CHAPTER 4

FIELD TECHNIQUES

The primary mission of the sniper team is to eliminate selected enemy targets with long-range precision fire. How well the sniper accomplishes his mission depends on knowledge, understanding and application of various field techniques that allow him to move, hide, observe, and detect targets. This chapter discusses the field techniques and skills that the sniper must learn before employment in support of combat operations. The sniper's application of these skills will affect his survival on the battlefield.

Section I
CAMOUFLAGE

Camouflage is one of the basic weapons of war. It can mean the difference between a successful or unsuccessful mission. To the sniper team, it can mean the difference between life and death. Camouflage measures are important since the team cannot afford to be detected at any time while moving alone, as part of another element, or while operating from a firing position. Marksmanship training teaches the sniper to hit a target, and a knowledge of camouflage teaches him how to avoid becoming a target. Paying attention to camouflage fundamentals is a mark of a well-trained sniper. (See FM 5-20 for more details.)

4-1. TARGET INDICATORS

To become proficient in camouflage, the sniper team must first understand target indicators. Target indicators are anything a soldier does or fails to do that could result in detection. A sniper team must know and understand target indication not only to move undetected, but also to detect enemy movement. Target indicators are sound, movement, improper camouflage, disturbance of wildlife, and odors.

a. Sound.
- Most noticeable during hours of darkness.
- Caused by movement, equipment rattling, or talking.
- Small noises may be dismissed as natural, but talking will not.

b. Movement.
- Most noticeable during hours of daylight.
- The human eye is attracted to movement.
- Quick or jerky movement will be detected faster than slow movement.

c. Improper camouflage.
- Shine.
- Outline.
- Contrast with the background.

d. Disturbance of wildlife.
- Birds suddenly flying away.
- Sudden stop of animal noises.
- Animals being frightened.

e. Odors.
- Cooking.
- Smoking.
- Soap and lotions.
- Insect repellents.

4-2. BASIC METHODS

The sniper team can use three basic methods of camouflage. It may use one of these methods or a combination of all three to accomplish its objective. The three basic methods a sniper team can use are hiding, blending, and deceiving.

a. **Hiding.** Hiding is used to conceal the body from observation by lying behind an objector thick vegetation.

b. **Blending.** Blending is used to match personal camouflage with the surrounding area to a point where the sniper cannot be seen.

c. **Deceiving.** Deceiving is used to fool the enemy into false conclusions about the location of the sniper team.

4-3. TYPES OF CAMOUFLAGE

The two types of camouflage that the sniper team can use are *natural* and *artificial.*

a. **Natural.** Natural camouflage is vegetation or materials that are native to the given area. The sniper augments his appearance by using natural camouflage.

b. **Artificial.** Artificial camouflage is any material or substance that is produced for the purpose of coloring or covering something in order to conceal it. Camouflage sticks or face paints are used to cover all exposed areas of skin such as face, hands, and the back of the neck. The parts of the face that form shadows should be lightened, and the parts that shine should be darkened. The three types of camouflage patterns the sniper team uses are striping, blotching, and combination.

(1) ***Striping.*** Used when in heavily wooded areas and when leafy vegetation is scarce.

(2) ***Blotching.*** Used when an area is thick with leafy vegetation.

(3) ***Combination.*** Used when moving through changing terrain. It is normally the best all-round pattern.

4-4. GHILLIE SUIT

The ghillie suit is a specially made camouflage uniform that is covered with irregular patterns of garnish or netting (Figure 4-l).

a. Ghillie suits can be made from BDUs or one-piece aviator-type uniforms. Turning the uniform inside out places the pockets inside the suit. This protects items in the pockets from damage caused by crawling on the ground. The front of the ghillie suit should be covered with canvas or some type of heavy cloth to reinforce it. The knees and elbows should be covered with two layers of canvas, and the seam of the crotch should be reinforced with heavy nylon thread since these areas are prone to wear out quicker.

b. The garnish or netting should cover the shoulders and reach down to the elbows on the sleeves. The garnish applied to the back of the suit should be long enough to cover the sides of the sniper when he is in the prone position. A bush hat is also covered with garnish or netting. The garnish should belong enough to breakup the outline of the sniper's neck, but it should not be so long in front to obscure his vision or hinder movement.

e. A veil can be made from a net or piece of cloth covered with garnish or netting. It covers the weapon and sniper's head when in a firing position. The veil can be sewn into the ghillie suit or carried separately. A ghillie suit does not make one invisible and is only a camouflage base. Natural vegetation should be added to help blend with the surroundings.

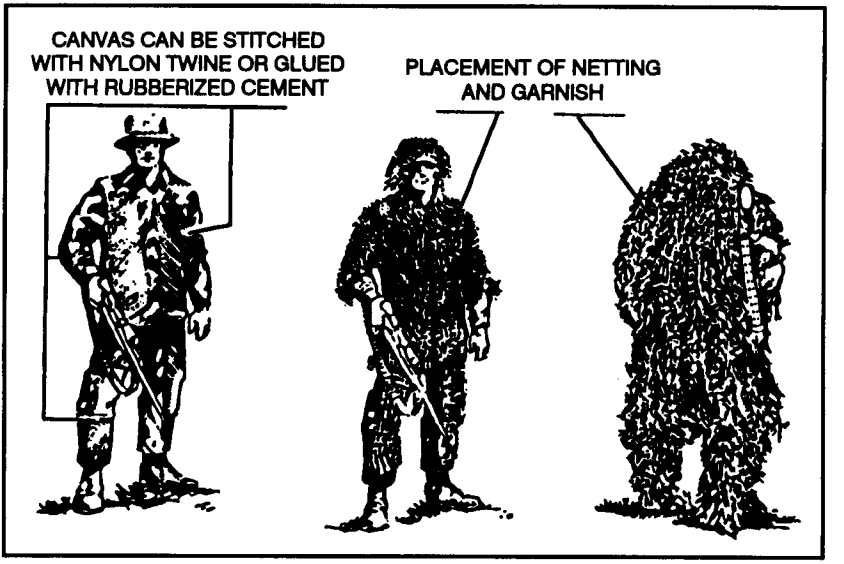

Figure 4-1. Ghillie suit.

4-5. FIELD-EXPEDIENT CAMOUFLAGE

The sniper team may have to use field-expedient camouflage if other means are not available. Instead of camouflage sticks or face paint, the team may use charcoal, walnut stain, mud, or whatever works. The team will not use oil or grease due to the strong odor. Natural vegetation can be attached to the body by boot bands or rubber bands or by cutting holes in the uniform.

a. The sniper team also camouflages its equipment. However, the camouflage must not interfere with or hinder the operation of the equipment.

(1) ***Rifles.*** The sniper weapon system and the M16/M203 should also. be camouflaged to break up their outlines. The sniper weapon system can be carried in a "drag bag" (Figure 4-2), which is a rifle case made of canvas and covered with garnish similar to the ghillie suit.

(2) ***Optics.*** Optics used by the sniper team must also be camouflaged to breakup the outline and to reduce the possibility of light reflecting off the lenses. Lenses can be covered with mesh-type webbing or nylon hose material.

(3) ***ALICE pack.*** If the sniper uses the ALICE pack while wearing the ghillie suit, he must camouflage the pack the same as the suit.

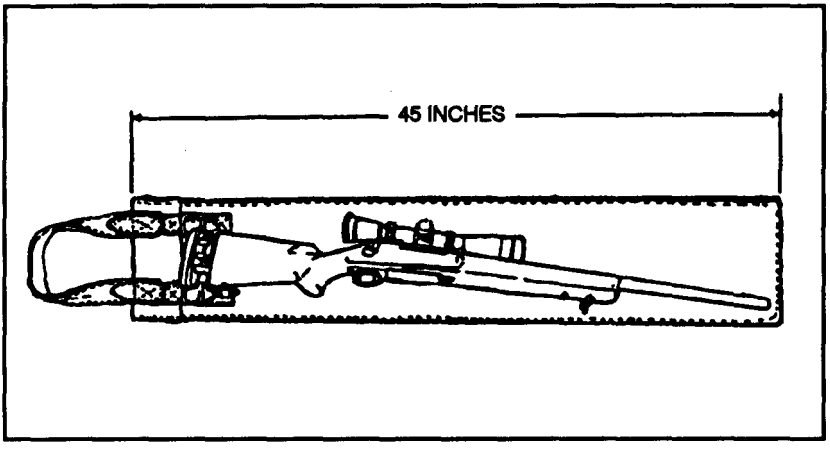

Figure 4-2. Drag bag.

b. The sniper team alters its camouflage to blend in with changes in vegetation and terrain in different geographic areas. Examples of such changes are as follows:

(1) ***Snow areas.*** Blending of colors is more effective than texture camouflage in snowy areas. In areas with heavy snow or in wooded areas with trees covered with snow, a full white camouflage suit should be worn. In areas with snow on the ground but not on the trees, white trousers with green and brown tops should be worn.

(2) ***Desert areas.*** In sandy desert areas that have little vegetation, the blending of tan and brown colors is important. In these areas, the sniper team must make full use of the terrain and the vegetation that is available to remain unnoticed.

(3) ***Jungle areas.*** In jungle areas, textured camouflage, contrasting colors, and natural vegetation must be used.

(4) ***Urban areas.*** In urban areas, the sniper team's camouflage should be a blended color (shades of gray usually work best). Texutred camouflage is not as important in these environments.

c. The sniper team must be camouflage conscious from the time it departs on a mission until it returns. It must constantly use the terrain, vegetation, and shadows to remain undetected. At no other time during the mission will the sniper team have a greater tendency to be careless than during its return to a friendly area. Fatigue and undue haste may override caution and planning. Therefore, the team needs to pay close attention to its camouflage discipline on return from missions.

4-6. COVER AND CONCEALMENT

The proper understanding and application of the principles of cover and concealment used with the proper application of camouflage protects the sniper team from enemy observation.

a. Cover is natural or artificial protection from the fire of enemy weapons. Natural cover (ravines, hollows, reverse slopes) and artificial cover (fighting positions, trenches, walls) protect the sniper team from flat trajectory fires and partly protect it from high-angle fires and the effects of nuclear explosions. Even the smallest depression or fold in the ground may provide some cover when the team needs it most. A 6-inch depression, properly used, may provide enough cover to save the sniper team under fire. Snipers must always look for and take advantage of all the cover that the terrain provides. By combining this habit with proper movement techniques, the team can protect itself from enemy fire. To get protection from enemy fire when moving, the team uses routes that put cover between itself and the enemy.

b. Concealment is natural or artificial protection from enemy observation. The surroundings may provide natural concealment that needs no change before use (bushes, grass, and shadows). The sniper team creates artificial concealment from materials such as burlap and camouflage nets, or it can move natural materials (bushes, leaves, and grass) from their original location. The sniper team must consider the effects of the change of seasons on the concealment provided by both natural and artificial materials. 'he principles of concealment include the following

(1) ***Avoid unnecessary movement.*** Remain still—movement attracts attention. The position of the sniper team is concealed when the team remains still, but the sniper's position is easily detected when the team moves. Movement against a stationary background makes the team stand out clearly. When the team must change positions, it moves carefully over a concealed route to a new position, preferably during limited visibility. Snipers move inches at a time, slowly and cautiously, always scanning ahead for the next position.

(2) ***Use all available concealment.*** Available concealment includes the following

(a) *Background.* Background is important the sniper team must blend with it to prevent detection. The trees, bushes, grass, earth, and man-made structures that form the background vary in color and appearance. This makes it possible for the team to blend with them. The team selects trees or bushes to blend with the uniform and to absorb the figure outline. Snipers must always assume they are under observation.

(b) *Shadows.* The sniper team in the open stands out clearly, but the sniper team in the shadows is difficult to see. Shadows exist under most conditions, day and night. A sniper team should never fire from the edge of a wood line; it should fire from a position inside the wood line (in the shade or shadows provided by the tree tops).

(3) ***Stay low to observe.*** A low silhouette makes it difficult for the enemy to see a sniper team. Therefore, the team observes from a crouch, a squat, or a prone position.

(4) ***Avoid shiny reflections.*** Reflection of light on a shiny surface instantly attracts attention and can be seen from great distances. The sniper uncovers his rifle scope only when indexing and aiming at a target. He uses optics cautiously in bright sunshine because of the reflections they cause.

(5) ***Avoid skylining.*** Figures on the skyline can be seen from a great distance, even at night, because a dark outline stands out against the lighter sky. The silhouette formed by the body makes a good target.

