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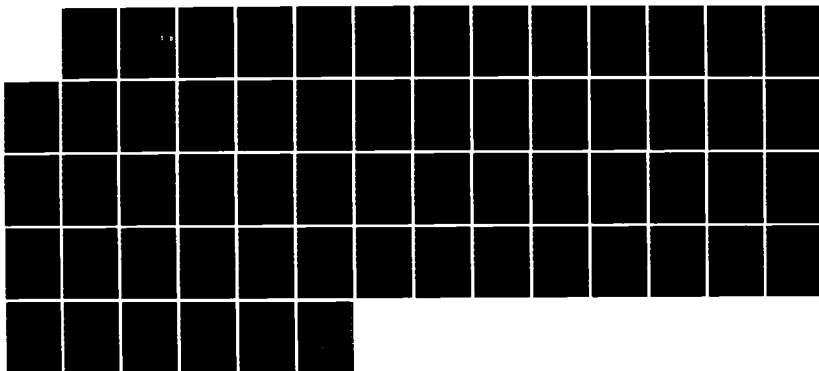
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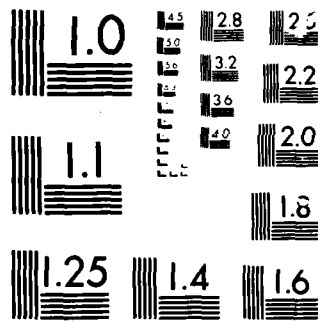
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To Cross a River

by

Major David J. Benjamin Jr.  
Infantry

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School of Advanced Military Studies  
U.S. Army Command and General Staff College  
Fort Leavenworth, Kansas

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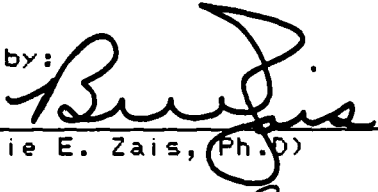
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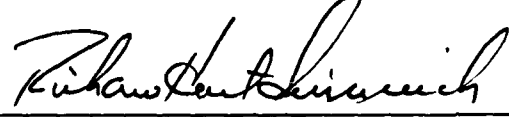
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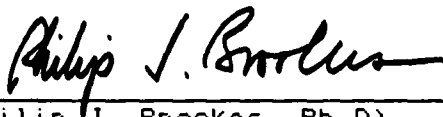
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# ABSTRACT

An AirLand Battle Challenge: To Cross a River, by Major David J. Benjamin Jr. USA, 58 pages.

This monograph is a doctrinal and historical analysis of river crossings by the United States and the Soviet Union. Initially, there is a discussion of the impact of AirLand Battle doctrine has on river crossings which concludes that the hasty crossing is the preferred method. Then there is an analysis of current U.S. doctrine as found in field manuals, professional periodicals, and as taught in service schools. This doctrinal analysis is followed by a historical analysis of the Italian, northwest European, and Korean campaigns to reveal the inadequacy of U.S. doctrine. Searching for a more adequate crossing doctrine, the author analyzes Soviet experiences during World War II.

The author concludes that certain aspects of Soviet World War II crossing doctrine are applicable to the formation of a contemporary U.S. doctrine. These are: selection of multiple crossing points; avoidance of enemy strength; selection of least expected crossing locations; employment of expedient crossing methods; earlier initiation of the planning process; better trained reconnaissance forces; conduct of operations during periods of reduced visibility; and rapid continuation of the attack.

This monograph is only the initial process in rewriting U.S. river crossing doctrine. It provides a point of departure for further discussion and research.

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## Introduction

The adoption of AirLand Battle doctrine by the U.S. Army in 1982 has many farreaching implications for U.S. operational and tactical doctrines. This new doctrine has caused a revival of imaginative thought in the study of war by officers of the U.S. Army. Articles in military journals and new field manuals and circulars reflect the influence of AirLand Battle. However, one area greatly affected by this doctrine has not received the scrutiny which it deserves-- river crossing doctrine.

The purposes of this monograph are twofold: first, it will demonstrate that the river crossing doctrine which has served the U.S. Army with little change since the end of World War II is no longer adequate under AirLand Battle. Second, through a historical analysis this monograph will reveal some basic principles pertinent to river crossings under AirLand Battle. In the conclusion, this monograph will suggest some principles which the Army can utilize as a foundation for a new river crossing doctrine.

In order to accomplish the first purpose it is necessary to analyze the implications of AirLand Battle for river crossing operations. Then it is necessary to determine if U.S. doctrine is adequate through a doctrinal analysis. Doctrinal analysis is more than an examination of written doctrinal material. It includes the investigation of professional journals and periodicals and a review of how the U.S. Army teaches doctrine.<sup>1</sup>

The second purpose of this monograph will be accomplished through a historical analysis. A historical analysis is a summary of the river crossings conducted by an army and a synthesis of the principles used to conduct those crossings. This monograph will not limit its scope to a historical analysis of the U.S. Army but will evaluate the Soviet Union during World War II with a similar methodology. The Soviet Army conducted over twenty major front level river crossings and hundreds of tactical river crossings of European rivers. They accomplished these feats with unsophisticated engineer equipment and with very few amphibious vehicles. Surely, Soviet river crossing experiences can not be ignored.

#### Implications of AirLand Battle

To accomplish the first purpose of this monograph one must return to FM 100-5. The 1982 version of FM 100-5, which introduced this doctrine, recognized the operational level of war, reoriented the U.S. Army toward the concept of maneuver, and required a review of offensive techniques.<sup>2</sup>

The recognition of an operational level of war created an opportunity for the U.S. Army to study war at three distinct levels: strategic, operational, and tactical. This allowed the U.S. Army to understand and maintain a strategic defensive consonance with its allies and simultaneously develop an operational level doctrine which realized that "the ideal defense is a shield of blows".<sup>3</sup> This series of



blows allows commanders to think offensively at the operational level yet retain the strategic defense. Further, this new level of war requires that commanders think sequentially and plan not only current battles but succeeding battles. They must think in terms of many battles or campaigns.

