OP

Immediately on reaching an OP, hastily scan the entire area with the naked eye. Use binoculars and other vision aids to look closer at suspicious areas. Afterwards, systematically search area from right to left in overlapping belts.

Surveillance. The use of overlapping belts ensures no area is overlooked and improves detection probabilities as your eyes are focused for a specific range. First, search the nearest belt to prevent being surprised in position. Then, search the next belt in the same manner. Surveillance of an area may be accomplished by teamwork. One man may watch the entire area for movement, while another systematically searches with binocu-
lars or other vision aids. The human eye is naturally attracted to movement. The detection of stationary men or machines is best done by a systematic search of the area. Use sight, hearing, and available STANO equipment. Observation telescopes and binoculars are as important at night as during daylight. During periods of limited visibility, it may be desirable to locate a radar team with an OP to supplement the surveillance effort. At night, use binoculars and night vision devices. (See FM 21-75 for night vision training and techniques.) During darkness and fog, detection of the enemy by sound becomes very important. The snapping of a branch, men moving through water or mud, the clanking of equipment, or a cough or whisper will identify enemy activity. A moving tank or other tracked vehicle is often first detected by the noise it makes. Sometimes the enemy will attempt to mask noises of moving vehicles with artillery fire.

The topographical crest is the highest point of a hill. The military crest is the highest point from which the bottom and all parts of the forward slope can be seen.

Relating Terrain to the Map. After a quick visual search to prevent being surprised, relate the actual terrain to your map; that is, determine, plot, and report your exact position.
**Keeping the Map Oriented.** Keep the map oriented with the OP's field of view. This is necessary for quick and accurate reporting and efficient use of indirect fires. Report information using a standard reporting format (appendix B).

**Remaining Concealed and Providing Early Warning.** While at an OP, avoid unnecessary movement and noise. Never forget the importance of remaining concealed. After detecting an OP, the enemy will saturate it with suppressive fires and/or attack to capture a prisoner for interrogation. Plan for withdrawal, including routes and use of smoke and suppressive fires. Use antipersonnel (claymore) mines and trip flares to improve local security and provide early warning. Site claymore mines so their backblasts will not strike the OP. Set trip flares away from the OP for early warning and to silhouette the enemy. It is best if the OP remains in darkness. Since the enemy will employ night vision aids and illumination, use the same techniques of movement and remain undetected as during daylight.

**Determining the Location of an Enemy Weapon Firing at Night.** At night, good map reading may not be sufficient to pinpoint the location of an enemy weapon. The requirement to remain undetected may not allow enough light to see the map, or it may not be possible to relate the location of an enemy weapon to specific terrain. However, effective suppressive fire is possible by supplementing the OP's location with an azimuth and range to target. This is done by using the flash and sound technique and a compass. Light travels faster than sound. As soon as the flash of a firing weapon is seen, start counting and take a compass azimuth. Stop counting when noise of the weapon firing is heard. Count at a rate of three counts per second. Multiply the count by 100m to determine range. A count of seven multiplied by 100 would mean the target is approximately 700m away.

**Obtaining and Adjusting Indirect Fire.** An OP frequently requests, spots, and adjusts indirect fires. This is usually done through the platoon leader, but at times may be done through a troop FO or other entity. Regardless of channels used, basic requirements remain the same. These are:

- A means of communication.
- A map and, if available, binoculars and a compass.
- An observer-target line. This requires the positions of the observer and an adjusting point to be known. The adjusting point may be the target or a well-defined point in the target area.

See FM 6-40-5 for a detailed discussion of how to request, spot, and adjust indirect fires.
COMMAND POSTS, COMMUNICATIONS,
AND ELECTRONIC WARFARE

COMMAND POSTS (CP)

The main command post and tactical command post are the principal command control agencies used by cavalry units from regiment through troop level. Normally, all cavalry units except a platoon employ main CP’s and tactical CP’s. A platoon does not have a CP. The principal focal point in a cavalry platoon is the platoon leader. In his absence, it is the platoon sergeant. Usually, headquarters elements of cavalry units from regiment through troop level organize in two echelons for combat. These are the main CP and trains. Composition of the main CP varies from place to place, but it includes a tactical operation center (TOC) for operation and intelligence functions and any other elements the commander chooses to include. Actual composition should be defined by unit SOP. A commander frequently operates forward of his main CP by means of a tactical CP. Essential elements of a tactical CP, sometimes called a command group, are the commander, artillery liaison officer at regiment or squadron level (FO at troop level), and transportation and communications elements.

