

Rivers have never been a handicap to the side with the upper hand in war. Really, it is rather amazing that after all these centuries of disproof, we still talk and think of them as obstacles. Basically, when prehistoric man invented the boat, rivers ceased to be obstacles. One can argue that, intrinsically, they became just the opposite. From the time that Alexander made his classic crossing of the Hydaspes River in India in 326 BC until the mighty Rhine was conquered in 1945, the great majority of assault river crossings have been successful.

Sure, there have been failures, and these have been adequately documented. The failure at the Rapido in 1944 provides an excellent example of how not to do it! Why, therefore, have river crossing attacks been almost infallibly successful?

First, as a commander, you never attack unless you

fancy your chances. That is, unless the odds are in your favor. When you have to put your troops into the attack across a river, you are even less inclined to gamble.

Second, often a river crossing attack can be foretold and foreseen weeks in advance so that planning, preparation, and even rehearsal can be done almost at leisure.

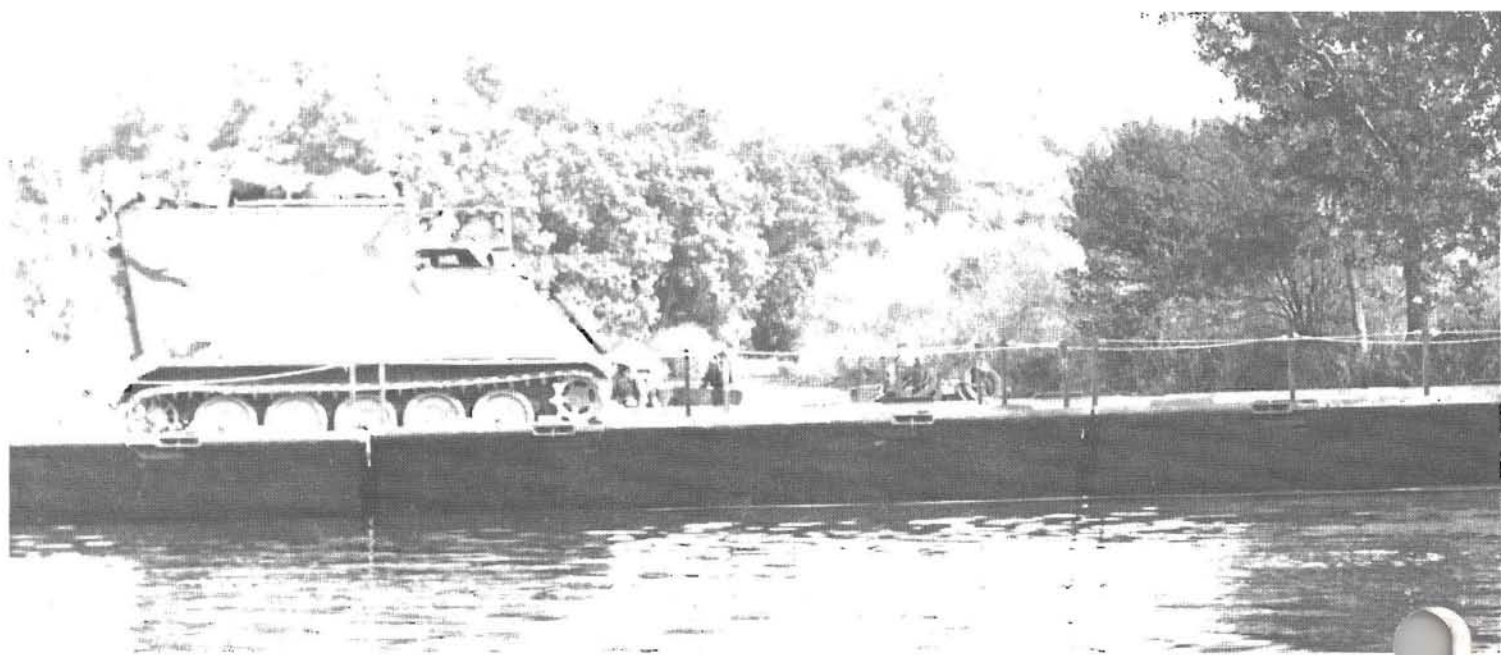
Third, when an advancing force reaches a river, it can pause to mount its attack (if a hasty crossing is not feasible) because the enemy is unlikely to thrust across a river from a defensive posture. The attacker also has the advantage of knowing how long the pause will be.

