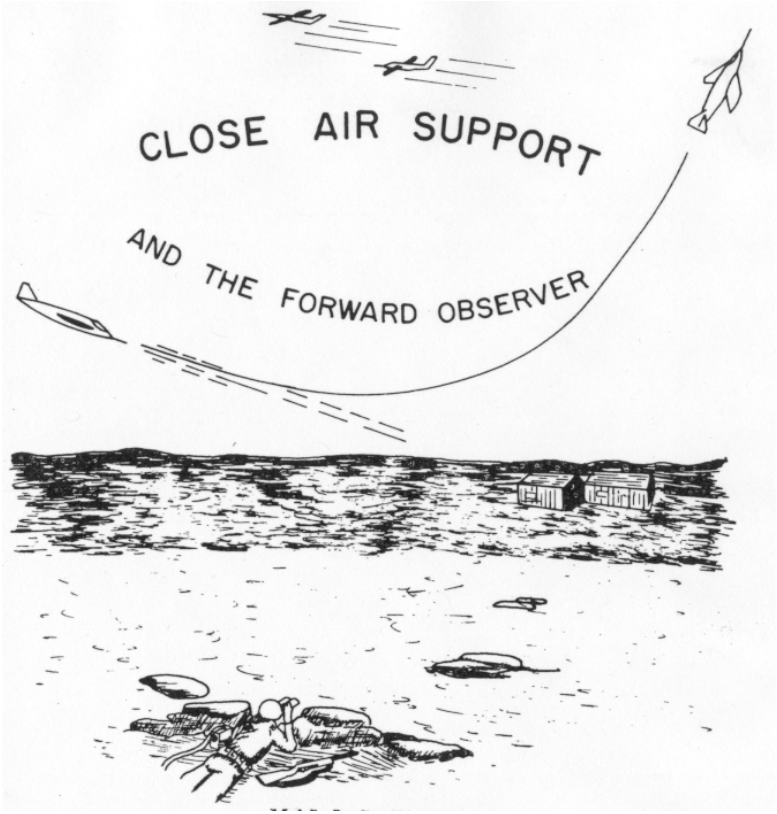

MAJ J. Stallings
Tactics/Combined Arms Department
USAAMS

The artilleryman is expected by his infantry and armor counterpart to be a knowledgeable and competent coordinator of fire support. He must be prepared to live up to this expectation.

The forward observer has the vital job of providing coordination between target acquisition and the final accurate adjustment of artillery fires on the target.

In this capacity, he is there on the spot in close contact with the enemy. He is well-trained, and his ability to obtain deadly accurate artillery fires for the company commander is unquestionable.

What about the forward observer's ability to coordinate another fire support means—close air support? Specifically, what about his ability to provide the coordination necessary between the ground force in contact and the tactical fighter aircraft performing the close air support mission? This question brings up other questions: What are the circumstances that would require the FO to provide this coordination? How would he provide it?

First, let us discuss the background of this aspect of fire support and some of the terms involved.

Close air support is air action against hostile targets which are in close proximity to friendly forces and which require detailed integration of each air mission with the fire and movement of the forces. Close air support is furnished by tactical fighter aircraft that deliver such fire support as gunfire, rockets, bombs, and incendijels (napalm) which, due to their deadly nature, require close control between the ground force and the pilot, if delivered close to friendly troops. This control is the normal duty of the forward air controller (FAC) assigned to the tactical air control party (TACP) with each maneuver battalion. The tactical air control party is an Air Force organization attached to each Army division, brigade, battalion, and cavalry squadron for the purpose of advising unit commanders on the use and control of tactical air support furnished to the Army forces. It is through the TACP radio facilities that immediate requests for tactical air support are transmitted to the direct air support center (DASC) which then scrambles aircraft to execute the approved requests (fig 1). The FAC assigned to the TACP at the maneuver battalion is a tactical fighter pilot (officer). From a forward ground or airborne position, he can control aircraft engaged in close air support to ground troops. The FAC is responsible for troop safety during the conduct of the mission as well as for destruction of the target.