(6) ***Alter familiar outlines.*** Military equipment and the human body are familiar outlines to the enemy. The sniper team alters or disguises these revealing shapes by using the ghillie suit or outer smock that is covered with irregular patterns of garnish. The team must alter its outline from the head to the soles of the boots.

(7) ***Observe noise discipline.*** Noise, such as talking, can be picked up by enemy patrols or observation posts. The sniper team silences gear before a mission so that it makes no sound when the team walks or runs.

Section II
MOVEMENT

A sniper team's mission and method of employment differ in many ways from those of the infantry squad. One of the most noticeable differences is the movement technique used by the sniper team. Movement by teams must not be detected or even suspected by the enemy. Because of this, a sniper team must master individual sniper movement techniques.

4-7. RULES OF MOVEMENT

When moving, the sniper team should always remember the following rules

a. Always assume the area is under enemy observation.

b. Move slowly. A sniper counts his movement progress by feet and inches.

c. Do not cause overhead movement of trees, bushes, or tall grasses by rubbing against them.

d. Plan every movement and move in segments of the route at a time.

e. Stop, look, and listen often.

f. Move during disturbances such as gunfire, explosions, aircraft noise, wind, or anything that will distract the enemy's attention or conceal the team's movement.

4-8. INDIVIDUAL MOVEMENT TECHNIQUES

The individual movement techniques used by the sniper team are designed to allow movement without being detected. These movement techniques are sniper low crawl, medium crawl, high crawl, hand-and-knees crawl, and walking.

a. **Sniper Low Crawl.** The sniper low crawl (Figure 4-3) is used when concealment is extremely limited, when close to the enemy, or when occupying a firing position.

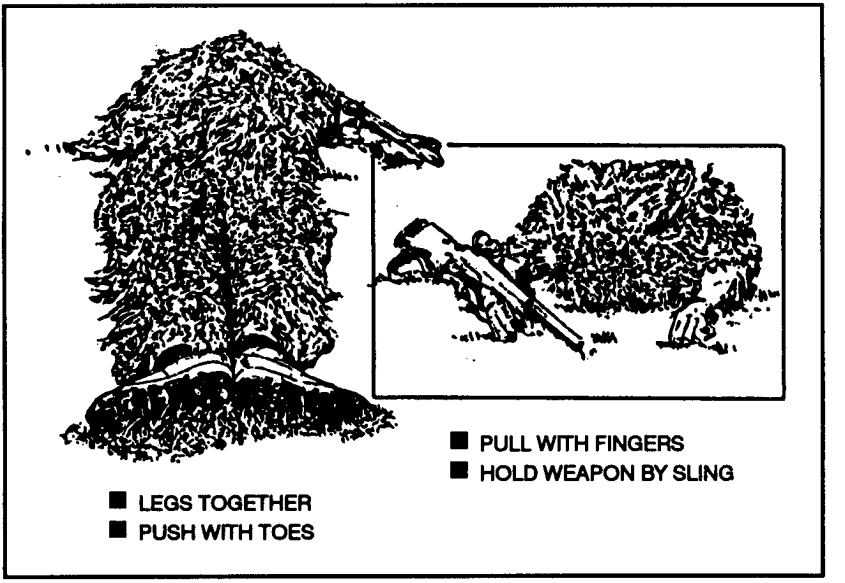

Figure 4-3. Sniper low crawl.

b. **Medium Crawl.** The medium crawl (Figure 4-4) is used when concealment is limited and the team needs to move faster-than the sniper low crawl allows. The medium crawl is similar to the infantryman's low crawl.

c. **High Crawl.** The high crawl (Figure 4-5) is used when concealment is limited but high enough to allow the sniper to raise his body off the ground. The high crawl is similar to the infantry high crawl.

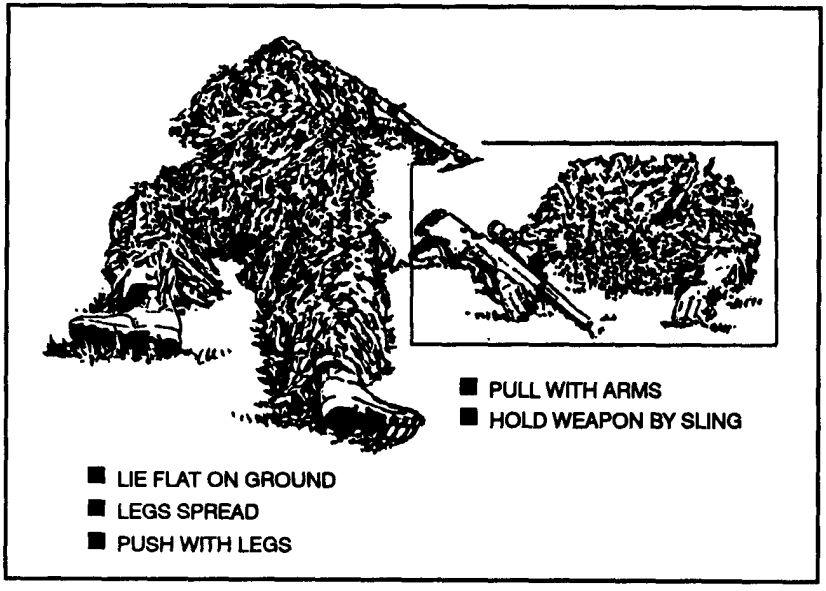

Figure 4-4. Medium crawl.

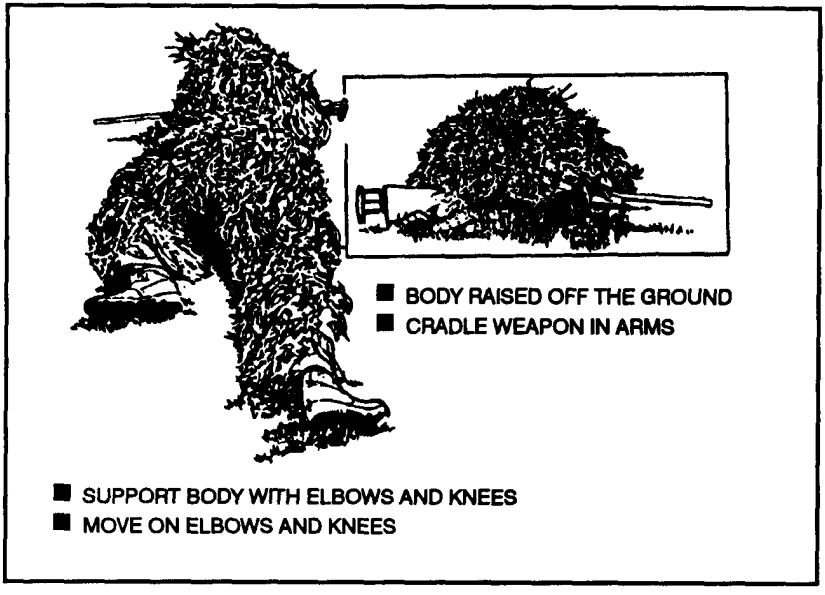

Figure 4-5. High crawl.

d. **Hand-and-knees Crawl.** The hand-and-knees crawl (Figure 4-6) is used when some concealment is available and the sniper team needs to move faster than the medium crawl.

Figure 4-6. Hand-and-knees crawl.

e. **Walking.** Walking (Figure 4-7) is used when there is good concealment, it is not likely the enemy is close, and speed is required.

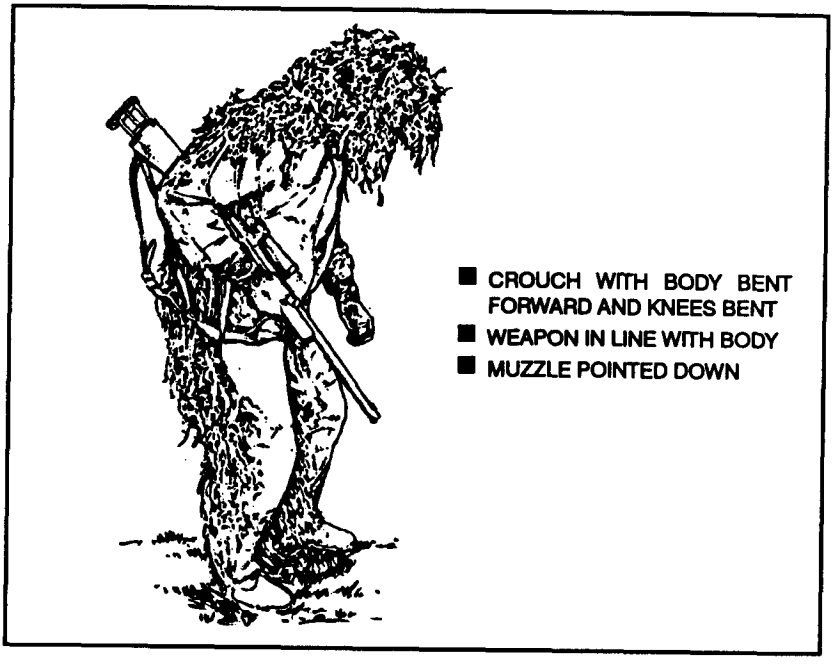

Figure 4-7. Walking.

4-9. SNIPER TEAM MOVEMENT AND NAVIGATION

Due to lack of personnel and firepower, the sniper team cannot afford detection by the enemy nor can it successfully fight the enemy in sustained engagements.

a. When possible, the sniper team should be attached to a security element (squad/platoon). The security element allows the team to reach its area of operations quicker and safer than the team operating alone. Plus, the security element provides the team a reaction force should the team be detected. Snipers use the following guidelines when attached to a security element:

(1) The security element leader is in charge of the team while it is attached to the element.

(2) The sniper team always appears as an integral part of the element.

(3) The sniper team wears the same uniform as the element members.

(4) The sniper team maintains proper intends and positions in all formations.

(5) The sniper weapon system is carried in line and close to the body, hiding its outline and barrel length.

(6) All equipment that is unique to sniper teams is concealed from view (optics, ghillie suits, and so forth).

b. Once in the area of operation, the sniper team separates from the security element and operates alone. Two examples of a sniper team separating from security elements are as follows:

(1) The security element provides security while the team prepares for operation.

(a) The team dons the ghillie suits and camouflages itself and its equipment (if mission requires).

(b) The team ensures all equipment is secure and caches any nonessential equipment (if mission requires).

(c) Once the team is prepared, it assumes a concealed position, and the security element departs the area.

(d) Once the security element has departed, the team waits in position long enough to ensure neither itself nor the security element has been compromised. Then, the team moves to its tentative position.

(2) The security element conducts a short security halt at the separation point. The sniper team halts, ensuring they have good available concealment and know each other's location. The security element then proceeds, leaving the sniper team in place. The sniper team remains in position until the security element is clear of the area. The team then organizes itself as

required by the mission and moves on to its tentative position. This type of separation also works well in MOUT situations.

c. When selecting routes, the sniper team must remember its strengths and weaknesses. The following guidelines should be used when selecting routes:

(1) Avoid known enemy positions and obstacles.

(2) Seek terrain that offers the best cover and concealment.

(3) Take advantage of difficult terrain (swamps, dense woods, and so forth).

(4) Do not use trails, roads, or footpaths.

(5) Avoid built-up or populated areas.

(6) Avoid areas of heavy enemy guerrilla activity.

d. When the sniper team moves, it must always assume its area is under enemy observation. Because of this and the size of the team with the small amount of firepower it has, the team uses only one type of formation-the sniper movement formation. Characteristics of the formation are as follows:

(1) The observer is the point man; the sniper follows.

(2) The observer's sector of security is 3 o'clock to 9 o'clock; the sniper's sector of security is 9 o'clock to 3 o'clock (overlapping).

(3) Visual contact must be maintained even when lying on the ground.

(4) An interval of no more than 20 meters is maintained.

(5) The sniper reacts to the point man's actions.

(6) The team leader designates the movement techniques and routes used.

(7) The team leader designates rally points.

e. A sniper team must never become decisively engaged with the enemy. The team must rehearse immediate action drills to the extent that they become a natural and immediate reaction should it make unexpected contact with the enemy. Examples of such actions are as follows:

(1) ***Visual contact.*** If the sniper team sees the enemy and the enemy does not see the team, it freezes. If the team has time, it will do the following

(a) Assume the best covered and concealed position.

(b) Remain in position until the enemy has passed.

NOTE: The team will not initiate contact.