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SELECTION OF A CP SITE

Normally a commander or S3 will designate a general CP location. The actual site is usually selected by the headquarters troop commander and/or C-E officer at the regimental or squadron level. The actual site at troop level is usually selected by the executive officer and/or the first sergeant. When selecting a CP location, they consider:

**Communications.** The location must permit communication with higher, lower, adjacent, and supporting units. High ground facilitates radio communications, especially FM radio, which essentially depends on the line of sight. However, high ground desirable from a communications viewpoint may not be readily accessible and may not provide cover and concealment. Use of retransmission stations and the locating of antennas 200-300m away permit a CP to be located on a reverse slope or in defilade.

**Accessibility.** A CP should be readily accessible from the ground. Crossroads and other prominent landmarks frequently fired on by the enemy should be avoided. A helicopter landing area with access via masked routes near a regiment or armored cavalry squadron main CP is desirable. It is essential for air cavalry squadrons and troops. A landing area located in the vicinity of a cavalry CP is not a laager area. It is used for command control and liaison helicopters. It is usually best if a helicopter landing area is located some distance, perhaps a kilometer, away from the site. Personnel are taken to the main CP by other means. This is particularly important in desert areas because of dust.

**Security.** Security is achieved by locating with, near, or in the rear of friendly forces and utilizing the best cover and concealment available. Vehicle crewmen and other personnel must provide local security.

Security is also improved by using good communications procedures. Even when secure radio transmission facilities are used, an electronic signature remains. Although the enemy may not be able to understand message content, he can determine location of the transmitting antenna, gain intelligence from traffic analysis, and apply suppressive fires. Cavalry CP's must rely on radio as the primary means of communication. Thus, measures should be taken to minimize intelligence the enemy can gain from radio communications. This can be done by using other means of communications, whenever possible, and avoiding lengthy radio transmissions. If enough frequencies and radios are available, different frequencies can be used for transmission and reception. This technique compounds enemy interception and traffic analysis. Frequent movement of CP's reduces the enemy's ability to pinpoint their location and apply suppressive fires. When a CP receives enemy artillery fire, it should immediately displace. An artillery attack against a CP should not be reported in the clear, as the enemy will know his fire is effective.

**Cover and Concealment.** A CP should be concealed from ground and aerial observation. Cover should provide protection from enemy direct fire. It can be achieved most easily by locating on a reverse slope or in a woods, gully, or ravine. Wooded areas offer good concealment. At times, it may be desirable to locate a CP in a built-up area to reduce its infrared signature.

**Hardstand and Drainage.** Ground should be firm enough to support CP vehicles. Drainage is often an important consideration, as a sudden rain or thaw may quickly flood low ground or mire the vehicles.

**Dispersion.** The site must permit
dispersion of vehicles and facilities, preferably in covered and concealed positions. Dispersion will reduce losses if the CP comes under artillery or air attack. On the other hand, need for dispersion must often be balanced against need for security against ground attack. Dispersion in a CP is also dictated by terrain. Vehicles forming a tactical operations center (TOC) must be together. All other vehicles should be dispersed enough to prevent one round of medium artillery fire from destroying more than one vehicle.

REGIMENTAL MAIN COMMAND POST

Composition. Composition varies according to the tactical situation and desires of the commander.

Internal Arrangement. A regimental main CP should be arranged to facilitate work and security; take advantage of cover, concealment, and dispersion; and permit quick displacement. Each regiment should have an SOP prescribing the arrangement of its CP. These general considerations apply to arrangement:

- S2, S3, and S3 Air vehicles are usually centrally located to form the TOC.
- A dismount and message pickup and drop point may be located near the entrance to keep out vehicular traffic and provide an orientation point for messengers. This point is normally manned by personnel from the communications platoon and/or scout section. In open areas, such as desert and great plains, this point may serve no useful purpose. In such areas, a CP may often be entered or exited at numerous points.
- CO, XO, aviation officer, fire support section, tactical air control party, and liaison officers are usually located with the TOC.
- Tactical CP vehicles in the main CP are usually located where they can best contribute to security.
- Only essential wheeled vehicles should be located with a main CP. One or two jeeps may be desirable for transportation to and from the helicopter landing area.
- All vehicles, except those of the TOC, must be dispersed (paragraph G-2).