Lastly, the presence of a river seems to induce a commander to plan and organize his attack more carefully and in more detail. He is also likely to pay more heed to his engineer advisor than he does ordinarily. It is this subject that I wish to address.

## The Realities of River Crossings

*The lessons which come through from all successful assault river crossings is the attention to detail and the critical importance of engineers*

by MAJ Douglas J. George, RAE



*M577 Command Vehicle crosses ribbon bridge*

The recent publication of FM 90-13, River Crossing Operations, and the excellent article "Crossing the Main River" by Lieutenant Colonel Dennis K. Culp (Military Review, February 1980) suggest that it is time to review our doctrine. The quality of engineer advice is so critical in a river crossing operation that we must fully comprehend doctrine and its limitations. We might even try to improve it!

## PLANNING—THE CRITICAL PART

If a deliberate crossing is envisaged, the division selected to do it should be pulled from the line to prepare for it. One could argue that this will not be possible in the next war, which is likely to be a fluid, mobile, and lethal affair. I would suggest that for any guarantee of success, the assaulting division will require time to prepare, especially if the selected division has been fighting defensively. As a bare minimum, it will require some reconstitution.

Most of the assets required for the division to deliberately cross a river will be provided by Corps. The only divisional engineer asset which will be involved in the rafting and bridging phases will be the bridge company of the divisional engineer battalion.

Corps Military Police (MP) assets will undertake traffic control tasks. If possible, Corps elements will provide Air Defense Artillery (ADA) protection and ground security. The logical deduction from this is that planning for support in the Crossing Areas (CAs) should be done by the headquarters which will control it. In essence, Corps elements do the planning for all aspects

of a river crossing except the assault phase.

What sort of engineer elements will be provided for the division? Optimists would like to see a group headquarters to command all engineer assets. If a group headquarters is not available, a battalion headquarters is required. The selected battalion headquarters should be well-practiced in the planning and conduct of river crossing operations. Headquarters and Headquarters Detachments (HHDs) such as those which command the 559th and 565th Engineer Battalions, are the most logical choices because of their continuous intimate involvement in river crossings. The only shortcoming with this organization is that an HHD has a restricted and limited capacity for command and control. If these detachments were transformed into complete Headquarters and Headquarters Companies (HHCs), the capacity to plan, command and control river crossings from an engineer standpoint will be readily available.

The incoming engineer headquarters, called the Crossing Force Engineer (CFE) and staff, would undertake all engineer planning for the division crossing. The CFE's point of contact initially will be the Assault Division Engineer (ADE). The CFE will concentrate on the crossing area and the divisional engineer battalion will concentrate on supporting the assault battalions in the attack.

The primary reference for the engineer planning process is Appendix E of FM 90-13. It does have some shortcomings, the primary ones being:

- It takes no account of the maneuver commander's desire to cross his units organized for the battle.

- It provides an optimistic "operations research" type approach to determining how long it will take to cross.

- It suggests that amphibians in Division Troops, Division Artillery, and Division Support Command (DIS-COM) will swim, even when rafts and bridges have been established.

Appendix E to FM 90-13 should be revised to reflect live constraints. The planning methodology is fine but it's a bit like a computer—you must feed in the correct input.

## THE ASSAULT

Greater emphasis should be placed on the initial necessity to assault in pneumatic boats. Although swimming of amphibious vehicles is a more desirable method of assaulting, I suggest that it will rarely be possible. The Armored Personnel Carrier's (APC's) ability to exit from a river is, at best, very limited. Exit bank preparation will be required and will normally be achieved by troops crossing in pneumatic boats and working with hand tools. The first heavy vehicle crossed should be a bulldozer or CEV to further prepare the exit banks.