Closely related to this concept of thinking about the next battle is maneuver. In order to fight and win, battlefield commanders must select the best position on the next battlefield to achieve the destruction of the enemy through firepower.<sup>4</sup> This destruction of the enemy is the primary purpose of maneuver. The Active Defense, the doctrine preceding AirLand Battle, diverted the Army from maneuver, a traditional element of U.S. doctrine, to an attrition style of warfare.<sup>5</sup> AirLand Battle is an attempt to reorient the army to its tradition.

The maneuver tradition also entails the seizure and maintenance of the initiative. This requires an offensive spirit. AirLand Battle is an attempt to rekindle this offensive spirit at the operational and tactical levels. The Army has neglected the offensive for some time. Therefore, the last of the three factors of AirLand Battle is a reorientation to the offensive and the offensive spirit.<sup>6</sup>

Given these three major factors, how can river crossing doctrine best support AirLand Battle? Most armies divide

the conduct of river crossings into two categories, the hasty and the deliberate river crossing. A deliberate crossing is a planned operation conducted when the enemy is strongly defending the far bank and the attack slows to allow for the reinforcement of friendly forces with combat forces, engineers, and special equipment. A deliberate crossing often results when a hasty crossing fails, is not feasible (enemy defenses are very strong or the river obstacle is severe), or when offensive operations are resumed at river lines.<sup>7</sup> A deliberate crossing is conducted if additional planning, equipment, forces, or training are needed to breach heavy defenses or clear the near side of enemy forces.<sup>8</sup>

In contrast, a hasty river crossing is a planned operation conducted as a continuation of the attack when enemy forces are weak and the obstacle is not too severe.<sup>9</sup> Very important in this concept is crossing with organic equipment and with readily available material, avoiding significant delay.<sup>10</sup> The hasty river crossing allows sufficient freedom to exploit success, decentralizes control which permits subordinates to decide on specific crossing times, and does not require the capture of bridges.<sup>11</sup> The commander must see the crossing as his responsibility to cross the river in stride with not only organic engineer equipment but whatever is available.

AirLand Battle doctrine prefers hasty crossings because they emphasize a rapid continuation of the attack, maintenance of momentum, minimum concentration of forces, utilization of available resources, surprise, and speed.<sup>12</sup> These characteristics are supportive of the AirLand Battle tenets of agility and initiative, the concept of maneuver, and the orientation on the offense. Thus, the hasty crossing is a doctrinal topic worthy of review.

#### U.S. Doctrinal Analysis

Next, one must determine if current U.S. doctrine supports AirLand Battle properly. The analysis of U.S. doctrine will first evaluate the current state of hasty crossing doctrine in manuals and professional literature. Then, it will evaluate how that doctrine is taught in schools.

The current field manual on river crossing operations, FM 90-13 includes sections on hasty crossings, but close scrutiny reveals an inadequate coverage of this topic, and an examination of the printing date reflects an outmoded doctrine based on the attrition oriented Active Defense. The current manual and the previous manual, FM 31-60, River Crossing Operations, dated 1972, introduce river crossing operations as a doctrine for the conduct of deliberate, not hasty crossings, and they place them in a special operations category. This categorization confuses maneuver leaders into thinking that river crossings are exclusively the

responsibility of engineers.<sup>13</sup> These manuals cover hasty crossings but they do not devote necessary attention to the topic. Although some of the doctrine is common to both types of crossings, the two pages dedicated to hasty crossings are inadequate.<sup>14</sup>

A few examples of this inadequacy are necessary. Current doctrine stresses the importance of planning for the hasty crossing, yet it fails to specify when this planning should begin. Timely planning is important because the commander must decide on the formation and combinations of the assaulting forces prior to their arrival at the crossing site. The current manual remarks on the desire to cross on a wide front when conducting hasty crossings, but it does not provide any guidelines on the number of sites per unit, explain why numerous sites are beneficial, or outline what is sacrificed when conducting multiple crossings.

The current FM 90-13 states that deliberate crossings will be conducted when the hasty crossing is infeasible, but it fails to provide the necessary technical limits which eliminate rivers from hasty crossing consideration. This manual also fails to tell how the commander is to obtain information about the river in order to decide by which method to cross. Reconnaissance forces and intelligence are vital to any river crossing operation and the commander must consider how to organize and commit these assets. In conclusion, the current doctrine provides insufficient

guidance on the conduct of hasty crossings, and it requires the reader to search other doctrinal manuals.

The current engineer capstone document FM 5-100, dated 1984, devotes only two pages to the entire topic of river crossings and directs the reader to other manuals.<sup>15</sup>

Likewise, FM 71-100, Armored and Mechanized Division Operations, dated 1978, allots only two small paragraphs to river crossings, and it further confuses the reader by referring him to the previously cited manuals.<sup>16</sup>

Perhaps the best doctrine for this topic is not even in manuals yet but still in field circulars. Both FC 71-100 and FC 71-101, dated 1984, contain the broad conceptual doctrine of hasty crossings, and this could be attributed to the fact that their printing followed the introduction of AirLand Battle. The only criticism of these circulars is that they do not specify any techniques for successful hasty crossings and their distribution is limited.<sup>17</sup>

In sum, the categorization of river crossings as a special operation and the attrition orientation of the current manuals reflect a doctrine requiring revision. The only hope is that both field circulars reflect current trends, and the projected arrival of a new FC 90-13 in 1986 and the publication of an updated FM 90-13 will produce clear and concise doctrine in consonance with AirLand Battle.