Main CP arrangement should provide security against ground and air attack. Normally, a team of the regimental air defense section positions away from the CP in the most probable direction of enemy attack. Each vehicle with a weapon is assigned a sector of responsibility in case of air and/or ground attack. Normally, the headquarters and headquarters troop commander is responsible for the location of elements at the main CP site.

Displacement. The headquarters and headquarters troop commander is usually responsible for the displacement of a regimental main CP. A regimental CP displaces as necessary to maintain communications. It should also move frequently to reduce the chance of being located by radio direction finding elements. This helps avoid suppressive fires which generally follow detection by the enemy. Displacement may be accomplished in several ways:

- Establish a forward main CP. Elements of the S2 and S3 sections and the communications platoon form a forward main CP and displace first. The forward CP moves rapidly to the new location, establishes communications, and assumes control while...
the rest of the CP displaces. Exactly what elements form a forward main CP depends on the situation and the commander.

- **Tactical CP temporarily functions as the main CP.** A tactical CP may function as a forward main CP for short periods.

- **Move as an entity and operate on the move.** A regiment will often use this technique during fast-moving operations. A main CP can function while moving; however, FM radio communications may be erratic in hilly terrain due to frequent loss of the line of sight. This can be largely overcome by using ground or aerial retransmission stations.

### REGIMENTAL TACTICAL COMMAND POST

A regimental commander frequently uses a tactical CP to operate away from his main CP. The tactical CP is small, mobile, and contains those personnel and communications capabilities a commander requires in order to immediately influence a tactical situation. For additional information, see chapter 3.

### AIR AND ARMORED CAVALRY AND CAVALRY TROOP CP’S

**Air Cavalry Troop CP.** An air cavalry troop CP differs from an armored cavalry or cavalry troop CP, in that it is formed around the flight operations section and it is not usually located as far forward. An air cavalry troop tactical CP is frequently airborne. When not airborne, it may be located in the vicinity of a FARRP, main CP, or ground maneuver unit.

**Armored Cavalry and Cavalry Troop CP.** An armored cavalry or cavalry troop CP consists of only one or two vehicles. An armored cavalry or cavalry troop CP moves behind the platoons, and usually displaces several times a day. Usually, the troop commander and his artillery FO operate from the troop commander’s vehicle, away from the CP.

### AIR AND ARMORED CAVALRY SQUADRON MAIN AND TACTICAL CP’S

Command control in an air or armored cavalry squadron parallels that of a regiment, differing only in scope of operations and level of command. In general, a squadron main CP is farther forward and smaller than that of a regiment. By being farther forward, a squadron CP must displace more often than a regimental CP. Usually, a squadron main CP continues to function while moving. It may displace using any of the techniques discussed on the preceding page. An air cavalry squadron’s main CP is usually airborne more frequently than that of an armored cavalry squadron.

### CP OF A TANK COMPANY ORGANIC TO A REGIMENTAL ARMORED CAVALRY SQUADRON

The CP of a tank company organic to a regimental armored cavalry squadron is generally the same as those of an armored cavalry troop.
ARTILLERY BATTERY ORGANIC TO A REGIMENTAL ARMORED CAVALRY SQUADRON

An artillery battery organic to a regimental armored cavalry squadron uses a battery operations center (BOC) and a fire direction center (FDC) instead of a CP. A BOC accomplishes all the functions performed by an armored cavalry CP and also functions as an alternate FDC (FM 6-50).

COMMUNICATIONS

The ability of a cavalry unit to move, acquire and report information, and shoot depends on its ability to communicate. A cavalry platoon leader and a cavalry unit commander must rely on communications to control subordinate elements, gather information, distribute intelligence, and coordinate firepower. Preparation for every operation includes communications planning.