(2) ***Ambush.*** In an ambush, the sniper team's objective is to break contact immediately. One example of this involves performing the following

(a) The observer delivers rapid fire on the enemy.

(b) The sniper throws smoke grenades between the observer and the enemy.

(c) The sniper delivers well-aimed shots at the most threatening targets until smoke covers the area.

(d) The observer then throws fragmentation grenades and withdraws toward the sniper, ensuring he does not mask the sniper's fire.

(e) The team moves to a location where the enemy cannot observe or place direct fire on it.

(f) If contact cannot be broken, the sniper calls for indirect fires or a security element (if attached).

(g) If team members get separated, they should return to the next-to-last designated en route rally point.

(3) ***Indirect fire.*** When reacting to indirect fires, the team must move out of the area as quickly as possible. This sudden movement can result in the team's exact location and direction being pinpointed. Therefore, the team must not only react to indirect fire but also take actions to conceal its movement once it is out of the impact area.

(a) The team leader moves the team out of the impact area using the quickest route by giving the direction and distance (clock method).

(b) Team members move out of the impact area the designated distance and direction.

(c) The team leader then moves the team farther away from the impact area by using the most direct concealed route. They continue the mission using an alternate route.

(d) If team members get separated, they should return to the next-to-last designated en route rally point.

(4) ***Air attack.***

(a) Team members assume the best available covered and concealed positions.

(b) Between passes of aircraft, team members move to positions that offer better cover and concealment.

(c) The team does not engage the aircraft.

(d) Team members remain in positions until attacking aircraft depart.

(e) If team members get separated, they return to the next-to-last designated en route rally point.

f. To aid the sniper team in navigation, the team should memorize the route by studying maps, aerial photos, or sketches. The team notes distinctive features (hills, streams, roads) and its location in relation to the route. It plans an alternate route in case the primary route cannot be used. It plans offsets to circumvent known obstacles to movement. The team uses terrain countdown, which involves memorizing terrain features from the start point to the objective, to maintain the route. During the mission, the sniper team mentally counts each terrain feature, thus ensuring it maintains the proper route.

g. The sniper team maintains orientation at all times. As it moves, it observes the terrain carefully and mentally checks off the distinctive features noted in the planning and study of the route. Many aids are available to ensure orientation. The following are examples:

(1) The location and direction of flow of principal streams.

(2) Hills, valleys, roads, and other peculiar terrain features.

(3) Railroad tracks, power lines, and other man-made objects.

Section III
SELECTION, OCCUPATION, AND CONSTRUCTION OF SNIPER POSITIONS

Selecting the location for a position is one of the most important tasks a sniper team accomplishes during the mission planning phase of an operation. After selecting the location, the team also determines how it will move into the area to locate and occupy the final position.

4-10. SELECTION

Upon receiving a mission, the sniper team locates the target area and then determines the best location for a tentative position by using one or more of the following sources of information: topographic maps, aerial photographs, visual reconnaissance before the mission, and information gained from units operating in the area.

a. The sniper team ensures the position provides an optimum balance between the following considerations:

- Maximum fields of fire and observation of the target area.
- Concealment from enemy observation.
- Covered routes into and out of the position.
- Located no closer than 300 meters from the target area.
- A natural or man-made obstacle between the position and the target area.

b. A sniper team must remember that a position that appears to be in an ideal location may also appear that way to the enemy. Therefore, the team avoids choosing locations that are—

- On a point or crest of prominent terrain features.
- Close to isolated objects.
- At bends or ends of roads, trails, or streams.
- In populated areas, unless it is required.

c. The sniper team must use its imagination and ingenuity in choosing a good location for the given mission. The team chooses a location that not only allows the team to be effective but also must appear to the enemy to be the least likely place for a team position. The following are examples of such positions:

- Under logs in a deadfall area.
- Tunnels bored from one side of a knoll to the other.
- Swamps.
- Deep shadows.
- Inside rubble piles.

4-11. OCCUPATION

During the mission planning phase, the sniper also selects an objective rally point. From this point, the sniper team reconnoiters the tentative position to determine the exact location of its final position. The location of the ORP should provide cover and concealment from enemy fire and observation, be located as close to the selected area as possible, and have good routes into and out of the selected area.

a. From the ORP, the team moves foward to a location that allows the team to view the tentative position area (Figure 4-8 page 4-16). One member remains in this location to cover the other member who reconnoiters the area to locate a final position. Once a suitable location has been found, the covering team member moves to the position. While conducting the reconnaissance or moving to the position, the team—

- Moves slowly and deliberately, using the sniper low crawl.
- Avoids unnecessary movement of trees, bushes, and grass.
- Avoids making any noises.
- Stays in the shadows, if there are any.
- Stops, looks, and listens every few feet.

b. When the sniper team arrives at the firing position, it—

- Conducts a detailed search of the target area.
- Starts construction of the firing position, if required.

- Organizes equipment so that it is easily accessible.
- Establishes a system of observing eating resting, and latrine calls.

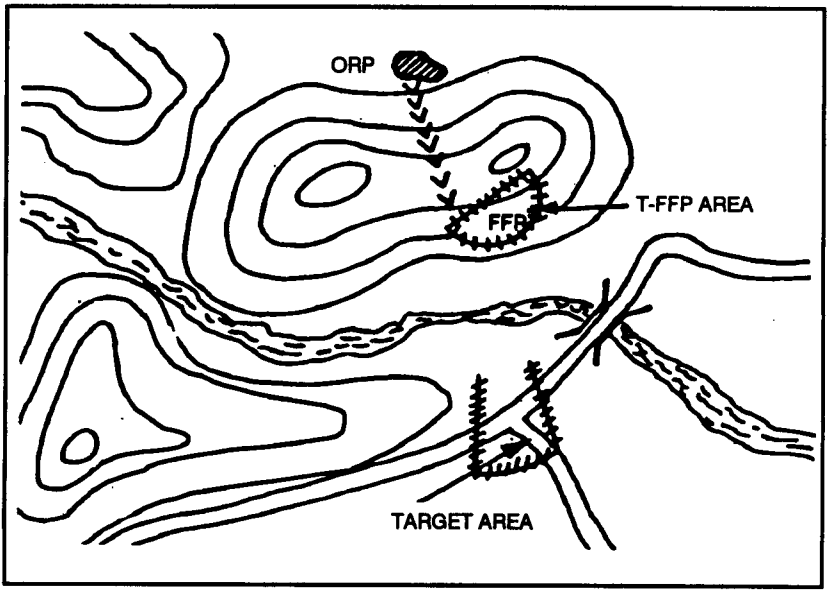

Figure 4-8. Tentative position areas.

4-12. CONSTRUCTION

A sniper mission always requires the team to occupy some type of position. These positions can range from a hasty position, which a team may use for a few hours, to a more permanent position, which the team could occupy. for a few days. The team should always plan to build its position during limited visibility.

a. **Sniper Position Considerations.** Whether a sniper team is in a position for a few minutes or a few days, the basic considerations in. choosing a type of position remain the same.

(1) ***Location:***

(a) *Type of terrain and soil.* Digging and boring of tunnels can be very difficult in hard soil or in fine, loose sand. The team takes advantage of what the terrain offers (gullies, holes, hollow tree stumps, and so forth).

(b) *Enemy location and capabilities.* Enemy patrols in the area may be close enough to the position to hear any noises that may accidentally be made during any construction. The team also considers the enemy's night vision and detection capabilities.

(2) ***Time:***

(a) *Amount of time to be occupied.* If the sniper team's mission requires it to be in position for a long time, the team constructs a position that provides more survivability. This allows the team to operate more effectively for a longer time.

(b) *Time required for construction.* The time required to build a position must be considered, especially during the mission planning phase.

(3) ***Personnel and equipment:***

(a) *Equipment needed for construction.* The team plans for the use of any extra equipment needed for construction (bow saws, picks, axes, and so forth).

(b) *Personnel needed for construction.* Coordination is made if the position requires more personnel to build it or a security element to secure the area during construction.

b. **Construction Techniques.** Belly and semipermanent hide positions can be constructed of stone, brick, wood, or turf. Regardless of material, every effort is made to bulletproof the front of the hide position. The team can use the following techniques:

- Pack protective jackets around the loophole areas.
- Emplace an angled armor plate with a loophole cut into it behind the hide loophole.
- Sandbag the loopholes from the inside.

(1) ***Pit.*** Hide construction begins with the pit since it protects the sniper team. All excavated dirt is removed (placed in sandbags, taken away on a poncho, and so forth) and hidden (plowed fields, under a log, or away from the hide site).

(2) ***Overhead cover.*** In a semipermanent hide position, logs should be used as the base of the roof. The sniper team places a dust cover over the base (such as a poncho, layers of empty sandbags, or canvas), a layer of dirt, and a layer of gravel, if available. The team spreads another layer of dirt, and then adds camouflage. Due to the various materials, the roof is difficult to conceal if not countersunk.

(3) ***Entrance.*** To prevent detection, the sniper team should construct an entrance door sturdy enough to bear a man's weight.

(4) ***Loopholes.*** The construction of loopholes (Figure 4-9, page 4-18) requires care and practice to ensure they afford adequate fields of fire. Loopholes must be camouflaged by foliage or other material that blends with or is natural to the surroundings.

(5) ***Approaches.*** It is vital that the natural appearance of the ground remains unaltered and camouflage blends with the surroundings.

Construction time is wasted if the enemy observes a team entering the hide; therefore, approached must be concealed. Teams try to enter the hide during darkness, keeping movement to a minimum and adhering to trail discipline. In built-up areas, a secure and quiet approach is needed. Teams must avoid drawing attention to the mission and carefully plan movement. A possible ploy is to use a house search with sniper gear hidden among other gear. Sewers may be used for movement also.

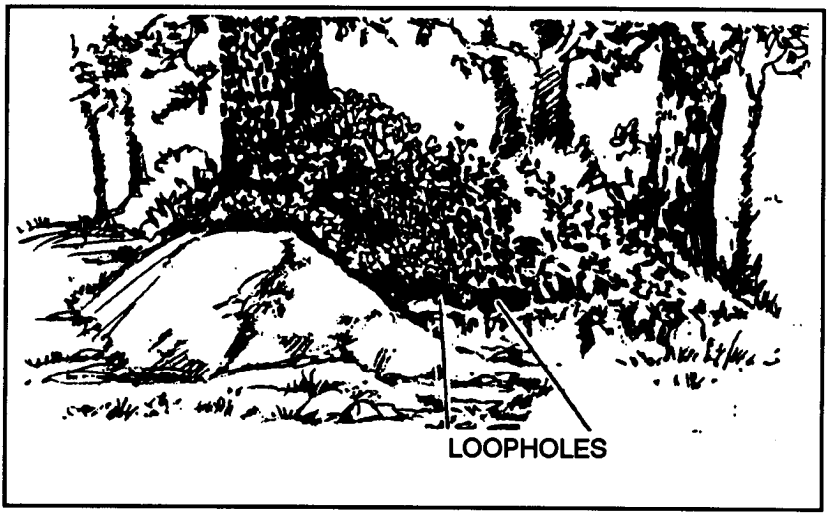

Figure 4-9. Loopholes in hide position.

c. **Hasty Position.** A hasty position is used when the sniper team is in a position for a short time and cannot construct a position due to the location of the enemy, or immediately assumes a position. The hasty position is characterized by the following

(1) ***Advantages:***

(a) *Requires no construction* The sniper team uses what is available for cover and concealment.

(b) *Can be occupied in a short time.* As soon as a suitable position is found, the team need only prepare loopholes by moving small amounts of vegetation or by simply backing a few feet away from the vegetation that is already thereto conceal the weapon's muzzle blast.

(2) ***Disadvantages:***

(a) *Affords no freedom of movement.* Any movement that is not slow and deliberate may result in the team being compromised.

(b) *Restricts observation of large areas.* This type of position is normally used to observe a specific target area (intersection, passage, or crossing).

(c) *Offers no protection from direct or indirect fires.*

(d) *Relies heavily on personal camouflage.*The team's only protection against detection is personal camouflage and the ability to use the available terrain.

(3) ***Occupation time.*** The team should not remain in this type of position longer than eight hours.

d. ***Expedient Position.*** When a sniper team is required to remain in position for a longer time than the hasty position can provide, an expedient position (Figure 4-10) should be constructed. The expedient position lowers the sniper's silhouette as low to the ground as possible, but it still allows him to fire and observe effectively. The expedient position is characterized by the following

(1) ***Advantages:***

(a) *Requires little construction.* This position is constructed by digging a hole in the ground just large enough for the team and its equipment. Soil dug from this position can be placed in sandbags and used for building firing platforms.