Doctrine is found not only in manuals but also in professional journals, studies, theses, and books. This study surveys a sampling of these documents from the post World War II period to the present. Three distinct periods span the forty years. The first, immediately following the war, reflects the lessons learned during the struggle. Therefore, one finds encouraging comments about the armored division's ability to conduct hasty crossings with organic engineer support and a rather lengthy discussion of the pros and cons of conducting hasty crossings.<sup>18</sup> These sources are not one-sided in their presentation of an argument for the hasty crossing. They caution that forces conducting hasty crossings at multiple crossing sites dissipate combat power, overtax limited organic engineer support, and create difficult command and control problems if the force is unfamiliar with decentralized operations.<sup>19</sup>

The second period of analysis of professional journals, from the mid 1950s to the late 1970s, mirrored the influence of technology on river crossings. The introduction of armored personnel carriers, night vision devices, amphibious vehicles, and concern over nuclear weapons used against massed targets supported the consideration of hasty crossings.<sup>20</sup> Articles of this period included an account of a hasty crossing of the Rhine. Through excellent reconnaissance techniques troops discovered undefended sites and crossed undetected.<sup>21</sup> Of special note is the fact that

during this period professional journals of Bundeswehr authors espoused a maneuver style, defense-in-depth doctrine and favored hasty crossings.<sup>22</sup>

The final period of analysis of professional journals was the transition phase between attrition and a maneuver oriented doctrine. The first series of articles emphasized centralized control, reliance on communications and technology, fire power, and a tradition of minimizing losses.<sup>23</sup> But, in this series of articles one also observes criticism of current river crossing doctrine. LTC. D. Culp's study for the Army War College entitled "A Comparative Analysis of River Crossing Operations in the Twentieth Century", criticized the doctrine. He said the Army failed to incorporate lessons learned into post war doctrine, it overrelied on centralized control, and it depended on the engineers to plan and conduct river crossings.<sup>24</sup> At this time, another criticism appeared from the field. The book, Panzer Grenadiers (Rote Teufel) criticized current doctrine and proposed a combination of both types of river crossings with the hasty always preceding the deliberate crossing.<sup>25</sup>

In the second part of this last period, studies appeared that reflected the influence of AirLand Battle on river crossing doctrine. Major Bruce Haigh's thesis, Heavy Division River Crossing Operations in Support of the AirLand Battle in 1982 traced the evolution of Soviet doctrine,

discussed the impact of AirLand Battle on U.S. operations and river crossing operations, and then recommended a number of solutions to the divergence between operational practices and doctrine. He proposed a synchronized flexible doctrine founded on a strong, definitive, operational statement emphasizing hasty crossings.<sup>26</sup> Another thesis by Major F.M. Cain traced the development of mobility support doctrine during World War II and summarized that doctrine never kept pace with the needs of maneuver units. After the war, engineers transformed the lessons learned into doctrine but fiscal constraints prohibited the development of suitable equipment. One of Cain's conclusions is that a similar analysis of river crossing development is necessary.<sup>27</sup> The final article, TRADOC's concept letter for the futuristic AirLand Battle 2000, attempts to have doctrine lead development by espousing an assault crossing doctrine. This article discards the deliberate crossing and sees the assault crossing followed quickly by bridging operations. The only problem with this concept is its reliance on a centralized control system.<sup>28</sup>

In sum, the professional writings of the period reflected the swing of the maneuver versus attrition pendulum and echoed the concerns of professional leaders for an adequate doctrine on a changing battlefield. The post war period incorporated the maneuver style lessons learned; while the middle period diverted doctrine from a maneuver



orientation and concentrated on technology. The last period reflected the turmoil of transition from attrition back to a maneuver-oriented doctrine. In contrast to doctrinal manuals, the professional writings more closely reflected the operational lead of AirLand Battle and the dynamic aspect of doctrinal development.

Unfortunately, the dissemination of doctrine to student officers conforms to the lead of the manuals and not professional writings. Prior to Command and General Staff College, combat arms officers receive limited instruction on river crossings operations. CGSC students receive river crossing instruction only if they elect to. One elective devotes only three hours of instruction to the deliberate crossing. The second elective, titled "River Crossing Operations", which the college is reinitiating during academic year 1985-86, devotes thirty hours to the analysis of a historical deliberate river crossing and the writing of a deliberate crossing operations order.<sup>29</sup> In essence, officers receive little instruction on river crossing operations.

In conclusion, this doctrinal analysis has revealed that U.S. river crossing doctrine is inadequate for AirLand Battle. Current manuals are incomplete; professional journals, although abundant with hasty crossing doctrine, are often ignored by doctrinal authors and instructors. And professional schools provide little to solve this problem.

### Historical Experiences of the U.S. Army

But there is another aspect of doctrine that has also been ignored by the U.S. Army. This is the historical analysis of how an army translates doctrine into the conduct of actual operations. It goes beyond the scope of this paper to recount every river crossing that the U.S. Army conducted during the campaigns of World War II and the Korean conflict. Therefore, a sampling of river crossing operations is presented that reflects U.S. tradition.

The Army entered World War II with neither a hasty nor deliberate tradition. The experience of the 1941 Louisiana wargames and a keen observation of the early European war awakened ideas of hasty crossings which emphasized deception, surprise, and speed.<sup>30</sup> Added to this was the fact that technology had not kept pace with demands, so the Army entered the war with little organizational equipment and soon became dependent on expediency and improvisation.