The communications platoon organic to a regiment or squadron performs organizational maintenance on communication and electronic equipment organic to a regiment or squadron headquarters and headquarters troop. The platoon, in coordination with the S4 section, procures communication and electronic repair parts for the regiment or squadron (less cryptographic) and evacuates all communication and electronic equipment requiring repair beyond the organizational level. It also:

- Operates a message center and provides messenger service.
- Installs wire lines to subordinate units and staff sections.
- Operates the parent unit's switchboard and provides panel marking displays and message pickup facilities.
- Provides facilities for encrypting and decrypting messages.
- Provides radio relay or automatic retransmission facilities and operates a radio teletype station in the regimental or division command net.

COMMUNICATIONS RESPONSIBILITIES

The cavalry commander and/or leader, regardless of echelon, is personally responsible for the adequacy and use of his communications system and for its operation in the system of the next echelon. The commander's communications responsibilities include planning, maintenance, and training.

- **Supporting to Supported.** A supporting unit is responsible for establishing communications with the supported unit.
- **Reinforcing to Reinforced.** A reinforcing unit is responsible for establishing communications with the reinforced unit.
Reinforcing to Reinforced. A reinforcing unit is responsible for establishing communications with the reinforced unit.

Lateral Communications. Responsibility for establishing communications between adjacent units may be fixed by the higher commander or SOP. If no orders fix responsibility, the commander of the unit on the left is responsible for establishing communications with the unit on the right.

Restoration. Both units take prompt action to restore communications between units.

MEANS OF COMMUNICATION

All available means of communication should be used to prevent overloading any one communication means. This helps to minimize the breakdown when one means is disrupted. In cavalry, radio is the primary means of communication. It may be affected by enemy jamming, unfavorable terrain, and bad weather. Wire, messenger, visual, liaison, and sound communication are alternatives to radio.

Selection. Communication means available to the team commander are:

Communication means in each unit depend on personnel, equipment, and transportation provided by tables or organization and equipment and unit commanders. Different means of communication have different capabilities and limitations. Therefore, they should complement each other so that a team, a platoon, or larger unit is not dependent on only one means. Dependence on one communication means endangers command and control. Reliance on several means strengthens it.

Some means of communication are often more effective than others. Selection of the best means is made by answering:

- How soon must it operate?
- How long does it take to install?
- How long does it take to transmit?
- How open is it to enemy action?
- How reliable is it?
- How much does it cost in resources?

Radio Communications. Radio sets have a common or overlapping frequency range, use the same type modulation, and transmit and receive the same type of signal. This enables all elements to operate together. Stronger sets must be kept within the transmitting range of weaker sets. Operating range depends on:

- Type of set.
- Skill of the operator.
- Weather.
- Terrain.
- Interference.
- Location from which the set is operated.

Power lines and steel structures close to a radio site reduce operating range. Radio communications are subject to natural interference, accidental interference from other radio stations, and deliberate interference (jamming) by the enemy.

Wire Communications. The decision to establish wire communications depends on need, time available, and capability to install and maintain wire systems.

Advantages of Wire Communications:

- Wire communications allow person-to-person conversation with break-in
RADIO

WIRE

VISUAL
May also include flares, colored smoke, and tracer ammunition.

SOUND

MESSENGER
operation. Break-in operation is the ability to interrupt without waiting until a transmission ends.

- Wire communications are less susceptible to electronic warfare than radio.

- Wire communications are more secure and reliable than radio.

* Disadvantages of Wire Communications.
- Installing a wire system is time consuming. Proper planning may reduce installation time which is affected by length of lines, methods of laying, type of terrain and weather.

- Wire lines can be broken by traffic or artillery fire, and need regular maintenance. Care should be taken in selecting installation sites and wire routes that avoid these dangers.

- Wire does not necessarily ensure security of information transmitted in the clear because the enemy may tap the line.

- Since terminals must be connected, wire communications are not as practical as radio for highly mobile operations. Wire communications work best in defensive operations and within command posts, but can be used in any tactical operation if properly planned. (See appendix F for a discussion of the use of wire communications by OP's.)

* Visual Communications. Visual communications are used for transmitting prearranged messages quickly over short distances and identifying friendly forces. They are particularly useful during radio and listening silence. Visual communications are easily misunderstood and open to interception. The enemy may use similar communications to confuse and deceive. In some situations, they are not used because of security. Visual communications are also restricted when visibility is poor or line-of-sight positions are not available.

* Arm and Hand Signals. Leaders use standard and special arm and hand signals to control small-unit actions, recovery operations, and vehicle movements.