Current FAC procedures, jointly approved by the Air Force and the Army, presuppose an orderly battle area, relatively identifiable enemy positions, and an adequate number of tactical air control parties. It is evident that in other warfare environments these assumptions may not remain valid. In an unconventional warfare environment there usually is no identifiable battleline. Positive identification of the enemy is difficult because of the enemy's use of concealment and because he frequently cannot be distinguished from the civilian populace or friendly paramilitary forces. Therefore, in unconventional warfare, the entire countryside may be potentially hostile. Numerous ground force units must probe this hostile environment in order to close with and destroy the enemy. For this reason, friendly ground forces usually operate not as complete organizational units but as subdivided elements of such units. For example, in some situations, a single battalion may be moving as a group of 10 or 20 widely separated and independent patrols. Under such conditions, it will not always be possible to provide a qualified Air Force FAC for each small unit. Similarly, in conventional warfare, Air Force FAC's may not be available to all units; therefore, the use of non-Air Force agencies may be necessary in either type of warfare.

Who then would be the logical person to take over this function in an emergency where close air support is needed and the forward air controller is not, or cannot be, available to control the mission? The most readily available indivdual and probably one of the best qualified individuals is the artillery forward observer. He is already present with the engaged company, and trained to adjust artillery fires. Acting as the forward air controller, he would be working with close support aircraft

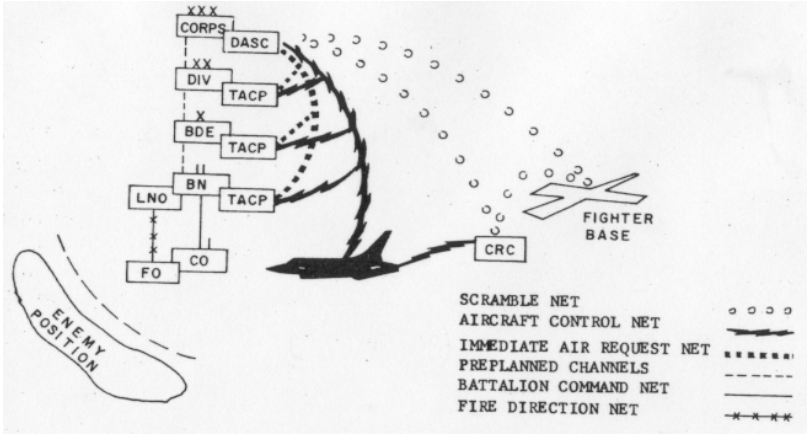

Figure 1. Close air support flow chart.

rather than with artillery. The forward observer is not as qualified to assist attacking aircraft as the trained fighter pilot working as the forward air controller; however, with an understanding of some of the basics involved, he would certainly have a good chance of success in an emergency situation where close air support is needed and available.

The use of the forward observer for assisting tactical aircraft in the absence of the forward air controller was proposed by Tactical Air Command in January 1965. It was Tactical Air Command's direction that no requirement for close air support by the Air Force go unsatisfied because of the absence of a qualified forward air controller. In such circumstances, the following procedures would be followed:

(1) When a close air support mission has been requested, approved, and scheduled by the direct air support center and it is known that no FAC will be available to direct the attack, an artillery or mortar forward observer may mark or otherwise identify the target for the attacking aircraft. This will require prior notification of the affected FO so that he can position himself for the impending mission. The fighter pilots should receive an air briefing on the target from either the DASC or a TACP and should be briefed to contact the FO for further assistance if the FO has access to ground-air communications. The FO, when contacted by the fighter pilots, should give the target description and coordinates and information as to the proximity of friendly forces as necessary. The FO will either point out the target through map or terrain references or will cause the target to be marked by use of appropriate artillery or mortar projectiles.

(2) If the FO has no ground-air communications, he should establish contact with the appropriate TACP via ground communications in order that the TACP may relay his information to the pilots.

It must be understood that appropriate ground force commanders must assume responsibility for troop safety when airstrikes are delivered in the absence of an Air Force forward air controller.