The disaster on the Rapido river and the success at the Volturno river in the 1943 Italian Campaign revealed that the Army at first practiced a deliberate tradition. The troops could wade across the Volturno and on nights previous to the attack reconnaissance patrols crossed the river. Nonetheless, commanders decided to conduct deliberate crossings. The reasons for this decision remain unknown, but at least one corps crossed at night and another under smoke.<sup>31</sup>

The easily defensible terrain in Italy perhaps curtailed the aggressive spirit of the U.S. Army, but the results were different in France. The 4th Armored Division (A.D.) planned a hasty crossing of the intact Avranches bridge in August 1944. At Petit Langier in Belgium later in the 1944 Lorraine Campaign, armored engineers constructed an expedient bridge prior to the assault.<sup>32</sup>

The XXth Corps also displayed aggressiveness in its hasty crossings of the Seine and Meuse rivers during the liberation of France. The 10th Regimental Combat Team (RCT) and 11th RCT of the 5th Infantry Division (I.D.) both conducted hasty crossings of the 100 meter wide Seine. The 10th RCT conducted a daring dawn crossing at an undefended ford that was discovered during a night reconnaissance patrol.<sup>33</sup> The 2d Battalion of the 11th RCT, under command of LTC Kelly B. Lemmon, conducted its hasty crossing after a planned raid had failed on 23 August 1944. After the Germans blew the bridge, LTC Lemmon decided to cross the river on his own initiative at Fontainebleau. He swam the river, retrieved five boats, returned to the near shore, and led the assault across the river with an element of Company (Co.) G. Simultaneously, Captain Gerrie, the G Co. commander, swam and waded across the river with the remainder of his company using the downed bridge as cover. The bridgehead that was formed resisted enemy counterattacks

until supporting engineers built a bridge during the following night.<sup>34</sup>

Combat Command B (CCB) of the 7th A.D. seized a Meuse river bridge in a daring night raid. First, reconnaissance patrols led the raid around the German rear guard positions. Next, dismounted elements of the Free French forces infiltrated under the bridge and cut the demolition wires, and finally, lead elements of CCB crossed the river and secured a foothold on the far bank.<sup>35</sup> These crossings disclosed that the U.S. Army could conduct successful hasty river crossings.

If the success of the XXth Corps at the Seine and the Meuse was noteworthy, its success at the Moselle crossings was remarkable because of the logistic difficulties, the flooding, and the strong German defenses. The corps was short of fuel which reduced the effectiveness of its deception plan. The 7th A.D. advanced toward Sedan with the XII U.S. Corps, but the shortage of fuel prevented the remainder of the corps from exploiting an enemy shift to the north. This lack of fuel also contributed to the failure of the 3d Cavalry Group crossing at Thionville on 1 September 1944.<sup>36</sup> Next, the demonstration at Uckange by the 95th I.D. did succeed in attracting elements of the German defensive forces away from Thionville and Arnaville, but the enemy had reinforced the defense with strong mechanized forces during the wait for fuel. The XII Corps persevered when the Donnot

crossing in the south met stiff resistance, and the Corps commander showed flexibility in redirecting his main effort to the crossing at Arnaville.<sup>37</sup> The use of smoke at this site was responsible for the successful crossing.<sup>38</sup> Now, the crossing in the North was delayed by flooding. The river flooded to an 800 meter width; normal width was 118 meters, so the corps shifted the bridgehead at Thionville north to Cattenom. <sup>39</sup>

The surrounding of Metz by XXth Corps on 19 November 1944 doomed the defenders inside and ensured the success of the corps' operational level plan. This plan called for elements of the 10th A.D. to cross the Saar by hasty means once they broke out of the Moselle bridgehead.<sup>40</sup> Although the XXth Corps' crossing of the Moselle met many difficulties, the successful capture of the Saar bridge at Saarlautern was a result of thorough planning and continuous attempts to maintain the initiative by striving for hasty crossings. This example also demonstrated depth by linking tactical crossing plans to the operational level objective, which was to establish a bridgehead across the Saar.

The historical record is replete with examples of deliberate crossings and the numerous Rhine crossings reflect this trend. It is better to divide the discussion of Rhine operations into two sections because of the successful seizure of the Remagen bridge. The first covers the deliberate crossings conducted by the Twelfth Army

Group. The decision to conduct a deliberate crossing was made because the Rhine was formidably defended.<sup>41</sup>

The Third Army had little time to prepare for its deliberate crossings and planned numerous sequential crossings at unexpected locations to confuse the enemy. Most units arrived at the near bank on 20 March 1945 and crossed during the night of 21 March. So divisions lacked time to reconnoiter crossing sites.<sup>42</sup> Third Army conducted its first crossing at night without an artillery preparation and with 7500 engineers supporting the assault division in an attempt to achieve surprise.<sup>43</sup>

Why Third Army decided to conduct a deliberate crossing is unclear. Third Army had been planning the Rhine crossings since August 1944, the annual flood was not expected until May 1945, the current was within limits of 1 meter per second, and light enemy resistance was expected in this sector.<sup>44</sup> A possible answer is that Third Army had captured many bridges over other rivers intact prior to crossing the Rhine and perhaps felt untrained in the conduct of hasty crossings without capture of intact bridging.<sup>45</sup>

The Ninth Army received the order to cross the Rhine, which averaged 380 meters in width in its sector, on 25 February 1945 and crossed a month later.<sup>46</sup> The Ninth Army conducted the crossing after a massive artillery preparation on the night of 24 March 1945. Using assault boats, it took four hours to cross an entire division against light

resistance, although the enemy had a month's respite to build its defenses. Ninth Army constructed the first bridge in nine hours under the cover of smoke.<sup>47</sup>

The second section of the discussion of Rhine crossings covers the opportunity crossing conducted at Remagen when the First Army captured the Ludendorf bridge. Although history refers to this as a brilliant success, First Army succeeded because of the incoherent German defense. The 9th A.D. was to clear the west bank of the Rhine; it had no orders to cross the Rhine. The independent action of General Hoge, who urged the company and task force commanders to capture the bridge was the cause for success.<sup>48</sup> The decisions and farsightedness of General Hoge, Commander of CCB, ensured that Lieutenant Timmermann, who was the company commander at the site, was reinforced. Timmermann was short of infantry support and withstood disjointed enemy counterattacks until help arrived.<sup>49</sup>