* Flags. Messages may be sent with flags by using prearranged signals. Each tank has three flags (red, green, and orange). They may be used to:

- Control movement. Flags serve as an extension of arm and hand signals.
- Mark vehicle positions. (For example, a quartering party representative uses flags in an assembly area to mark vehicle positions.)
- Identify disabled vehicles.
- Warn friendly elements of advancing enemy. For example, a flag can be used to signal an overwatch element forward.
ARM AND HAND SIGNALS

TRAVELING OVERWATCH

MOVE UP ON MY LEFT

I AM READY

ATTENTION

ENEMY IN SIGHT

ENEMY IN SIGHT

I DO NOT UNDERSTAND

DISREGARD PREVIOUS COMMAND
NIGHT ARM AND HAND SIGNALS, WITH FLASHLIGHT

- **COMMENCE FIRING**
- **DISMOUNT**
- **CEASE FIRING**
- **MOUNT**

**Start Engines**

**Stop or Stop Engines**

**Move In Reverse**

**Left**

**Forward Move Out Increase Speed or Double Time**

**Right**
Lights. Flashlights, xenon search-lights, and other lights may be used to transmit brief prearranged messages, such as the identity of friendly units, based on signals given in the unit CEOI or fixed by the commander.

The meanings for pyrotechnic signals should be brief and simple. Combinations of colors fired at the same time or in series increase the possibility of error since an observer may be unable to distinguish different colors or may miss part of the series. Receivers of pyrotechnic messages should confirm that the pyrotechnic signal has been seen and understood. Pyrotechnic signals can be easily imitated by the enemy. Therefore, they can't be fully trusted unless the signaler can be identified. Pyrotechnic signals can also be seen by the enemy, so security must be considered to avoid exposing the locations or intentions of friendly units.

Pyrotechnics. Pyrotechnics are ammunition containing chemicals that make colored smoke or brilliant light. They are used to signal or light an area at night and are available in several types and colors. Pyrotechnic signals are included in the unit CEOI. These signals are generally used for friendly unit identification, fire support control, target marking, and location reports. Pyrotechnics may also be used for ground and ground-to-air communications. Their principal advantage is the speed with which information can be transmitted to large numbers of troops and isolated units.

Panels. Panels are used for communicating with aircraft. They identify units as friendly and mark landing areas, drop zones, and unit positions. Identification displays are normally prescribed in the unit CEOI.

Sound Communications. Simple devices such as whistles, bugles, horns, sirens, gongs, bells, klaxons, voice amplifiers, and explosive devices are used for sound communications. Principal uses of sound communications are to attract attention, transmit prearranged messages, and spread alarms. Range and reliability are greatly reduced by battle noise, therefore, sound signals are satisfactory only for short distances. Since they are open to enemy interception, they may be restricted for security reasons. Sound signals must be simple to avoid misunderstandings.

Messenger Communications. Messenger communications are the most secure means available to units. Messenger communications are flexible, reliable, and best for transmitting lengthy messages. The efficiency of messenger communications largely depends on the selection and training of messengers. Speed depends on the mode of travel, tactical situation, terrain, and trafficability of routes. Limitations of messenger communications include vulnerability to enemy action in forward areas and lack of person-to-person contact.

When necessary, dismounted troops can be used locally as messengers. Air messenger service may be used when aircraft are available.

When possible, a cavalry unit or a team of a platoon should use messengers, thereby, reducing reliance on other means.

Communications Between Dismounted and Mounted Personnel. Communications between dismounted and mounted elements of the team are critical to successful operations.
ELECTRONIC WARFARE

Since the enemy uses direction finding (DF) equipment to pinpoint locations of transmitters, electronic devices such as radios, radars, and infrared equipment are used only when needed. The enemy's DF equipment can locate any radio that transmits in a forward area if there is line of sight between the DF locator and the radio. Transmitting on low power and from behind a hill mass (if the distant station can receive), significantly degrades and can even defeat the enemy's attempt to locate transmitters. Moving immediately after transmitting and before transmitting again confuses enemy DF equipment operators. Wire, directional antennas, and messengers also reduce the chance of detection.

Use the smallest antenna which permits effective communication. Do not hesitate to change from a ground plane antenna to the radio's component whip or stub antenna whenever possible.