(b) *Conceals most of the body and equipment.* The optics, rifles, and heads of the sniper team are the only items that are above ground level in this position.

(c) Provides some protection from direct fires due to its lower silhouette.

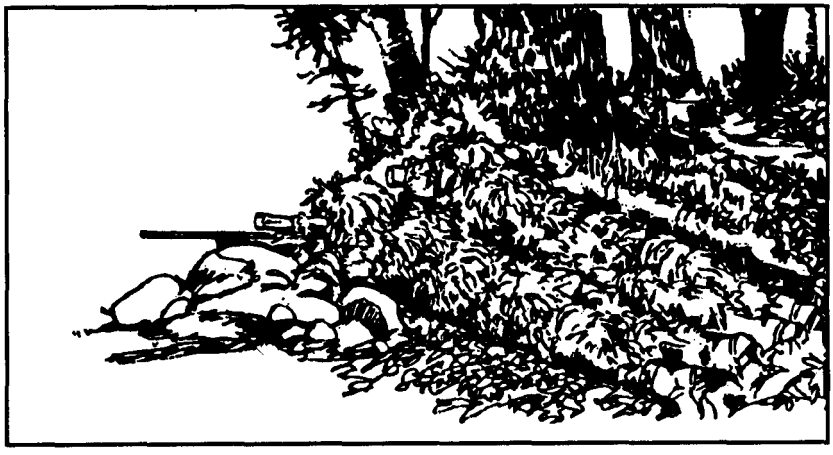

Figure 4-10. Expedient position.

(2) ***Disadvantages:***

(a) *Affords little freedom of movement.* The team has more freedom of movement in this position than in the hasty position. Team members can lower their heads below ground level slowly to ensure a target indicator is not produced.

(b) *Allows little protection from indirect fires.* This position does not protect the team from shrapnel and debris falling into the position.

(c) *Exposes the head, weapons, and optics.* The team must rely heavily on the camouflaging of these exposed areas.

(3) ***Construction time:*** 1 to 3 hours (depending on the situation).

(4) ***Occupation time:*** 6 to 12 hours.

e. **Belly Hide.** The belly hide (Figure 4-11) is similar to the expedient position, but it has overhead cover that not only protects the team from the effects of indirect fires but also allows more freedom of movement. This position can be dugout under a tree, a rock, or any available object that provides overhead protection and a concealed entrance and exit. The belly hide is characterized by the following

(1) *Advantages:*

(a) *Allows some freedom of movement.* The darkened area inside this position allows the team to move freely. The team must remember to cover the entrance/exit door so outside light does not silhouette the team inside the position or give the position away.

(b) *Conceals all but the rifle barrel.* All equipment is inside the position except the rifle barrels. Depending on the room available to construct the position, the rifle barrels may also be inside.

(c) *Provides protection from direct and indirect fires.* The team should try to choose a position that has an object that will provide good overhead protection (rock tracked vehicle, rubble pile, and so forth), or prepare it in the same manner as overhead cover for other infantry positions.

(2) ***Disadvantages:***

(a) *Requires extra construction time.*

(b) *Requires extra materials and tools.* Construction of overhead cover requires saws or axes, waterproof material, and so forth.

(c) *Has limited space.* The sniper team will have to lay in the belly hide without a lot of variation in body position due to limited space and design of the position.

(3) ***Construction time:*** 4 to 6 hours.

(4) ***Occupation time:*** 12 to 48 hours.

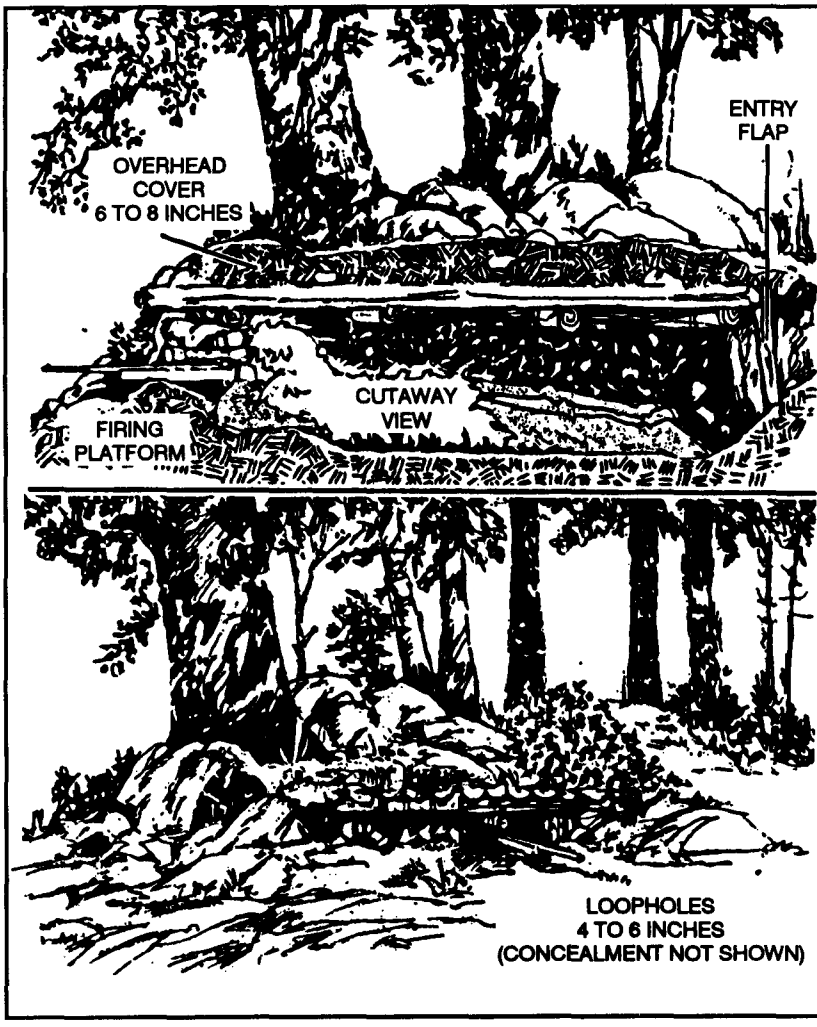

Figure 4-11. Belly hide position.

f. **Semipermanent Hide.** The semipermanent hide (Figure 4-12, page 4-22) is used mostly in defensive situations. This position requires additional equipment and personnel to construct. However, it allows sniper teams to remain in place for extended periods or to be relieved in place by other sniper teams. Like the belly hide, this position can be constructed by tunneling through a knoll or under natural objects already in place. The semipermanent hide is characterized by the following

(1) **Advantages:**

(a) *Offers total freedom of movement inside the position.* The team members can move about freely. They can stand, sit, or even lie down.

(b) *Protects against direct and indirect fires.* The sniper team should look for the same items as mentioned in the belly hide.

(c) *Is completely concealed.* Loopholes are the only part of the position that can be detected. They allow for the smallest exposure possible; yet they still allow the sniper and observer to view the target area. These loopholes should have a large diameter (10 to 14 inches) in the interior of the position and taper down to a smaller diameter (4 to 8 inches) on the outside of the position. A position may have more than two sets of loopholes if needed to cover large areas. The entrance/exit to the position must be covered to prevent light from entering and highlighting the loopholes. Loopholes that are not in use should be covered from the inside with a piece of canvas or suitable material.

(d) *Is easily maintained for extended periods.* This position allows the team to operate effectively for a longer period.

(2) ***Disadvantages:***

(a) *Requires extra personnel and tools to construct.* This position requires extensive work and extra tools. It should not be constructed near the enemy. It should be constructed during darkness and be completed before dawn.

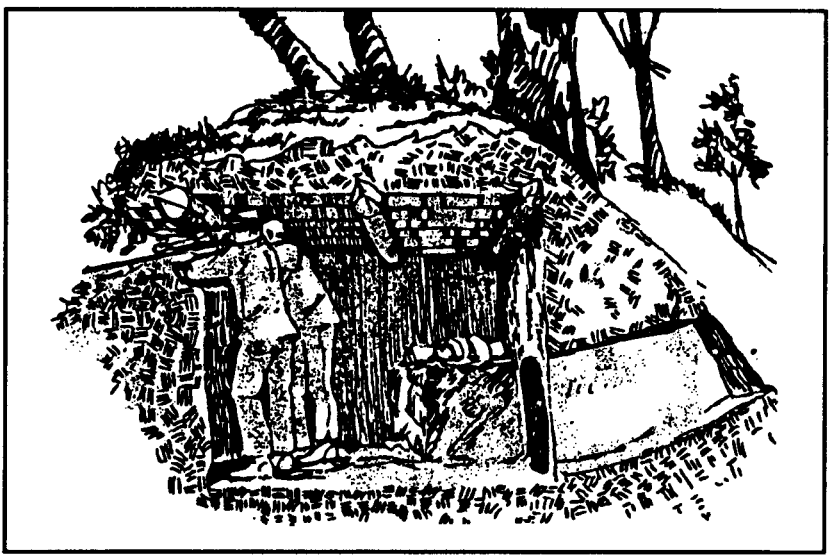

Figure 4-12. Semipermanent hide position.

(b) *Increases risk of detection.* Using a position for several days or having teams relieve each other in a position always increases the risk of detection.

(3) ***Construction time:*** 4 to 6 hours (4 personnel).

(4) ***Occupation time:*** 48 hours plus (relieved by other teams).

g. **Routines in Sniper Team positions.** Although the construction of positions may differ, the routines while in position are the same. The sniper and the observer should have a good firing platform. This gives the sniper a stable platform for the sniper weapon and the observer a platform for the optics. When rotating observation duties, the sniper weapon should remain in place, and the optics are handed from one member to the other. Sniper data book, observation logs, range cards, and the radio should be placed between the team where both members have easy access to them. A system of resting, eating, and latrine calls must be arranged between the team. All latrine calls should be done during darkness, if possible. A hole should be dug to conceal any traces of latrine calls.

4-13. POSITIONS IN URBAN TERRAIN

Positions in urban terrain are quite different than positions in the field. The sniper team normally has several places to choose. These can range from inside attics to street-level positions in basements. This type of terrain is ideal for a sniper, and a sniper team can stop an enemy's advance through its area of responsibility.

a. When constructing an urban position, the sniper team must be aware of the outside appearance of the structure. Shooting through loopholes in barricaded windows is preferred; the team must make sure all other windows are also barricaded. Building loopholes in other windows also provides more positions to engage targets. When building loopholes, the team should make them different shapes (not perfect squares or circles). Dummy loopholes also confuse the enemy. Positions in attics are also effective. The team removes the shingles and cuts out loopholes in the roof; however, they must make sure there are other shingles missing from the roof so the firing position loophole is not obvious.

(1) The sniper team should not locate the position against contrasting background or in prominent buildings that automatically draw attention. It must stay in the shadows while moving, observing, and engaging targets.

(2) The team must never fire close to a loophole. It should always back away from the hole as far as possible to hide the muzzle flash and to scatter the sound of the weapon when it fires. The snipers may be located in a different room than the loophole; however, they can make a hole through a wall to connect the rooms and fire from inside one room. The team must not fire continually from one position. (More than one position should be constructed if time and situation permit.) When constructing other positions, the team makes sure the target area can be observed. Sniper team positions should never be used by any personnel other than a sniper team.

b. Common sense and imagination are the sniper team's only limitation in the construction of urban hide positions. Urban hide positions that can be used are the room hide, crawl space hide, and rafter hide. The team constructs and occupies one of these positions or a variation thereof.

WARNING
WHEN MOVING THROUGH SEWERS, TEAMS MUST BE ALERT FOR BOOBY TRAPS AND POISONOUS GASES.

(1) ***Room hide position.*** In a room hide position, the sniper team uses an existing room and fires through a window or loophole (Figure 4-13). Weapon support may be achieved through the use of existing furniture-that is, desks or tables. When selecting a position, teams must notice both front and back window positions. To avoid. silhouetting, they may need to use a backdrop such as a dark-colored blanket, canvas, carpet, and a screen. Screens (common screening material) are important since they allow the sniper teams maximum observation and deny observation by the enemy. They must not. remove curtains; however, they can open windows or remove panes of glass. Remember, teams can randomly remove panes in other windows so the position is not obvious.