The U. S. Army Special Warfare School and the U. S. Air Force Special Air Warfare School recognized the importance of training individuals to assist aircraft in making close air support strikes because of the remoteness of special forces operations. These schools provide this training and have given the title of "forward air guide" to an individual trained in these procedures. By definition, the forward air guide (FAG) is a trained Army observer (usually an artillery forward observer) operating with ground or air operational units and who, in the absence of a forward air controller, assists aircraft in delivering ordnance on a target while the aircraft are engaged in close air support of ground troops.

What should the forward observer know if he is to act as a forward air guide? He is not expected to be as highly trained and knowledgeable as the forward air controller; however, he should be familiar with—

(1) Communications to be used.

(2) Target identification and methods of marking the target.

(3) Mission briefing and guidance techniques.

Before tactical aircraft are used for close air support there must be a need for the mission and a request made. Let us follow a situation and see how it might work. Suppose that Bravo Company, as part of a battalion on a search-and-destroy operation, makes contact with the enemy. During the course of the battle, artillery fires are called in by the forward observer, but the company commander determines that additional fires are needed on a certain portion of the enemy position. The company commander makes a request for close air support to the battalion on the battalion command net, or if necessary, the artillery FO could send the request to the artillery liaison officer at the battalion over his fire direction net (fig 1).

At the battalion, the request is approved and is sent by the TACP to the DASC as an immediate request. Data required in close air support requests must include, as a minimum, the following:

(1) Target description.

(2) Target location.

(3) Time on target (desired TOT and latest acceptable TOT).

(4) Results desired (destroy, neutralize, or harass).

The DASC receives the request and, if the request is approved by the Army staff at this level, the DASC will scramble the fighters to the target area. Let us assume for our situation that the FAC for the battalion is already engaged in directing fighter aircraft on a target for Alpha Company of the battalion and cannot assist Bravo Company. Also, there is not another FAC in the immediate area. Therefore, the forward observer will be required to provide coordination between the aircraft and the ground unit. How will he do this?

The primary means of communication between the FO and the strike aircraft is direct voice radio. The radio which most probably will be be available and which is mutually compatible is the UHF radio used in Army aircraft. If an Army aircraft is not immediately available to the FO, it may be necessary for him to relay strike guidance information to the strike pilot through other airborne units, through ground units, or through both. Radios which may be used for relaying such information are the AM(UHF)VRC-24 radios employed at the maneuver battalion fire support coordination center (FSCC) and the radios of the Air Force TACP located with the maneuver battalion. If time permits, the FO should try to obtain one of these radios to use at his location so that he can communicate directly with the strike aircraft.

Fighter aircraft establish radio communications with the FO on predetermined tactical frequencies. The strike flight commander affirms that he is in the orbit vicinity by reference to grid coordinates or by reference to the orbit point, using a predetermined code word. He may also require an authentication from the FO. The use of an authentication system in any hostile environment may be mandatory to prevent strike aircraft from responding to a fraudulent transmission. The authentication system used may be a published, worldwide system or a locally established system. The possibility of enemy use of radio to disrupt operations should always be considered, since the enemy might be able to net with the aircraft and thereby direct strikes against friendly troops or positions.

Targets may be identified by verbal description over the communications network, by visual means, or by a combination of these two methods. To assist the attack pilot in planning his delivery the FO should give target identification data to the pilot before his departure from the orbit point. If there is insufficient time or if all the required information is not available, the pilot should be given as much of the available information as possible.

The target description should include the following information:

(1) Type of target (personnel, structures, material, boats, vehicles, etc.).

(2) Direction of movement if the target is not stationary.

(3) Whether the target is dug-in, camouflaged, or exposed.

(4) Whether the target is a point or area target. If it is an area target, its configuration should be given.

(5) What the target is doing (attacking, withdrawing, dispersing).

Additional pertinent information may include any or all of the following:

(1) The locations of known, suspected or anticipated areas of enemy small-arms or antiaircraft fire, the heaviest concentration of such fires, and the types of weapons being employed.