A reduced height ground antenna can be mounted into a pole holder welded to the front bumper of a truck and secured with guy wires. This provides a highly mobile command net antenna.

Electronic warfare (EW) is divided into three major components: electronic countermeasures (ECM), electronic counter-countermeasures (ECCM), and electronic warfare support measures (ESM). Electronic warfare support is normally provided to cavalry by corps units especially equipped to conduct electronic warfare.

ELECTRONIC COUNTERMEASURES (ECM)

ECM are all actions, such as jamming and deception, taken to deny or degrade use of electronic equipment. Prompt reporting of enemy ECM is an important source of intelligence. For details on EW, see TC 32-20.

Jamming is a deliberate attempt to prevent or degrade the reception of information. It is accomplished by a transmitter producing an electromagnetic signal (such as voice radio transmission) on the same frequency as the receiver. Successful jamming blocks out or partially obscures the intended message.

The purpose of deception is to mislead the enemy. It may be manipulative or imitative. Manipulative deception involves transmitting false or misleading information over friendly communications nets. This should be done when the enemy is monitoring. Imitative deception involves friendly radio operators entering enemy communications systems and pretending to be enemy stations. The purpose is to cause the enemy to react in certain ways or to confuse the enemy.

ELECTRONIC COUNTER-COUNTERMEASURES (ECCM)

ECCM are actions taken to permit use of electronic equipment in an EW environment.
They are preventive or remedial measures.

**Preventive ECCM Measures.** Preventive measures and continuous training and practice in proper communication procedures and communication tactics are the most important aspect of EW in cavalry units. To perform preventive ECCM:

- Use correct radiotelephone procedures.
- Require authentication when in doubt.
- Use only authorized brevity and map reference codes.
- Correctly locate antennas.
- Use secure-voice equipment when possible.
- Use directional antennas when practical, especially with VHF/FM radios.
- Mask antenna radiation when possible.
- Transmit no longer than 30 seconds.
- Test the radio with a dummy antenna.
- When "remoting" antennas, move them 1,000m or more.
- Do not locate radars with radios. Doing so creates a distinct emitter signature.

**Remedial ECCM Measures.** Take remedial measures after the enemy begins jamming. First, determine if reception problems are due to electronic and atmospheric interference. If jamming is suspected, disconnect the antenna. If the noise (interference) goes away, the frequency is most likely being jammed. If the noise continues with the antenna disconnected, then the set is probably defective or the interference is being caused by nearby equipment. However, if the enemy is jamming, assume he is also monitoring the frequencies. When jammed, continue to operate and do not discuss the jamming. The enemy may conclude his jamming is not effective and discontinue it.

Other remedial measures are:

- Switch to higher power.
- Use alternate means of communication.
- Relocate radios/antennas to minimize the effects of the jamming signal.
- As a last resort, and when authorized, change to an alternate frequency.
- Use directional antennas.

Operators must report jamming by secure communications means as soon as possible. A format for the report is normally found in the CEOI.
HANDLING PRISONERS OF WAR
AND CAPTURED ENEMY DOCUMENTS

Prisoners of war (PW's), maps, military documents, letters, and diaries obtained on the battlefield are very important sources of combat intelligence. In cavalry, these sources are usually obtained by a platoon. A cavalry platoon routinely searches the battlefield for unit identification, maps, documents, and letters. The platoon rapidly reports such information and coordinates with the troop commander for evacuation of PW's and items of possible intelligence value. In some instances, such items and PW's may be taken directly to the troop CP by a scout squad. At other times, the troop commander may rendezvous or direct other elements to rendezvous with the platoons. In cavalry, great emphasis is placed on the correct handling and rapid evacuation of captured items and PW's. This is necessary because the sooner trained, experienced intelligence personnel can obtain such assets, the more valuable the information. See FM 30-15, Intelligence Interrogation and FM 30-16, Technical Intelligence for proper procedures on handling PW's and captured enemy documents.

STAFF RESPONSIBILITY

A regimental and/or squadron S1 plans and supervises the collection and evacuation of enemy prisoners of war (PW's). The S1 does this in coordination with the supporting military police unit. He must ensure that these plans conform to the directives of higher
headquarters, and that they are clear, complete, and understandable. He coordinates with the S2 for estimates on anticipated prisoners and facilities for interrogation and with the headquarters commandant for the operation of the PW collecting point. He coordinates with the S4 for transportation to evacuate prisoners and with his unit surgeon for the evacuation of wounded prisoners. Emphasis is placed on the proper conditioning of prisoners of war for interrogation. For more information, see FM 19-20 and FM 71-100.