Another aspect of the assault which should receive



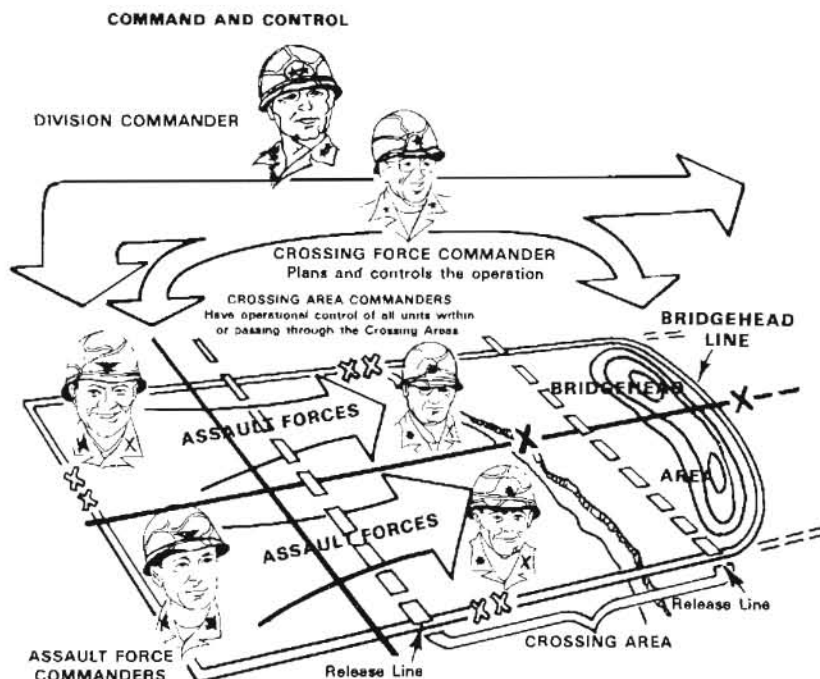
greater emphasis is the seizure of the far bank using vertical envelopment. River crossings require at least an air parity situation. Air superiority can be guaranteed for specific periods and this will be necessary for successful air assault. The time saved in securing the far bank will allow rafts and bridges to be constructed much earlier than normal.

To raft or bridge is the question? Doctrine stresses the classic approach to crossing rivers; namely assaulting, then rafting, and then bridging. However, the ribbon bridge can be erected very quickly. A 100-meter gap can be bridged in 30 minutes. In the following 30 minutes, 100 vehicles, all tanks if you wish, can be crossed. Compare this with rafting with a similar amount of equipment. Assuming that sufficient ramp sections are

lished in 30 minutes. *The real issue at stake here is that doctrine must be written in concert with the equipment available. I'd go for a bridge and forget about rafting.*

## COMMAND AND CONTROL

During the planning phase, the Crossing Force Commander (CFC) will establish his HQ, called the Crossing Force HQ (CFHQ), near the Division Main Command Post (CP). Prior to the start of the operation, it will relocate close to the Division Tactical CP. The Tactical CP—not the Main CP, as suggested by doctrine—is more appropriate because the Tactical CP controls the battle and brigades which will be crossing.



available, four rafts can be constructed in 15 minutes. The next 45 minutes will allow five round-trips per raft, enabling a total of 20 tanks to be moved across. It becomes, therefore, a question of whether the maneuver commander is prepared to wait an extra 15 minutes before crossing any tanks.

The buildup rate with a bridge is so much greater that it is difficult to argue in favor of rafting. However, there are some additional considerations. Rafting at multiple sites offers an attacking force dispersion over a wider front. This makes it difficult for a defender to concentrate and defeat each small bridgehead. If you bridge, you have to concentrate, but so can the defender. The wider the river, the longer it will take to bridge, and the longer it will take to get heavy support weapons across to defeat enemy counterattacks.

It can also be argued that a bridge is far more vulnerable to air attack than a number of rafts. However, a bridge can be broken, moved 500 meters and reestab-

The CFHQ should include the CFC, the CFE and his headquarters, ADA representatives, MPs, the transportation section from the Division G4 cell, and security element representatives. Current doctrine suggests that the Traffic Headquarters (TfcHQ) is a separate entity and not a part of the CFHQ. The saving in time and reduced amount of confusion which would be gained by making the TfcHQ part of the CFHQ would be substantial. Doctrine should reflect this.

Subordinate to the CFHQ will be the Crossing Area HQ, commanded by the Executive Officer of the Crossing Brigades and will normally consist of representatives of elements similar to those in the CFHQ. For example, if a Corps MP Company has been assigned to the division for the crossing, the Company HQ would be part of the CFHQ. Assuming that a platoon of the MP Company supports a crossing area, the platoon HQ should be part of the CAHQ.