(2) ***Crawl space hide position.*** The sniper team builds a crawl space hide position in the space between floors in multistory buildings (Figure 4-14). Loopholes are difficult to construct, but a damaged building helps considerably. Escape routes can be holes knocked into the floor or ceiling. Carpet or furniture placed over escape holes or replaced ceiling tiles will conceal them until needed.

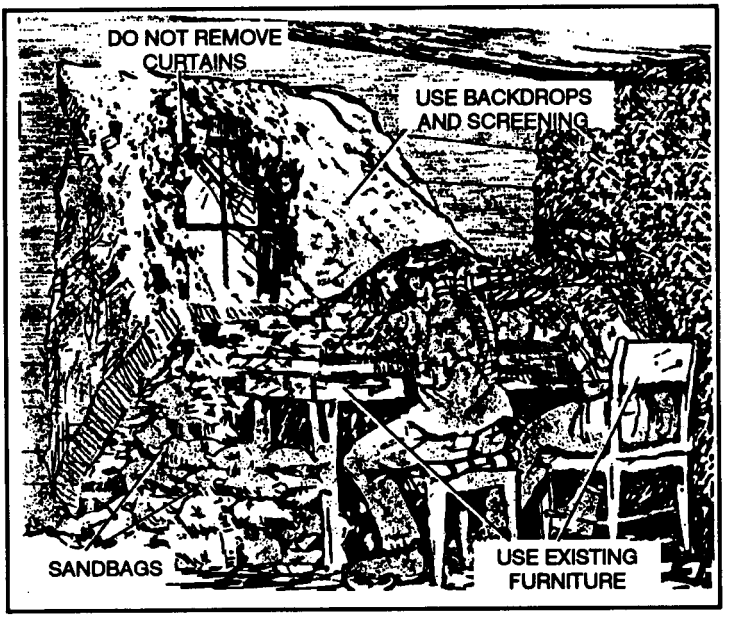

Figure 4-13. Room hide position.

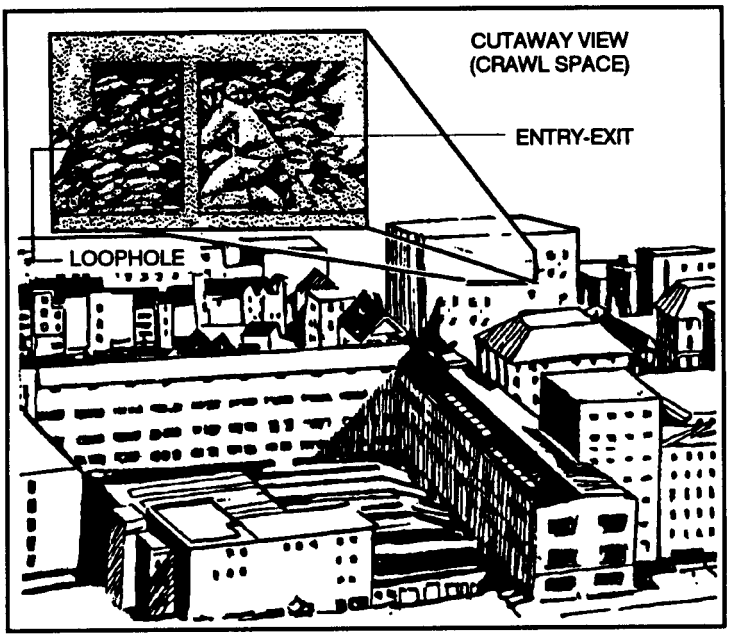

Figure 4-14. Crawl space hide position.

(3) ***Rafter hide position.*** The sniper team constructs a rafter hide position in the attic of an A-frame-type building. These buildings normally have shingled roofs (A and B, Figure 4-15). Firing from inside the attic around a chimney or other structure helps prevent enemy observation and fire.

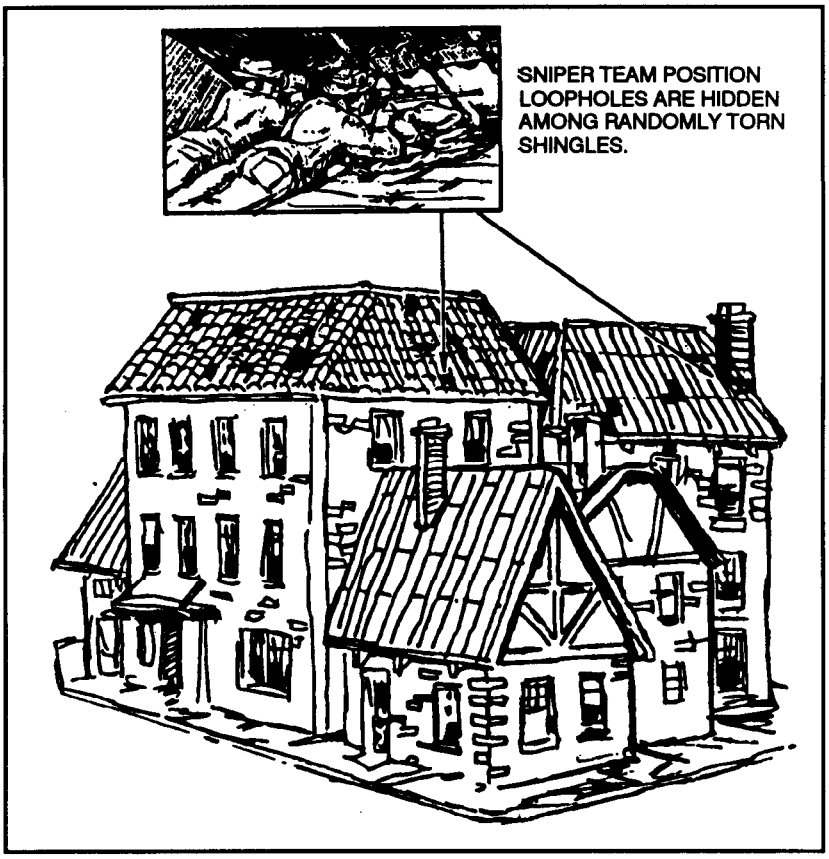

Figure 4-15. Rafter hide positions.

c. Sniper teams use the technique best suited for the urban hide position.

(1) The second floor of a building is usually the best location for the position. It presents minimal dead space but provides the team more protection since passersby cannot easily spot it.

(2) Normally, a window is the best viewing aperture/loophole.

(a) If the window is dirty, do not clean it for better viewing.

(b) If curtains are prevalent in the area, do not remove those in the position. Lace or net-type curtains can be seen through from the inside, but they are difficult to see through from the outside.

(c) If strong winds blow the curtains open, staple, tack, or weight them.

(d) Firing a round through a curtain has little effect on accuracy however, ensure the muzzle is far enough away to avoid muzzle blast.

(e) When area routine indicates open curtains, follow suit. Set up well away from the loophole; however, ensure effective coverage of the assigned target area.

(3) Firing through glass should be avoided since more than one shot may be required. The team considers the following options:

(a) Break or open several windows throughout the position before occupation. This can be done during the reconnaissance phase of the operation; however, avoid drawing attention to the area.

(b) Remove or replace panes of glass with plastic.

(4) Other loopholes/viewing apertures are nearly unlimited.

- Battle damage.
- Drilled holes (hand drill).
- Brick removal.
- Loose boards/derelict houses.

(5) Positions can also beset up in attics or between the ceiling and roof. (See rafter hide positions.)

- Gable ends close to the eaves (shadow adding to concealment).
- Battle damage to gables and or roof.
- Loose or removed tiles, shingles, or slates.
- Skylights.

(6) The sniper makes sure the bullet clears the loophole. The muzzle must be far enough from the loophole to ensure the bullet's path is not in line with the bottom of the loophole.

(7) Front drops, usually netting, may have to be changed (if the situation permits) from dark to light colors at BMNT/EENT due to sunlight or lack of sunlight into the position.

(8) If the site is not multiroomed, partitions can be made by hanging blankets or nets to separate the operating area from the rest/administrative area.

(9) If sandbags are required, they can be filled and carried inside of rucksacks or can be filled in the basement, depending on the situation/location of the position site.

(10) Always plan an escape route that leads to the objective rally point. When forced to vacate the position, the team meets the security element at the ORP. Normally, the team will not be able to leave from the same point at which it gained access; therefore, a separate escape point may be required in emergency situations. The team must consider windows (other than the viewing apertures); anchored ropes to climb down buildings, or a small, preset explosive charge situated on a wall or floor for access into adjoining rooms, buildings, or the outside.

(11) The type of uniform or camouflage to be worn by the team will be dictated by the situation, how they are employed, and area of operation. The following applies:

(a) Most often, the BDU and required equipment are worn.

(b) Urban-camouflaged uniforms can be made or purchased. Urban areas vary in color (mostly gray [cinder block]; red [brick]; white [marble]; black [granite]; or stucco, clay, or wood). Regardless of area color, uniforms should include angular-line patterns.

(c) When necessary, most woodland-patterned BDUs can be worn inside out as they are a gray or green-gray color underneath.

(d) Soft-soled shoes or boots are the preferred footwear in the urban environment.

(e) Civilian clothing can be worn (native/host country populace).

(f) Tradesmen's or construction worker's uniforms and accessories can be used.

Section IV
OBSERVATION

Throughout history, battles have been won and nations conquered based on an accurate accounting and description of the opposing forces strength, equipment, and location. As the sniper team performs the secondary mission of collecting and reporting battlefield intelligence, the commander can act, rather than react. The purpose of observation is to gather facts and to provide information for a specific intent. Observation uses all of the sniper team's five senses but often depends on sight and hearing. For example, the sniper team is issued a PIR or OIR for a specific mission. Information gathered by the sniper team is reported, analyzed, and processed into intelligence reports. The sniper team's success depends upon its powers of observation. In addition to the sniperscope, the sniper team has an observation telescope, binoculars,

night vision sight, and night vision goggles to enhance its ability to observe and engage targets. Team members must relieve each other when using this equipment since prolonged use can cause eye fatigue, greatly reducing the effectiveness of observation. Team members rotate periods of observation. During daylight, observation should be limited to 10 minutes followed by a 10-minute rest. When using night vision devices, the observer should limit his initial period of viewing to 10 minutes followed by a 10-minute rest. After several periods of viewing, he can extend the viewing period to 15 minutes and then a 15-minute rest.

4-14. HASTY AND DETAILED SEARCHES

While observing a target area, the sniper team alternately conducts two types of visual searches: hasty and detailed.

a. A hasty search is the first phase of observing a target area. The observer conducts a hasty search immediately after the team occupies the firing position. A hasty search consists of quick glances with binoculars at specific points, terrain features, or other areas that could conceal the enemy. The observer views the area closest to the team's position first since it could pose the most immediate threat. The observer then searches farther out until the entire target area has been searched. When the observer sees or suspects a target, he uses an M49 observation telescope for a detailed view of the target area. The telescope should not be used to search the area because its narrow field of view would take much longer to cover an area; plus, its stronger magnification can cause eye fatigue sooner than the binoculars.

b. After a hasty search has been completed, the observer then conducts a detailed search of the area. A detailed search is a closer, more thorough search of the target area, using 180-degree area or sweeps, 50 meters in depth, and overlapping each previous sweep at least 10 meters to ensure the entire area has been observed (Figure 4-16, page 4-30). Like the hasty search, the observer begins by searching the area closest to the sniper team position.

c. This cycle of a hasty search followed by a detailed search should be repeated three or four times. This allows the sniper team to become accustomed to the area; plus, the team will look closer at various points with each consecutive pass over the area. After the initial searches, the observer should view the area, using a combination of both hasty and detailed searches. While the observer conducts the initial searches of the area, the sniper should record prominent features, reference points, and distances on a range card. The team members should alternate the task of observing the area about every 30 minutes.