DUTIES OF CAPTURING TROOPS

Capturing troops disarm, segregate, tag, and search PW's for documents of military value. Documents are tagged to identify them with the PW's from whom they are taken and they are evacuated with the PW's. The personal effects of a PW are not taken except on the order of an officer for security reasons. In this event, a property register is maintained and signed receipts are given each PW for personal items taken. Capturing troops segregate PW's according to sex, rank, nationality, and other appropriate categories, and tag each PW to show time, place, and circumstances of capture and capturing unit. Selective interrogation by PW interrogation teams for immediate information may be undertaken in the forward area.

CONSIDERATIONS DURING FAST-MOVING OPERATIONS

Because of the continuous movement of a cavalry unit command post in fast moving operations, the evacuation of PW's and the establishment of collecting points pose problems. To offset these problems, two procedures are followed:

- Supporting MP's normally establish a collection point on the supply route or in the trains area of each committed squadron. This facilitates evacuation from squadron collecting points.

- PW interrogation teams with cavalry operate with minimum facilities. At regiment and squadron level, interrogation of prisoners is limited to immediate information required, such as the location and deployment of enemy antitank weapons and defenses, roadblocks, and tank units. In fast-moving operations, interrogators may be used with the forward elements of the squadron. Facilities for interrogation at regiment and squadron are kept to a minimum, because PW's are questioned only briefly on the spot and evacuated to a division PW collecting point or turned over to other units for evacuation.

CONSIDERATIONS DURING DEFENSE

In defensive operations, evacuation of PW's is normally from the point of capture to the squadron PW collecting point and then to the parent division or regimental PW collecting point. The preliminary interrogation attempts to obtain information of immediate tactical value to squadron commanders. Following the preliminary interrogation, PW's are evacuated to a division PW collecting point for a more detailed interrogation concerning tactical information.
EVACUATION TECHNIQUES

The evacuation of PW's from forward areas presents problems to the company team or troop commander. In fast moving situations, the team or troop commander must rely on attached or nearby infantry, returning vehicles and aircraft, slightly wounded or headquarters personnel, and headquarters vehicles for the evacuation of PW's to collecting points. A company or troop commander must use every possible resource to help evacuate PW's without reducing his combat strength.

A squadron S1, in conjunction with the S4, normally has greater resources at his disposal for the evacuation of PW's than does a company or troop commander. Necessary assistance is given the company or troop required. Assistance from regiment or a division is requested when requirements for the evacuation of PW's are beyond the capabilities of the squadron.

When large numbers of PW's are collected during an operation, cavalry units may be required to help in their evacuation. When planning operations where large numbers of PW's are anticipated, combat units may be assigned a "be-prepared" mission to help evacuate PW's. This type of mission is usually assigned units in reverse or in a follow-and-support role.

Sick, injured, or wounded PW's are treated and evacuated through normal medical channels, but are physically separated from US and Allied patients.

RIGHTS OF PRISONERS OF WAR

Rights of PW's have been established by international law, and the United States has agreed to obey these laws. Once an enemy soldier surrenders, he must be treated humanely. It is a court-martial offense to physically or mentally harm or mistreat a PW. The senior officer or noncommissioned officer on the scene is responsible for the legal care of PW's. A cavalry unit which can't evacuate a PW within a reasonable time must provide the PW food, water, and medical treatment. Mistreated PW's and PW's who receive favors are not good interrogation subjects. PW's should not be given comfort items (cigarettes, candy, etc.) before their first interrogation.

HANDLING PRISONERS OF WAR

In handling PW's, use these five principles (five S's):

SEARCH
- Remove all weapons and documents.
- Return personal items of no military value to PW.
- Leave helmet and protective mask/gear to protect him from the immediate dangers of the battle area.

SEGREGATE
Break the chain of command. Separate by sex, rank, and other appropriate category. Keep the staunch fighter away from those who willingly surrendered.

SILENCE
Keep PW leaders from giving orders, planning escapes, or developing false "cover stories."