The last stage of World War II for the U.S. Army was an exercise in exploitation, and the river crossings were typically opportunity crossings. The best example of this period is the seizure of the Inn and Danube crossings in May 1945 by the XXth Corps. The 3rd Cavalry Group advanced at some distance ahead of the main body. When they discovered bridges intact, motorized elements from the main body would advance forward to secure the site. The motorized elements were specially organized around an infantry battalion

reinforced with transportation, tank destroyer, and anti-tank units. Then this task force would provide its own advanced guard of a rifle company, a mortar, machine-gun, anti-tank, and reconnaissance platoon.<sup>50</sup>

Adaptability and flexibility were traits of the U.S. forces during the war in Europe, thus the Army disseminated lessons learned to all units. The Army published a series of "battle experiences", which dealt with various topics. The reports on river crossings stressed flexibility, maintenance of initiative, and surprise. These reports recommended the use of artillery preparations on a number of nights preceding the assault to confuse the enemy, the padding of metal equipment to reduce noise, and the selection of a site least expected by the enemy.<sup>51</sup>

There were numerous rivers to cross during the Korean conflict, but the historical record does not differ significantly from World War II. Eighth Army conducted many deliberate crossings while only attempting a few hasty crossings. Nonetheless, they learned many valuable lessons from an ingenious foe, whose techniques came from the Soviet Union and China. The North Koreans taught Eighth Army the advantages of underwater and expedient footbridging, which Eighth Army used quite effectively.<sup>52</sup> The advance to the Yalu river during the winter of 1950 and 1951 also created opportunities to learn expedient methods. The lack of bridging equipment resulted in the use of ice bridges and pontoons made from discarded fuel drums.<sup>53</sup>



### Historical Analysis of the U.S. Experience

The historical examples of the U.S. Army reveal a tradition of both deliberate and hasty river crossings where the deliberate often predominated. When faced with adversity the U.S. Army adapted and developed new techniques, but all too often hasty crossings were unsuccessful and instead of analyzing the reason for these failures, the U.S. Army reverted to deliberate crossings. Although the deliberate crossing doctrine emphasized deception, surprise, speed, flexibility, and expedience, this reversion to deliberate crossings stifled the evolution of an adequate hasty crossing doctrine.

But the fundamental principles revealed by the historical analysis are vital to correct the Army's doctrinal problem. One must remember that the U.S. Army has emphasized speed and surprise in the modern era. These traits were emphasized in the examples cited previously. Expediency and improvisation are not new or foreign to U.S. soldiers. As recently as the Korean War the Army adapted unfamiliar methods and improved on them.

More importantly, we discover the use of special task forces and an emphasis on seizing the initiative in this analysis which are vital to the adoption of a hasty doctrine. The special task forces created during the rapid race across Germany and Austria are similar to the forward detachments that the Soviet Army used. Forward detachments

will be covered at some length later in this monograph. The emphasis on maintaining the initiative was detected during Ninth Army's seizure of the Remagen bridge, the seizure of the Inn crossings, and the examples of Korea.

In conclusion, this historical analysis disclosed a hasty tradition that is never favored or dealt with in manuals. Furthermore, one must continue to search through historical analysis for more pertinent principles to serve as a foundation for a new crossing doctrine. Perhaps the army that successfully conducted the most river crossings on the European continent can provide additional principles.

#### Historical Survey of the Soviet Experience

The Soviet Army conducted over twenty front level river crossings and hundreds of tactical crossings during World War II. Most operations were hasty crossings, the preferred Soviet doctrinal technique, and Soviet hasty crossing doctrine was fully developed. But, an evaluation of the rivers that the Red Army crossed and an analysis of early Red Army doctrine is essential. Next, this monograph will briefly survey Soviet historical examples and study the resulting doctrinal materials.

An initial investigation of the characteristics of Central and Eastern European rivers assists in understanding the complexity of the Red Army's river crossing operations. The rivers in this part of the world are vast, and one does not observe restrictive dikes or reinforced channels. The

characteristics of these rivers offer four advantages to the conduct of river crossings. First, tactical river crossings are made easier by the generally slow flowing currents which permit extensive rafting. Rafting is also facilitated by gentle low river banks. Both factors contribute to the development of improvised crossing techniques. Next, vegetation covering the banks also offers concealment to dismounted light infantry forces.<sup>54</sup> Finally, during winter months, rivers freeze solid and allow heavy equipment to cross without extensive preparation.<sup>55</sup>

Negatively, weather can be a disadvantage in the fall, early winter, and spring. The additional rain during these seasons transforms low lying banks into impassable swamps. Early winter and spring periods bring thaws that produce blocks of ice, which are dangerous to emergency bridges. Another disadvantage is the thick vegetation, which conceals the approach to the bank and also restricts motorized traffic, particularly where vegetation and swamps are found together. The final disadvantage, the height of the western bank, is only a factor for the Soviets when repelling an invader. Generally, the west bank of the Central and East European rivers are higher than the east. Therefore, the occupier of the west bank has a decided advantage in observation and fields of fire.<sup>56</sup>

Soviet river crossing doctrine has always sought to minimize disadvantages and maximize advantages offered by

the characteristics of rivers. Prior to World War II their doctrine stressed the importance of crossing rivers from the march formation using the slow current and the low banks to their fullest possibilities to support rapid and multiple crossings.<sup>57</sup> Placing emphasis on speed, the doctrine required a thorough reconnaissance by all combined arms elements.<sup>58</sup> The doctrinal decision to cross at multiple sites also allowed the Soviets to stress deception and employ demonstration techniques at various locations. Lastly, concern for detection highlighted the need to conduct crossings during limited visibility or under cover of darkness.<sup>59</sup>

During the first period of World War II the Red Army attempted river crossings whenever the German attack stalled, thus gaining much experience. Near Cherkassy along the Dnieper river in late August 1941, the Soviets attempted to seize the initiative by conducting a hasty crossing. Of special interest is the fact that the reconnaissance forces were well trained and led. These elements infiltrated enemy positions undetected, gathered valuable information, transmitted the information back across the river, formed the nucleus of a bridgehead, and acted as guides for the assault force.<sup>60</sup>