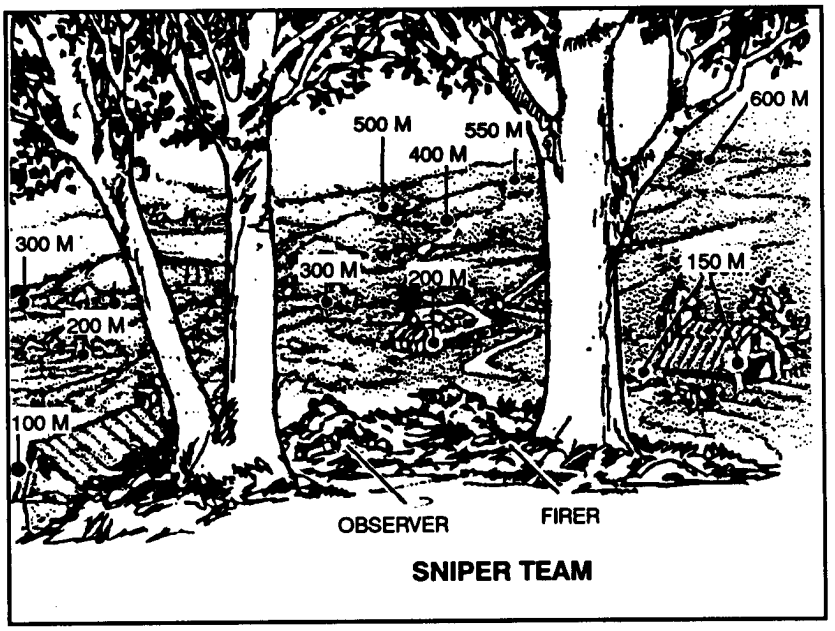

Figure 4-16. Detailed search.

4-15. ELEMENTS OF OBSERVATION

The four elements in the process of observation include awareness, understanding, recording, and response. Each of these elements may be accomplished as a separate processor accomplished at the same time.

a. **Awareness.** Awareness is being consciously attuned to a specific fact. A sniper team must always be aware of the surroundings and take nothing. for granted. The team also considers certain elements that influence and distort awareness.

(1) An object's size and shape can be misinterpreted if viewed incompletely or inaccurately.

(2) Distractions degrade the quality of observations.

(3) Active participation or degree of interest can diminish toward the event.

(4) Physical abilities (five senses) have limitations.

(5) Environmental changes affect accuracy.

(6) Imagination may cause possible exaggerations or inaccuracy.

b. **Understanding.** Understanding is derived from education, training, practice, and experience. It enhances the sniper team's

knowledge about what should be observed, broadens its ability to view and consider all aspects, and aids in its evaluation of information.

c. **Recording.** Recording is the ability to save and recall what was observed. Usually, the sniper team has mechanical aids, such as writing utensils, sniper data book, sketch kits, tape recorders, and cameras, to support the recording of events; however, the most accessible method is memory. The ability to record, retain, and recall depends on the team's mental capacity (and alertness) and ability to recognize what is essential to record. Added factors that affect recording include

(1) The amount of training and practice in observation.

(2) Skill gained through experience.

(3) Similarity of previous incidents.

(4) Time interval between observing and recording.

(5) The ability to understand or convey messages through oral or other communications.

d. **Response.** Response is the sniper team's action toward information. It may be as simple as recording events in a sniper data book, making a communications call, or firing a well-aimed shot.

NOTE: See Chapter 9 for discussion on the keep-in-memory (KIM) game.

4-16. TWILIGHT TECHNIQUES

Twilight induces a false sense of security, and the sniper team must be extremely cautious. The enemy is also prone to carelessness and more likely to expose himself at twilight. During twilight, snipers should be alert to OP locations for future reference. The M3A telescope reticle is still visible and capable of accurate fire 30 minutes before BMNT and 30 minutes after EENT.

4-17. NIGHT TECHNIQUES

Without night vision devices, the sniper team must depend upon eyesight. Regardless of night brightness, the human eye cannot function at night with daylight precision. For maximum effectiveness, the sniper team must apply the following principles of night vision:

a. **Night Adaptation.** The sniper team should wear sunglasses or red-lensed goggles in lighted areas before departing on a mission. After departure, the team makes a darkness adaptation and listening halt for 30 minutes.

b. **Off-Center Vision.** In dim light, an object under direct focus blurs, appears to change, and sometimes fades out entirely. However, when the

eyes are focused at different points, about 5 to 10 degrees away from an object, peripheral vision provides a true picture. This allows the light-sensitive portion of the eye, that not used during the day, to be used.

c. Factors Affecting Night Vision. The sniper team has control over the following night vision factors:

(1) Lack of vitamin A impairs night vision. However, an overdose of vitamin A will not improve night vision capability.

(2) Colds, fatigue, narcotics, headaches, smoking, and alcohol reduce night vision.

(3) Exposure to bright light degrades night vision and requires a readaption to darkness.

4-18. ILLUMINATION AIDS

The sniper team may occasionally have artificial illumination for observing and firing. Examples are artillery illumination fire, campfires, or lighted buildings.

a. Artillery Illumination Fire. The M301A2 illuminating cartridge provides 50,000 candlepower.

b. Campfires. Poorly disciplined enemy soldiers may use campfires, or fires may be created by battlefield damage. These opportunities give the sniper enough illumination for aiming.

c. Lighted Buildings. The sniper can use lighted buildings to eliminate occupants of the building or personnel in the immediate area of the light source.

Section V
TARGET DETECTION AND SELECTION

Recording the type and location of targets in the area helps the sniper team to determine engageable targets. The sniper team must select key targets that will do the greatest harm to the enemy in a given situation. It must also consider the use of indirect fire on targets. Some targets, due to their size or location, may be better engaged with indirect fire.

4-19. TARGET INDEXING

To index targets, the sniper team uses the prepared range card for a reference since it can greatly reduce the engagement time. When indexing a target to the sniper, the observer locates a prominent terrain feature near the target. He indicates this feature and any other information to the sniper to assist in finding the target. Information between team members varies with the situation. The observer may sound like an FO giving a call for fire to an FDC depending on the condition of the battlefield and the total number of possible targets from which to choose.

a. **Purpose.** The sniper team indexes targets for the following reasons:

(1) Sniper teams may occupy an FFP in advance of an attack to locate, index, and record target locations; and to decide on the priority of targets.

(2) Indiscriminate firing may alert more valuable and closer enemy targets.

(3) Engagement of a distant target may result in disclosure of the FFP to a closer enemy.

(4) A system is needed to remember location if several targets are sighted at the same time.

b. **Considerations.** The sniper team must consider the following factors when indexing targets:

(1) ***Exposure times.*** Moving targets may expose themselves for only a short time The sniper team must note the point of disappearance of each target, if possible, before engagement. By doing so, the team may be able to take several targets under fire in rapid succession.

(2) ***Number of targets.*** If several targets appear and disappear at the same time, the point of disappearance of each is hard to determine; therefore, sniper teams concentrate on the most important targets.

(3) ***Spacing/distance between targets.*** The greater the distance between targets, the harder it is to see their movement. In such cases, the team should locate and engage the nearest targets.

(4) ***Evacuation of aiming points.*** Targets that disappear behind good aiming points are easily recorded and remembered, targets with poor aiming points are easily lost. Assuming that two such targets are of equal value and danger, the team should engage the more dangerous aiming point target first.

c. **Determination of Location of Hidden Fires.** When using the *crack-thump method*, the team listens for the crack of the round and the thump of the weapon being fired. By using this method, the sniper can obtain both a direction and a distance.

(1) ***Distance to firer.*** *The* time difference between the crack and the thump can be converted into an approximate range. A one-second lapse between the two is about 600 yards with most calibers; a one-half-second lapse is about 300 yards.

(2) ***Location of firer.*** *By* observing in the direction of the thump and near the predetermined range, the sniper team has a good chance of seeing the enemy's muzzle flash or blast from subsequent shots.

(3) ***Limitations.***The crack-thump method has the following limitations

(a) Isolating the crack and thump is difficult when many shots are being fired.

(b) Mountainous areas, tall buildings, and so forth cause echoes and make this method ineffective.

d. **Shot-Hole Analysis.** Locating two or more shot holes in trees, walls, dummy heads, and so forth may make it possible to determine the direction of the shots. The team can use the dummy-head pencil method and triangulate on the enemy sniper's position. However, this method only works if all shots come from the same position.

4-20. TARGET SELECTION

Target selection may be forced upon the sniper team. A target moving rapidly may be lost while obtaining positive identification. The sniper team considers any enemy threatening its position as a high-value target. When selecting key targets, the team must consider the following factors:

a. **Threat to the Sniper Team.** The sniper team must consider the danger the target presents. This can be an immediate threat, such as an enemy element walking upon its position, or a future threat, such as enemy snipers or dog tracking teams.

b. **Probability of First-Round Hit.** The sniper team must determine the chances of hitting the target with the first shot by considering the following:

- Distance to the target.
- Direction and velocity of the wind.
- Visibility of the target area.
- Amount of the target that is exposed.
- Amount of time the target is exposed.
- Speed and direction of target movement.

c. **Certainty of Target's Identity.** The sniper team must be reasonably certain that the target it is considering is the key target.

d. **Target Effect on the Enemy.** The sniper team must consider what effect the elimination of the target will have on the enemy's fighting ability It must determine that the target is the one available target that will cause the greatest harm to the enemy.

e. **Enemy Reaction to Sniper Fire.** The sniper team must consider what the enemy will do once the shot has been fired. The team must be prepared for such actions as immediate suppression by indirect fires and enemy sweeps of the area.

f. **Effect on the Overall Mission.** The sniper team must consider how the engagement will affect the overall mission. The mission may be one of intelligence gathering for a certain period. Firing will not only alert

the enemy to a team's presence, but it may also terminate the mission if the team has to move from its position as a result of the engagement.

4-21. KEY TARGETS

Key personnel targets can be identified by actions or mannerisms, by positions within formations, by rank or insignias, and or by equipment being worn or carried. Key targets can also include weapon systems and equipment. Examples of key targets areas follows:

a. **Snipers.** Snipers are the number one target of a sniper team. The enemy sniper not only poses a threat to friendly forces, but he is also the natural enemy of the sniper. The fleeting nature of a sniper is reason enough to engage him because he may never be seen again.

b. **Dog Tracking Teams.** Dog tracking teams pose a great threat to sniper teams and other special teams that may be working in the area. It is hard to fool a trained dog. When engaging a dog tracking team, the sniper should engage the dog's handler first. This confuses the dog, and other team members may not be able to control it.

c. **Scouts.** Scouts are keen observers and provide valuable information about friendly units. This plus their ability to control indirect fires make them dangerous on the battlefield. Scouts must be eliminated.

d. **Officers.** Officers are another key target of the sniper team. Losing key officers in some forces is such a major disruption to the operation that forces may not be able to coordinate for hours.

e. **Noncommissioned Officers.** Losing NCOs not only affects the operation of a unit but also affects the morale of lower ranking personnel,

f. **Vehicle Commanders and Drivers.** Many vehicles are rendered useless without a commander or driver.

g. **Communications Personnel.** In some forces, only highly trained personnel know how to operate various types of radios. Eliminating these personnel can be a serious blow to the enemy's communication network.

h. **Weapon Crews.** Eliminating weapon crews reduces the amount of fire on friendly troops.

i. **Optics on Vehicles.** Personnel who are in closed vehicles are limited to viewing through optics. The sniper can blind a vehicle by damaging these optic systems.

j. **Communication and Radar Equipment.** The right shot in the right place can completely ruin a tactically valuable radar or communication system. Also, only highly trained personnel may attempt to repair these systems in place. Eliminating these personnel may impair the enemy's ability to perform field repair.

k. **Weapon Systems.** Many high-technology weapons, especially computer-guided systems, can be rendered useless by one well-placed round in the guidance controller of the system.

Section VI
RANGE ESTIMATION

A sniper team is required to accurately determine distance, to properly adjust elevation on the sniper weapon system, and to prepare topographical sketches or range cards. Because of this, the team has to be skilled in various range estimation techniques.

4-22. FACTORS AFFECTING RANGE ESTIMATION

Three factors affect range estimation: nature of the target, nature of the terrain, and light conditions.

a. **Nature of the Target.**

(1) An object of regular outline, such as a house, appears closer than one of irregular outline, such as a clump of trees.

(2) A target that contrasts with its background appears to be closer than it actually is.

(3) A partly exposed target appears more distant than it actually is.

b. **Nature of the Terrain.**

(1) As the observer's eye follows the contour of the terrain, he tends to overestimate distant targets.

(2) Observing over smooth terrain, such as sand, water, or snow, causes the observer to underestimate distant targets.

(3) Looking downhill, the target appears farther away.

(4) Looking uphill, the target appears closer.

c. **Light Conditions.**

(1) The more clearly a target can be seen, the closer it appears.

(2) When the sun is behind the observer, the target appears to be closer.

(3) When the sun is behind the target, the target is more difficult to see and appears to be farther away.