(2) A descripition of obstacles such as powerlines, towers, trees, and hills to include the height of such obstacles.

(3) Pertinent weather information to include the estimated direction and velocity of surface winds (e.g., the wind is **from** 030° at 10 knots), an estimate of the visibility distance (in miles), an estimate of cloud height (e.g., the top of the hill is in the cloud), a description of rainfall (light or heavy), and any other available information concerning existing weather conditions.

Ground forces will sometimes be supported by airborne FAC's. The FAC may accompany strike aircraft or precede strike aircraft and call them in on a target as required. The airborne FAC and the FO are complementary. Each has certain advantages in locating, observing, and marking enemy (or friendly) positions, depending on the terrain or concealment of such positions. The FO relays through the airborne FAC the target information described above, and, when advantageous, the airborne FAC can control the strike.

During daylight hours any of the following methods which are appropriate may be used to mark or locate targets and friendly positions for close air support strikes.

(1) Identification panels can be used by all ground units. Strike aircraft may use these panels as reference points for locating the target. The use and color codes of such panels must be made clear to the pilot to avoid confusion and misdirected ordnance delivery. The use of the panel method for marking targets is explained in detail in STANAG 2114.

(2) Colored smoke fired from artillery weapons, mortars, or recoilless rifles can be used as reference points from which the strike aircraft can locate targets. When pyrotechnics or support fires are used to mark targets, the FO must coordinate closely with the strike pilots so that the aircraft will avoid the trajectory of the marking ordnance and be in a proper position to observe the burst of fire.

(3) White phosphorous can be used in the same manner as smoke for marking targets.

(4) Some other means that can be used for marking friendly positions as reference points include signaling mirrors, smoke grenades, flare guns, rocket/parachute flares, rifle grenade flares, colored balloons (floating over foliage), and signal fires.

(5) Prominent landmarks and terrain features can also be used as reference points; the direction and distance from such features to the target are given to the strike aircraft.

(6) When conditions of light permit, tracer ammunition may be fired to establish reference points or to pinpoint the target. For example, a point may be marked by the intersection of tracers.

(7) A pilot may also locate targets by map coordinates, since the pilot's map should have the same grid system as the map

used by the FO, even though the scales of the maps may differ. Normally, this method is most appropriate for locating area targets.

(8) As a last resort, the pilot may be guided on a dry run (simulated attack) of the target to confirm the location and furnish a basis for adjustment by the FO onto the exact target location.

Regardless of the method used for locating the target, the FO should immediately inform the strike aircraft of the accuracy of the drop after the first ordnance delivery pass, so that subsequent ordnance delivery passes may be concentrated at the point of the first pass or adjusted as necessary to insure target destruction.

During periods of darkness, the target may be pointed out to the close support aircraft by any of the visual means described above which are appropriate or by any of the following methods:

(1) Lighted arrows can be used to point out the direction of the enemy forces.

(2) Burning areas of incendijel (napalm) or other substances can be used as reference points from which the strike aircraft can be told the direction and distance to the target.

(4) The target area can be lighted by flares, searchlights, or small fires.

Flare aircraft may be used to illuminate enemy positions so that strike aircraft can attack and so that ground forces can maintain visual contact with the enemy. This type of air support can be especially effective in the defense of remote installations. The FO can guide the flare aircraft in positioning the flares in addition to guiding the strike aircraft in the close support attack.

Strike aircraft have a flare-dropping capability. For night operations, these aircraft are usually equipped with flares so that they can provide target illumination on a limited basis.

As a rule, no two strikes are conducted in exactly the same manner. The FO's initial requirement is to make as complete an analysis of the tactical situation as possible; he then must pass a descriptive picture of the situation to the strike flight supporting him. The success of the mission will depend on the degree of coordination attained between the FO and the pilot and on the good judgment exercised by the FO and the pilot.