Not until the second period of World War II (November 1942 until August 1943) does one observe the fruits of the Soviet effort, the development of new doctrinal techniques,

and emphasis on expediency. Before the Stalingrad victory, the Soviets maintained numerous bridgeheads along the Don River from which to launch a counteroffensive, and they experimented with ice bridges over the Don to increase vehicle flow during the crossing.<sup>61</sup> Another experiment was the underwater bridge. In August of 1943, they sought to cross the Donets river with an underwater bridge constructed of turretless, disabled tanks. Assault forces had crossed the river in an unlikely spot and while a deception effort was in progress, the Red Army leapfrogged disabled tanks into the river and placed planking on their hulks for a road surface. This attempt to seize a bridgehead was unsuccessful, but the Soviets attempted similar bridges later with different results. These examples demonstrated the Soviet willingness to improvise and to adapt their hasty doctrine to the changing situation.

From June 1943 until July 1944, the Red Army constructed over 3850 bridges which totaled over 41,350 kilometers of bridging.<sup>62</sup> This figure represents the bridging constructed during the third and final period of the war. This period is significant because of the scope of hasty crossings conducted. Of the hundreds of river crossings during this period many deserve study, but the Dnieper crossings in September 1943 and the Oder crossings in January and February 1945 are the most notable. These two operations are distinctive because they display thorough

hasty crossing principles and a linkage between the river crossing operation and the overall campaign or operational level plan.

This linkage of tactical doctrine and operational level issues is important. An adequate doctrine considers all levels of warfare and ensures that tactical concepts are compatible with doctrinal issues. It is important to view this linkage in the Soviet example.

The Soviets in linking operational level plans and tactical doctrine also considered the characteristics of rivers. The Soviet doctrine recognized that rivers were ideal for linking and phasing campaigns. Most major rivers in Europe flow perpendicular to the axis of attack. Therefore, when conducting planned withdrawals, the Soviets maintained bridgeheads on the western bank for use during counteroffensives, and during offensives they would not pause until a bridgehead of significant size existed on the western bank.<sup>63</sup> The Soviets appear to have read Clausewitz well; they understood the phenomenon of the culminating point in offensive operations and planned for its occurrence. The chances of success when attacking out of an existing bridgehead were far greater than when conducting a deliberate assault across an obstacle after the enemy had reinforced his defense. The seizure of a bridgehead became the objective of the current campaign and the start position for the subsequent campaign.

Nineteen separate armies simultaneously conducted numerous hasty crossings over the Dnieper River from 21 through 25 September 1943.<sup>64</sup> The Dnieper river crossings stressed three significant operational features. The first was the crossing's linkage as the culminating point for the Soviet summer offensive and the attack position for the following winter's offensive. The second feature was that simultaneous crossings on a broad front of over 750 kilometers by four fronts confused the Germans. Thirdly, the operation is significant because of the agility displayed by the Soviet High Command when it switched the main effort from the Bukrin to the Lyutezh bridgehead.

The first feature is self-explanatory, but the last two require some explanation. The German Southern Army Group and Army Group A were faced with numerous bridgeheads in their zones. Marshal Koniev's Second Ukrainian Front secured over eighteen bridgeheads in his sector. The Germans were able to eradicate seven of these but were unable to dislodge the rest.<sup>65</sup> Matters were further confused by the German lack of knowledge about which area would indicate the Soviet main effort. Therefore, the Germans wasted valuable assets liquidating insignificant bridgeheads.

The third significant operational feature is the agility displayed by the shifting of the main effort from the Bukrin bridgehead in late October. Rather than continue

unsuccessful attacks against a reinforced and well entrenched enemy, General Vatutin, First Ukrainian Front commander, shifted his main effort to the Lyutezh bridgehead, north of Kiev. This decision required General Rylov's Third Guard Tank Army (3GTA) to withdraw across the Dnieper from the Bukrin bridgehead, cross the Desna river, recross the Dnieper, complete the 220 mile move within five days, and finally prepare for an attack on the seventh day.<sup>66</sup> A Soviet tank army is roughly equivalent to a U.S. Corps of three armored divisions, and the amazing fact is that the 3GTA accomplished these three crossings without the amphibious vehicles or engineer bridging materials which exist today.<sup>67</sup>

Additional reasons for the success of the Dnieper crossings can be traced to the adherence to hasty crossing doctrine. For example, the Soviet High Command selected multiple crossing sites at a distance from urban areas and existing bridges. Kiev, Cherkassy, and Dnepropetrovsk were bypassed because the Soviets realized that the Germans would defend these crossing sites.<sup>68</sup> The plan called for the location of bridgeheads away from urban areas and known crossing sites. The known sites were encircled by subsequent offensives from flanking bridgeheads. Furthermore, the plans issued for the operation stressed the need to conduct hasty crossings and this quick seizure of



footholds prior to the creation of a strong German defense led to the Soviet success.

Additionally, two important tactical innovations appeared during the Dnieper crossing that demonstrated the Soviet ability to complete a mission with unsophisticated equipment. First, they ferried tanks across the river with improvised log rafts, constructed of layers of logs lashed perpendicular to each other. The weight of the equipment to be ferried determined the number of layers.<sup>69</sup> The Soviets utilized the vast forests along the banks for these rafts.