4-23. RANGE ESTIMATION METHODS

Sniper teams use range estimation methods to determine distance between their position and the target.

a. **Paper-Strip Method.** The paper-strip method (Figure 4-17) is useful when determining longer distances (1,000 meters plus). When using this method, the sniper places the edge of a strip of paper on the map and

ensures it is long enough to reach between the two points. Then he pencils in a tick mark on the paper at the team position and another at the distant location. He places the paper on the map's bar scale, located at the bottom center of the map, and aligns the left tick mark with the 0 on the scale. Then he reads to the right to the second mark and notes the corresponding distance represented between the two marks.

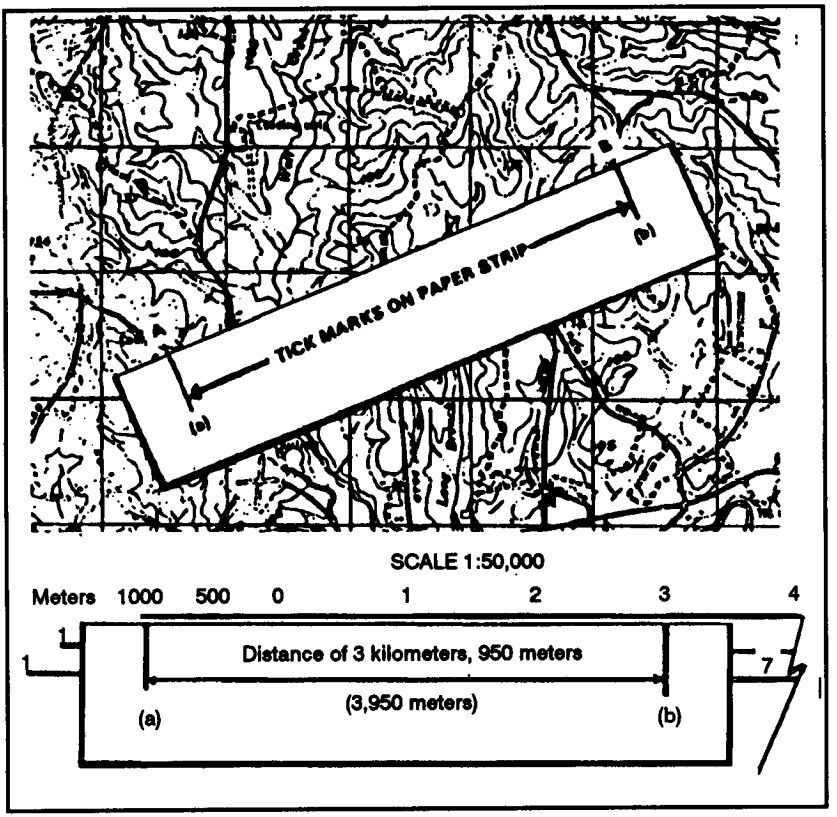

Figure 4-17. Paper-strip method.

b. **100-Meter-Unit-of-Measure Method.** To use this method (Figure 4-18, page 4-38), the sniper team must be able to visualize a distance of 100 meters on the ground. For ranges up to 500 meters, the team determines the number of 100-meter increments between the two objects it wishes to measure. Beyond 500 meters, it must select a point

halfway to the object and determine the number of 100-meter increments to the halfway point, then double it to find the range to the object.

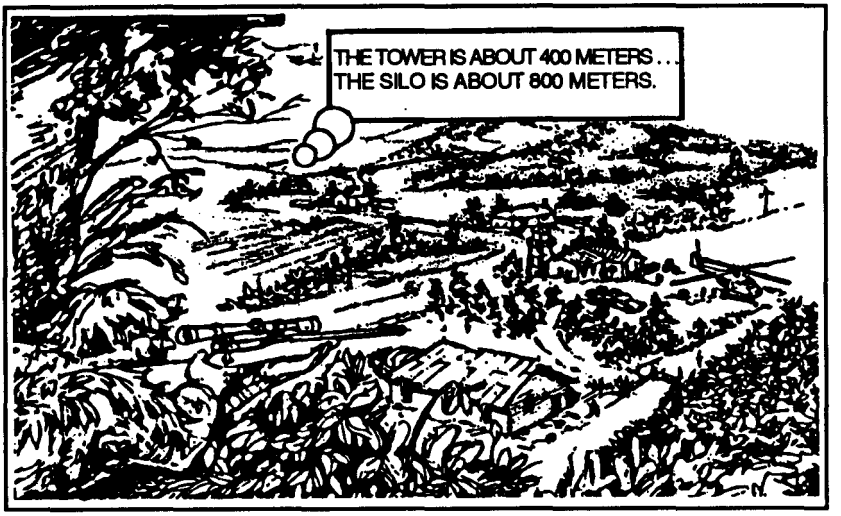

Figure 4-18. 100-meter-unit-of-measure method.

c. **Appearance-of-Object Method.** This method is a means of determining range by the size and other characteristic details of the object. To use the appearance-of-object method with any degree of accuracy, the sniper team must be familiar with the characteristic details of the objects as they appear at various ranges.

d. **Bracketing Method.** Using this method, the sniper team assumes that the target is no more than X meters but no less than Y meters away. An average of X and Y will be the estimate of the distance to the target.

e. **Range-Card Method.** The sniper team an also use a range card to quickly determine ranges throughout the target area. Once a target is seen, the team determines where it is located on the card and then reads the proper range to the target.

f. **Mil-Relation Formula.** The mil-relation formula is the preferred method of range estimation. This method uses a mil-scale reticle located in the M19 binoculars (Figure 4-19) or in the M3A sniperscope (Figure 4-20). The team must know the target size in inches or meters. Once the target size is known, the team then compares the target size to the mil-scale reticle and uses the following formula:

$$\frac{\text{Size of target in meters} \times 1{,}000}{\text{Size of object in mils}} = \text{Range to target in meters}$$

(To convert inches to meters, multiply the number of inches by .0254.)

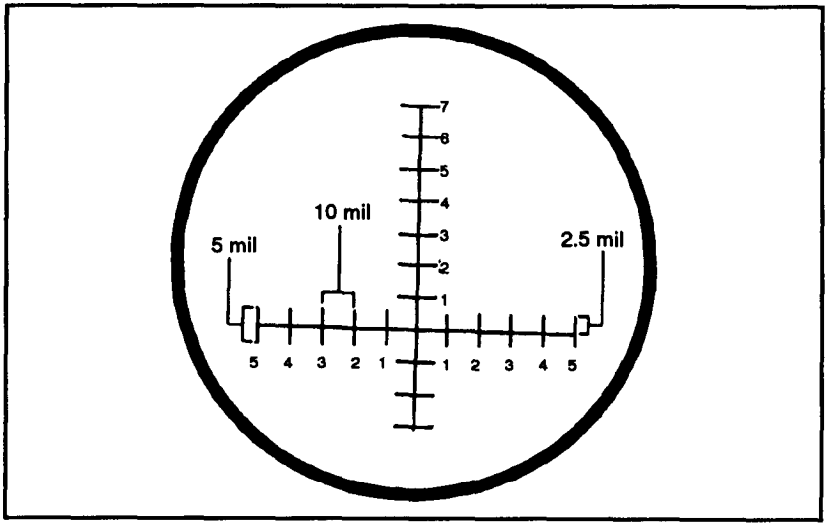

Figure 4-19. M19 mil-scale reticle.

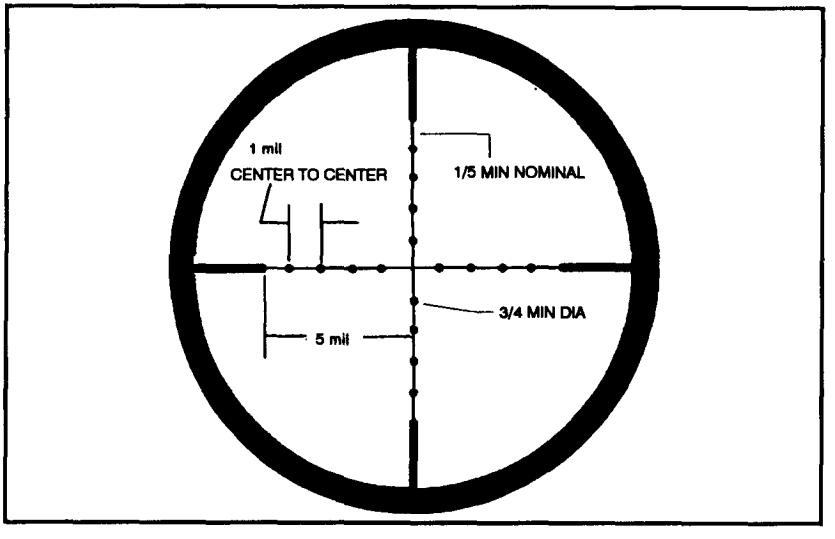

Figure 4-20. M3A mil-scale reticle.

g. **Combination Method.** In a combat environment, perfect conditions rarely exist. Therefore, only one method of range estimation may not be enough for the team's specific mission. Terrain with much dead space limits the accuracy of the 100-meter method. Poor visibility limits the use of the appearance-of-object method. However, by using a combination of two or more methods to determine an unknown range, an experienced sniper team should arrive at an estimated range close to the true range.

4-24. LASER RANGE FINDER

When the sniper team has access to a laser observation set, AN/GVS-5, the set should always be used. It can provide the sniper team range to a specific target with great accuracy. When aiming the laser at a specific target, the sniper should support it much the same as his weapon to ensure accuracy. If the target is too small, aiming the laser at a larger object near the target will suffice (that is, a building, vehicle, tree, or terrain feature.)

4-25. ESTIMATION GUIDELINES

If mirage is too heavy to distinguish the bottom of a target, it should be halved.

EXAMPLE

When the target is estimated to be 70 inches high, divide the height into one-half. Use the following mil-relation formula:

$$\frac{\text{35 inches} \times .0254 \times 1{,}000}{\text{Size of target in mils}} = \text{Range to target in meters}$$

By using this technique, estimate range to targets that are only partly visible. Such as:

The normal distance from the breastbone to the top of the head is 19 inches.

$$\frac{\text{19 inches} \times .0254 \times 1{,}000}{\text{Size of target in mils}} = \text{Range to target in meters}$$

OR

Normal height of the human head is 10 inches.

$$\frac{\text{10 inches} \times .0254 \times 1{,}000}{\text{Size of target in mils}} = \text{Range to target in meters}$$

This example may prove to be of specific use when facing an enemy entrenched in bunkers or in dense vegetation.

a. The sniper team should keep a sniper data book complete with measurements.

(1) ***Vehicles.***

- Height of road wheels.
- Vehicle dimensions.
- Length of main gun tubes on tanks.
- Lengths/sizes of different weapon systems.

(2) ***Average height of human targets in area of operation.***

(3) ***Urban environment.***

- Average size of doorways.
- Average size of windows.
- Average width of streets and lanes (average width of a paved road in the United States is 10 feet).
- Height of soda machines.

b. As the sniper team develops a sniper data book, all measurements are converted into constants and computed with different mil readings. An example of this is Table 4-1, which has already been computed for immediate use. This table should be incorporated into the sniper data book

TABLE FOR 6-FOOT MAN		
HEIGHT IN MILS	STANDING	SITTING/ KNEELING
1	2000	1000
1.5	1333	666
2	1000	500
2.5	800	400
3	666	333
3.5	571	286
4	500	250
4.5	444	222
5	400	200
5.5	364	182
6	333	167
6.5	308	154
7	286	143

TABLE FOR 5-FOOT 6-INCH MAN		
HEIGHT IN MILS	STANDING	SITTING/ KNEELING
1	1800	900
1.5	1200	600
2	900	450
2.5	750	375
3	600	300
3.5	514	257
4	450	225
4.5	400	200
5	360	180
5.5	327	164
6	300	150
6.5	277	139

Table 4-1. Range estimation table.

Section VII
INFORMATION RECORDS

The secondary mission of the sniper team is the collection and reporting of information. To accomplish this, the sniper team not only needs to be keen observers, but it also must accurately relay the information it has observed. To record this information, the team uses the sniper data book, which contains a range card, a military sketch, and an observation log.