The specific items of information to be provided the strike pilot by the FO are as follows:

(1) Target description and location (give target marking method, if used; mark your location only if necessary to establish a reference point from which target location can be identified for the pilot).

(2) Friendly location and marking, if necessary for safety.

(3) Terrain (type of terrain and hazards to flight, such as hills, box canyons, high trees).

(4) Enemy ground-to-air fire (small arms, flak).

(5) Alternate frequencies to use in event of lost radio contact.

(6) Target and friendly troop separation distance.

(7) Time to attack (ASAP, 5 minutes, NLT, etc.).

The pilot must have this information to obtain the maximum effect from delivered ordnance and to insure the safety of aircrews and friendly ground personnel.

In transmitting this information to the pilot, the FO must consider several points. First, the FO must consider that the pilot does not have the FO's view of the terrain. A 10-foot rise in the terrain looks flat from the air; therefore, such statements as "the other side of the hill" may mean nothing to the pilot. To the pilot "the tallest white tree in the bend of the river" looks like all other trees in the bend of the river. However, a statement such as "200 meters north of the red smoke" contains a means of measurement, has value, and can be understood by the pilot as can "the ditch east of the north-south road" or "the south edge of the canal, in the water."

Secondly the FO must consider that the enemy, when he is hidden, is extremely difficult to spot from the air. A good method that can be used for pointing the pilot's attention in the right direction to see the target is the clock method. In this method various points of the aircraft represent positions of the hands of a clock with the nose of the aircraft representing the 12 o'clock position (fig 2.) The 11 o'clock position is 30° to the left of the aircraft nose; 3 o'clock position is 90° to the right of the nose or directly off the right wing. If the pilot receives the message HE IS IN YOUR 2 O'CLOCK POSITION, the pilot should look to the right and forward of the wing. The 12 o'clock or 6 o'clock positions mean that the pilot cannot see the target well and that he may need to turn his aircraft to see targets that were under these positions.

If facilities are available, radio is the best means for transmitting airstrike guidance information to the strike pilot. The pilot, hears and comprehends best those messages transmitted in terminology to which he is accustomed and in a sequence which he anticipates. For this reason, the use of radio transmission techniques described here will increase the probability of mission success.

When making radio contact with the strike aircraft, the originator (FO) uses the pilot's call sign to initiate the call, then identifies himself. After he completes this callup procedure, the FO transmits the message to the pilot. To insure that the pilot understands his message, the FO should make the message as brief and comprehensive as possible. In transmitting the message, the FO must speak slowly and clearly. In the excitement of combat he may have a tendency to speak rapidly and at great length, making it difficult for the pilot to hear and comprehend

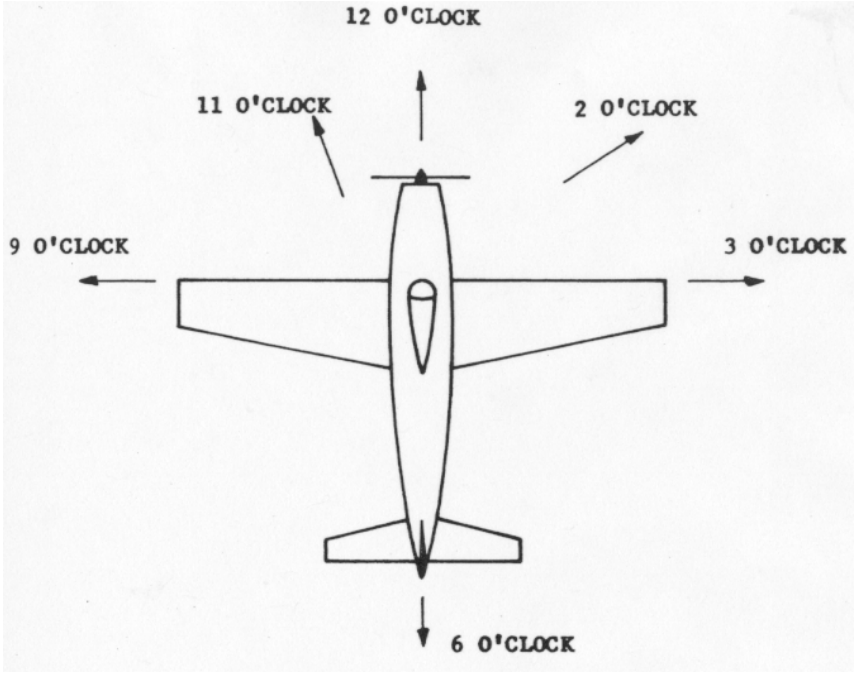

Figure 2. Clock system of direction.