From an engineer point of view, the command struc-

ture is simple (hopefully, it is always!). The CFE will command all engineer assets employed in the CA. The engineer HQ, subordinate to the CFE and located at CAHQ, will probably be provided by an Assault Float Bridge Company or a company from a Corps Combat Battalion. The most preferable solution would be to use the HQ of the Assault Float Bridge Company. It is larger than that of a line company and organically commands the platoons constructing the bridges and rafts. Communications with the crossing sites are also available if this structure is employed.

Doctrine suggests that the Assistant Division Commander (Maneuver) will be the Crossing Force Commander. At some time during the battle, he will want to cross the river. The question is when? And who will control the Crossing Areas after the CFC crosses the river?

The ADC(M) would logically cross the river once all the artillery has crossed. Most of the division's combat power would be across and the ADC(M) would be primarily interested in expansion of the bridgehead. The person who should control the CAs once the CFC moves is the Crossing Force Engineer (CFE). He will have an intimate knowledge of the CA because he and his staff will have done the detailed planning.

An additional reason is that he commands all the engineer assets in the CA which revert back to Corps control after the division crosses. He, therefore, provides the Corps Commander with the ability to regain control of the area. As a result, the transition from division to corps control should be smooth. Doctrine should address the handover of the CA.

It should be apparent that a large number of communications nets are required. In the crossings of the Main River by First Armored Division in Reforger 79, seven radio nets were employed in the Crossing Area, all of which emanated from one CA Command Headquarters. The electronic signature would be easily detectable. The potential use of tactical nuclear weapons on the integrated battlefield, currently being emphasized, makes such HQ very vulnerable.

The use of line, as suggested in current doctrine, therefore becomes a major contributing factor in the survival of the headquarters. The problem will *not* be a capacity to lay line; this can be done when all routes in the CA are marked. Insuring that sufficient line is available will be the prime consideration.

Traffic control is the backbone of the organization for a river crossing operation. It is the tool used to get units through the CAs as quickly as possible. It therefore deserves consideration.

Doctrine suggests that CACs have operational control of all units within or passing through the CAs. Logically, a Traffic Control Post (TCP) will be established at the boundary of the CA to give the CAC the required control. However, the CAC will need to know more than just when a unit reaches the boundary. He will

want to know when a unit is moving.

There are two ways of communicating this. A TCP can be established at the Staging Area outside the Crossing Area. The major disadvantage of this is that it further increases the size of the traffic control net.

An alternative method is for the crossing unit to send a representative, probably the XO, to CAC HQ. This may negate the requirement for the crossing unit to join the CA command net. It also allows the crossing unit commander to focus his attention on his primary objective, the far bank.

The suggestion in current doctrine that Engineer Regulating Points (ERPs), be co-located with TCPs, has the advantage of reducing the requirement for engineer communications. This sounds fine in theory. However, the traffic control net is likely to be heavily loaded—a division has some 4000 vehicles. While a TCP and an ERP may be co-located, it would be preferable if the squad manning the ERP had it's own communications.

Routes also deserve further consideration. There will be return traffic, e.g., empty ammunition vehicles, ambulances, etc. A separate route should be established for return traffic. This will prevent congestion and confusion.

A last word on ERPs. The requirement to technically inspect vehicles prior to crossing to insure that they match the crossing means has been somewhat neglected, primarily because current bridging and rafting assets can carry any vehicle in the division. But this requirement should not be forgotten, because heavier vehicles than those within a division will eventually cross.

Is an ERP required at the crossing site, as doctrine suggests? The answer must surely be no. The command element of the engineer organization which constructs the crossing means will be at the crossing site. It will probably be a platoon headquarters. An ERP would be redundant.

## CONCLUSION

My intent is not to criticize FM 90-13, because I believe it is a good manual. There are some aspects, however, that require further consideration. Military history can be a good tutor and the lesson which comes through from all successful assault river crossings is the *attention to detail* required and the *critical importance of the engineers*. What I have attempted to do is emphasize some areas where more attention to detail is required. If you do no more than think about it, then I have achieved my aim.

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*Major Douglas J. George is the Royal Australian Engineer Exchange Officer at the US Army Engineer School, Fort Belvoir, VA. He is currently serving as Assistant Chief, Tactics and Operations Division, Department of Combined Arms, Directorate of Training, USAES.*