4-26. RANGE CARD

The range card represents the target area drawn as seen from above with annotations indicating distances throughout the target area. Information is recorded on DA Form 5787-R (Sniper's Range Card) (Figure 4-21). (A blank copy of this form is located in the back of this publication for local reproduction.) The range card provides the sniper team with a quick-range reference and a means to record target locations, since it has preprinted range rings on it. These cards can be divided into sectors by using dashed lines. This provides the team members with a quick reference when locating targets-for example: "The intersection in sector A." A range card can be prepared on any paper the team has available. The sniper team position and distances to prominent objects and terrain features are drawn on the card. There is not a set maximum range on the range card, because the team may also label any indirect fire targets on its range card. Information contained on range cards includes:

a. Name, rank, SSN, and unit.

b. Method of obtaining range.

c. Left and right limits of engageable area.

d. Major terrain features, roads, and structures.

e. Ranges, elevation, and windage needed at various distances.

f. Distances throughout the area.

g. Temperature and wind. (Cross out previous entry whenever temperature, wind direction, or wind velocity changes.)

h. Target reference points (azimuth, distance, and description).

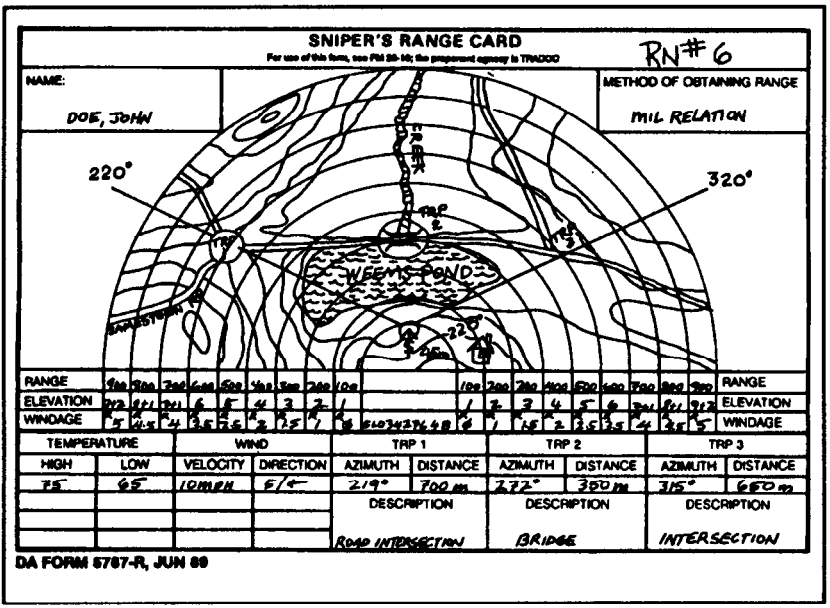

Figure 4-21. Example of completed DA Form 5787-R.

4-27. MILITARY SKETCH

DA Form 5788-R (Military Sketch) is used to record information about a general area, terrain features, or man-made structures that are not shown on a map. Military sketches provide intelligence sections a detailed, on-the-ground view of an area or object that is otherwise unobtainable. These sketches not only let the viewer see the area in different perspectives but also provide detail such as type of fences, number of telephone wires, present depth of streams, and so forth. There are two types of military sketches as stated in FM 21-26 panoramic sketches and topographic sketches. Information is recorded on DA Form 5788-R. (A blank copy of this form is located in the back of this publication for local reproduction.)

a. **Panoramic.** A panoramic sketch (Figure 4-22, page 4-44) is a representation of an area or object drawn to scale as seen from the sniper team's perspective. It shows details about a specific area or a man-made structure. Information considered in a panoramic sketch includes the following:

(1) Name, rank, SSN, and unit.

(2) Remarks section (two).

(3) Sketch name.
(4) Grid coordinates of sniper team's position.
(5) Weather.
(6) Magnetic azimuth through the center of sketch.
(7) Sketch number and scale of sketch.
(8) Date and time.

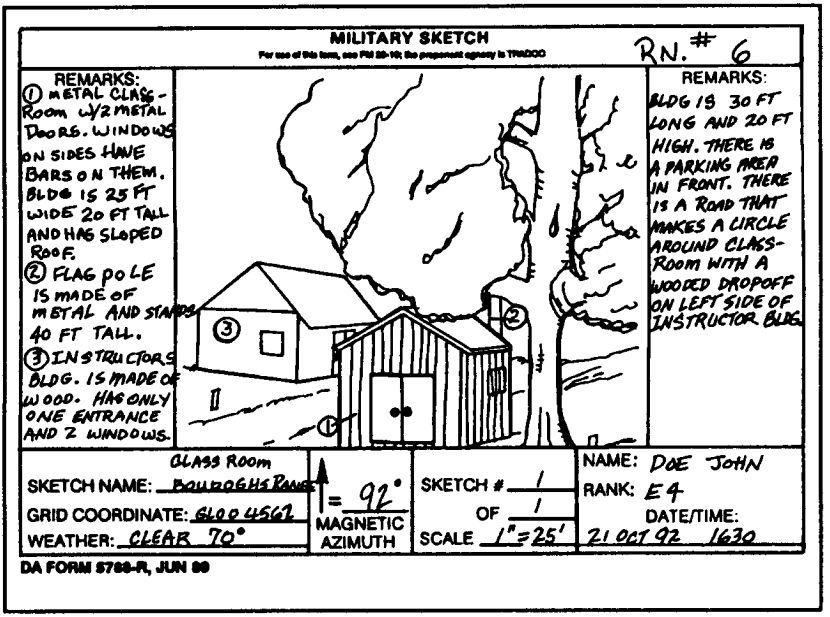

Figure 4-22. Example of completed DA Form 5788-R for panoramic sketch.

b. **Topographic Sketch.** A topographic sketch (Figure 4-23) is a topographic representation of an area drawn to scale as seen from above. It provides the sniper team with a method for describing large areas while showing reliable distance and azimuths between major features. This type of sketch is useful in describing road systems, flow of streams/rivers, or locations of natural and man-made obstacles. The field sketch can also be used as an overlay on the range card. Information contained in a field sketch includes the following

(1) Grid coordinates of the sniper team's position.
(2) Name, rank, SSN, and unit.
(3) Remarks.
(4) Sketch name.

(5) Grid coordinates.
(6) Weather.
(7) Magnetic azimuth.
(8) Sketch number and scale.
(9) Date and time.

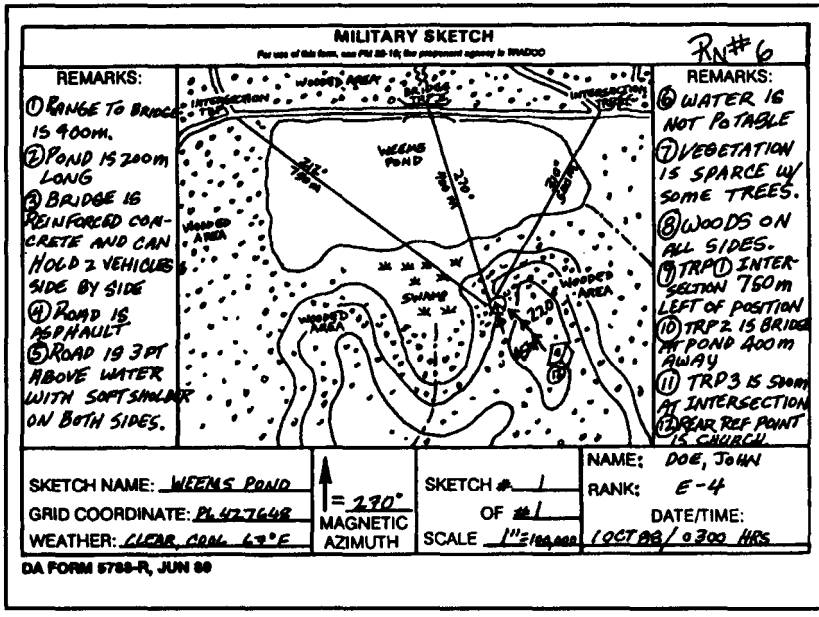

Figure 4-23. Example of completed DA Form 5788-R for topographic sketch.

c. **Guidelines for Drawing Sketches.** As with all drawings, artistic skill is an asset, but satisfactory sketches can be drawn by anyone with practice. The following are guidelines when drawing sketches:

(1) ***Work from the whole to the part.*** First determine the boundaries of the sketch. Then sketch the larger objects such as hills, mountains, or outlines of large buildings. After drawing the large objects in the sketch, start drawing the smaller details.

(2) ***Use common shapes to show common objects.*** Do not sketch each individual tree, hedgerow, or wood line exactly. Use common shapes to show these types of objects. Do not concentrate on the fine details unless they are of tactical importance.

(3) ***Draw in perspective; use vanishing points.*** Try to draw sketches in perspective. To do this, recognize the vanishing points of the area to

be sketched. Parallel lines on the ground that are horizontal vanish at a point on the horizon (Figure 4-24). Parallel lines on the ground that slope downward away from the observer vanish at a point below the horizon. Parallel lines on the ground that slope upward, away from the observer vanish at a point above the horizon. Parallel lines that recede to the right vanish on the right and those that recede to the left vanish on the left (Figure 4-24).

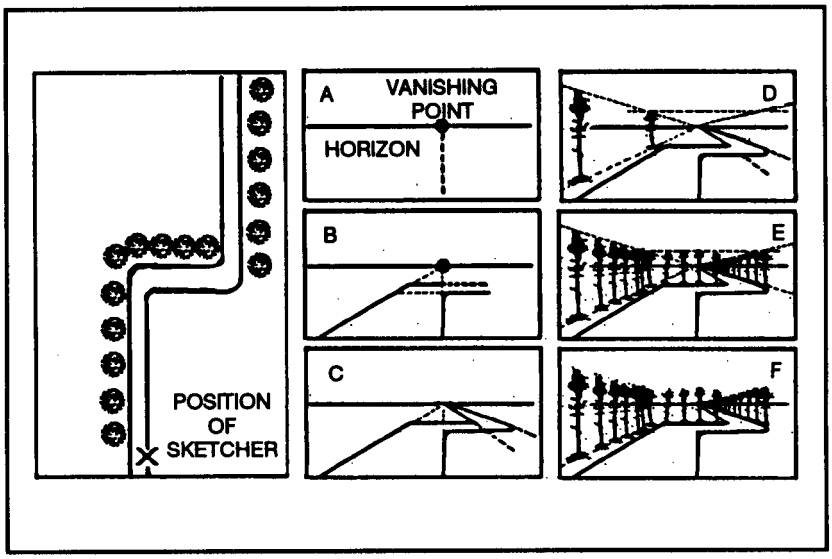

Figure 4-24. Vanishing points.

4-28. SNIPER DATA BOOK

The sniper data book is a written, chronological record of all activities and events that take place in a sniper team's area. It is used with military sketches and range cards; this combination not only gives commanders and intelligence personnel information about the appearance of the area, but it also provides an accurate record of the activity in the area. Information is recorded on DA Form 5786-R (Sniper's Observation Log) (Figure 4-25). (A blank copy of this form is in the back of this publication for local reproduction.) Information in the observation log includes: (Completion of this form is self-explanatory.)

a. Sheet number and number of total sheets.

b. Observer's name, rank, SSN, and unit.

c. Date and time of observation and visibility.

d. Grid coordinates of the sniper team's position.
e. Series number, time, and grid coordinates of each event.
f. The event that has taken place.
g. Action taken and remarks.

SNIPER'S OBSERVATION LOG

For use of this form, see FM 23-10; the proponent agency is TRADOC

SHEET____OF____SHEETS

ORIGINATOR:	DATE/TIME:	LOCATION:
DOE, JOHN R	1 OCT 92	GL03427648

SERIAL	TIME	GRID COORDINATE	EVENT	ACTIONS OR REMARKS
1	0300	GL03427648	OCCUPIED POSITION	OBSERVATION
2	0340	SAME	PFC JUDSON RESTED	NONE
3	0430	SAME	PFC JUDSON ASSUMED OBSERVATION	I RESTED
4	0530	SAME	BOTH OF US AWAKE	NONE
5	0630	SAME	PREPARED RANGE CARD AND TOPOGRAPHIC SKETCH	LIGHT ENOUGH TO SEE
6	0655	GL034276428	BRM CROSSED BRIDGE GOING SOUTH	OBSERVED
7	0700	GL034276428	PREPARED SKETCH OF BRIDGE GL03117631	COMPLETE
8	0900	GL034276428	MISSION COMPLETED -RETURNED CP	END OF MISSION

DA FORM 5786-R, JUN 88

Figure 4-25. Example of completed DA Form 5786-R.