the message. For the situation illustrated in figure 3, the appropriate message to be transmitted by the FO is as follows:

> 501 LEADER, THIS IS LITTLE JOHN 31, I HAVE A MISSION BRIEFING FOR YOU, OVER.
> ROGER, LITTLE JOHN, SEND YOUR BRIEFING, OVER.
> 501 LEADER, WE ARE PINNED DOWN 100 METERS NORTH OF AN ENEMY POSITION ON A CANAL BANK. THE ENEMY IS DUG IN ALONG A TREE LINE SOUTH OF THE CANAL, OVER.

If too many items of information are included in a transmission, the pilot will not be able to readily comprehend all of the information and will be forced to ask for retransmission. As a general rule, no more than two items of information should be given in a single transmission.

The discussion just presented gives some of the more important details that the forward observer must know to be a qualified forward air guide in an emergency situation. The Artillery School provides a reference note on the forward air guide to each of its resident students.

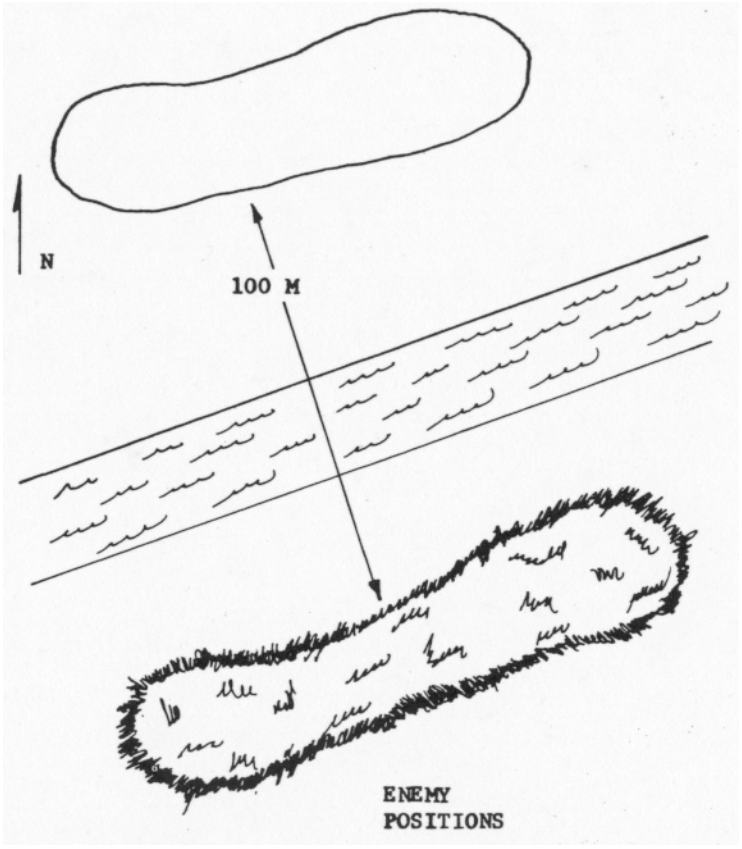

Figure 3. Situation requiring air support.

This reference note gives many more details with examples on this subject.

Every forward observer in the field today, especially those in Vietnam, must be ready to coordinate close air support for the company. This will become more important as ground operations become more dispersed with numerous and simultaneous actions.

When friendly lives are at stake, the forward observer may influence the outcome of events by having this limited but essential bit of knowledge.

Why not the forward observer?
Why not you?