When timber was unavailable the Russians reverted to another expedient method that they had practiced earlier in the war. The underwater tank bridge, which concealed the bridge from enemy detection, was now more quickly installed and retrieved. Vehicles with winches emplaced and recovered the underwater bridge once more permanent bridges were constructed.<sup>70</sup> This technique was perfected throughout the war, and was again seen during the Pripyet River crossing the following summer. Uniquely, the underwater bridge appeared in a swampy area where the defenders did not expect an attack. The Red Army constructed the underwater bridge at night and introduced heavy anti-tank and artillery during hours of darkness, using four weeks to reinforce the bridgehead with sufficient forces to achieve desired results. Contemporary Soviet military historians criticize the length of this operation, but the example demonstrates

the Soviet's reliance on expedient means to accomplish the mission.<sup>71</sup>

A third notable innovation, the forward detachment, appears during the Dnieper operations. This detachment is a significant innovation because its sole purpose is to seize bridgeheads quickly. The commanders of these detachments plan, rehearse, train, and retrain to seize crossing sites often fifty or more kilometers ahead of the main body.<sup>72</sup> In March 1944, a forward detachment consisting of a reinforced tank regiment from the 73d Rifle Corps (73d RC) seized a crossing over the Bug at Shumilovo utilizing an underwater bridge.<sup>73</sup> During the race to the Oder in 1945, two significant detachments crossed the Warta.<sup>74</sup>

The Oder river crossings in February 1945 display the sophistication achieved by the Soviets in their use of forward detachments and in hasty river crossings. Three notable achievements are: the composition of Soviet reconnaissance elements, the coordination of Soviet fire support agencies, and the style of Soviet deception.

Reconnaissance elements of forward detachments were specifically organized into combined arms teams so that they could quickly accomplish their mission. The reconnaissance elements included engineers, infantry, tanks, artillery observers, anti-tank, and anti-aircraft elements.<sup>75</sup> Engineers in these teams conducted crossing site reconnaissance, while infantry gained footholds, uncovered

enemy defenses, and provided security. Often the numerous reconnaissance patrols confused the enemy as to the location of the main crossing.<sup>76</sup> The reconnaissance unit's mission was to measure the width, depth, current, angle of the banks, and to discover the nature of the river bottom, ford sites, and covered and concealed routes in the area.

The fire support units with the forward detachment coordinated with the main body. The tanks and artillery provided valuable direct fire support and reported to the main body on suitable firing locations and staging areas. Similarly, anti-tank and anti-aircraft elements provided security to the advance element and information back to their respective chiefs of service with the main body. The larger fire support unit headquarters with the main body received information from the reconnaissance parties and immediately planned their portion of the operation. South of Frankfurt o.d.Oder, fire support staffs completed the plan on the march in eighteen hours while the main body was advancing to the crossing site. Then when the main body arrived time was not wasted.<sup>77</sup>

Finally, the deception was sophisticated. A portion of the main body attacked in strength at night in the north. This attack caused the Germans, who thought this was the main attack, to commit their limited reserve. Then the Soviet commander launched his main attack in the south, illuminated by searchlights, two hours before dawn against a

weakened sector.<sup>78</sup> Soviet Front aviation hit the German command and control centers while artillery bombarded the heavy weapons and reserve locations.<sup>79</sup> Front aviation also provided aerial reconnaissance and dummy flights prior to the assault.<sup>80</sup> Clearly, the tactical doctrine was notable for its sophistication and its ability to take advantage of the German weaknesses.

#### Historical Analysis of the Soviet Experience

A summary of the Soviet experiences in these periods of World War II was synthesized in the 1944 field regulation. This regulation, the statement of Soviet doctrine, reflected the combat experience of the previous years; a reliance on hasty crossings, and a hasty tradition capable of adapting to meet the requirements of a changing battlefield. The regulation took advantage of the German weakness of heavily defending known crossing sites.<sup>81</sup> In order to avoid casualties, the Soviets taught commanders to select crossing sites where the Germans had not fully established a defense. Thus, they avoided enemy strength and seldom crossed at fixed bridges or towns. Doctrine also directed the selection of multiple crossing sites and the preference of the hasty crossing method. The deliberate crossing, they felt, took too long in preparation, allowed for a strengthened defense, forfeited surprise, and caused unacceptable casualties. Doctrine also incorporated the concept of deception into crossing operations. The intent

was to conceal the main effort from the enemy by conducting multiple crossings and increase the chances of success.<sup>82</sup>

The 1944 regulation further demonstrated that the Soviets followed seven tactical principles during hasty crossings. First, they reconnoitered several crossing sites during periods of limited visibility.<sup>83</sup> Next, selection of crossing sites by the commander met certain prerequisites. Surprise was the ultimate prerequisite. The selected site had to be difficult to defend, in an unlikely position, or where there were only light defenses.

Once troops reconnoitered and selected sites, the next step required that the troops cross at night, during snow, rain, or during low visibility.<sup>84</sup> In order to achieve surprise, speed was emphasized. Thus, troops crossed without waiting for technical support. The Soviets taught their troops to swim or use empty barrels, poncho rafts, logs, or anything to get them across.<sup>85</sup> Often units identified to conduct hasty crossings conducted training exercises behind battlelines.<sup>86</sup>

The next step was the sequencing of the units to cross the river. Infantry armed with submachine guns were the best to cross first because they possessed adequate firepower and could cross rapidly. If the vehicles could not get across, light troops crossed without them. Although commanders preferred to use engineers and special crossing equipment, they did not delay a crossing because of a lack

of such support. The crossing proceeded using whatever material was at hand.<sup>87</sup> The Soviets also recognized the need to reinforce the bridgehead quickly with other combined arms elements, because the defenders quickly launched counterattacks against the footholds.<sup>88</sup>

The final step prepared the foothold for this counterattack. Once across the river, troops dug in and strengthened their positions. They dug in everything from infantry to heavy tanks and howitzers.<sup>89</sup> Simultaneously, the commander tested the enemy defenses for weaknesses with reconnaissance elements, while engineers assisted the follow-on forces in getting into the bridgehead quickly.

This brief historical survey reveals how the Soviets transformed doctrine into practice during various significant hasty crossing operations. The Soviets changed their doctrine throughout the period developing a good foundation for a hasty crossing doctrine that changed with the environment. The tactical and operational level features of the Dnieper hasty crossings and the high level of tactical sophistication of the Oder hasty crossings demonstrates a successful doctrine that is unparalleled in modern military history.

#### Selection of a Doctrinal Foundation

Some aspects of Soviet hasty crossing doctrine can possibly provide a foundation for U.S. doctrine. This monograph offers some implementation guidelines that can

ease the introduction of these Soviet aspects into U.S. doctrine. Finally, this monograph suggests a few items that will ensure the full understanding and further development of hasty river crossing doctrine in the U.S. Army.

The U.S. Army must decide whether hasty crossings are possible on modern battlefields. The reason this monograph reviewed only Soviet doctrine prior to 1945 was because of the Red Army's lack of amphibious and crossing equipment during that period. The Soviets relied heavily on mechanized forces during the war, at least to achieve important operational level gains. Today NATO armies lack the equipment to imitate Soviet contemporary doctrine but are proportionally better equipped to cross rivers than the Soviets were in World War II. The U.S. need not resort to the deliberate crossing. The comparison of historical examples revealed that the Soviets were more successful at crossing rivers and saving time in World War II than the Western Allies. The nature of the battlefield has changed since 1945; the pace of modern battle is quicker and the weapons are more lethal. Although the Soviets criticized the speed of World War II crossings, they still conducted them quicker than the Western Allies. If speed is necessary to survive the effects of lethal nonnuclear weapons systems on the modern battlefield, the U.S. Army cannot afford to conduct deliberate crossings. Doctrinal writers must alter

the focus of FM 90-13 from the deliberate to hasty crossings.

The aspects of Soviet hasty river crossing doctrine that are possibly applicable to the U.S. are numerous. The most important are the extensive use of reconnaissance forces, avoidance of enemy strength, selection of multiple crossing points, utilization of poor visibility to conduct such operations, employment of expedient methods, phasing of the crossing, the immediate defense by light forces once across, and the quick resumption of the attack. These aspects are either not contained in or are insufficiently covered in current U.S. doctrine.

There is no reason why reconnaissance forces and intelligence assets cannot reconnoiter all possible crossing sites and possess engineer expertise to assist in this mission. As a result of effective reconnaissance, enemy strength will be avoided. If a commander trades time for reconnaissance accuracy, he adopts a third aspect of the Soviet doctrine, the multiple crossing method. This method ensures that if the reconnaissance effort is unsuccessful at one site success awaits at others. To enhance success the U.S. Army should take advantage of a fourth aspect and conduct hasty crossings during periods of reduced visibility, simultaneously maximizing its current lead in night optics. Not only will this surprise the enemy and



maintain the initiative but it will allow for the quick resumption of the attack by continuous operations.

Some critics will argue that the U.S. Army has insufficient engineer assets to adopt such a method of multiple crossings, but if the U.S. utilizes expedient methods this shortfall would disappear. The Soviets experimented with underwater bridges made of disabled tanks, ice bridges, facines, land fills, expedient rafts, and various other methods to conduct hasty crossings. Even if expedient methods are unusable, light forces must cross and establish a foothold on the enemy bank. This phasing of hasty crossings will ensure that the assault force secures a foothold. The U.S. can no longer wait for the collection of superior strength on the near shore. This method is outdated by superior weapon systems that will destroy a concentration no matter what deception methods are employed.

Some of the techniques that the U.S. can use to implement these aspects of Soviet World War II doctrine are self evident, but others deserve explanation. Reconnaissance elements must train for hasty crossing reconnaissance. The Soviet experience reveals that reconnaissance units should anticipate such missions and conduct numerous site reconnaissances along the river. The unit must be aware of all the variables of site selection. Bank angles must be measured, river bottoms reconnoitered, width and depth measured, soil composition assessed, current

judged, and enemy positions probed. Reconnaissance units must train to accomplish these missions because engineer assets are currently too few to allow for such missions. Although reconnaissance units have many missions, training must emphasize hasty crossing site selection. Engineer units must provide the expertise to conduct such training during garrison and field duty.

Engineer units must train the maneuver units in expedient crossing operations so as to maximize the engineers' limited resources. Whenever possible the maneuver force must prepare the bank, build expedient rafts, conduct ford site maintenance, and locate and prepare expedient bridge resources. Organic engineer forces will accompany assault forces but they may be too busy to accomplish all the above tasks. The lack of engineer units does not relieve the maneuver commander of his responsibility to cross the river. The responsible commander must train his force in peacetime to learn these skills.

The future must emphasize the discussion of this doctrine, incorporate the conduct of hasty crossings into field exercises, and emphasize the conduct and techniques of hasty crossings at all branch and service schools. Doctrinal authors must incorporate valid criticism of this doctrine into existing manuals. Simultaneously, the U.S.

Army must test these concepts in field exercises and wargames.

#### Unresolved Issues and Conclusions

The testing and discussion of these concepts are just part of the process. This monograph leaves many questions unresolved and the Army must address them before the doctrine can be accepted. Does the adoption of a hasty crossing doctrine require the creation of forward detachments and what should they consist of? What influence do rotary wing and special operations forces have on a hasty doctrine? What impact does AirLand Battle have on logistics operations and how will this impact on a crossing doctrine that stresses the hasty crossing? Finally, the answers to these questions and the previous concepts must find their way into the curriculum of U.S. Army branch schools for all officers.

Only with the inclusion of these multiple facets into the doctrinal process will an adequate hasty river crossing doctrine evolve. This monograph represents only the beginning of that process; a review of only one of the offensive techniques which the acceptance of AirLand Battle doctrine requires. This topic is long overdue for review, but continued review is necessary if the U.S. Army is to accept the challenge of AirLand Battle.

## NOTES

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- 9 U.S. Army, FM 90-13, River Crossing Operations. 1978: p. 1-2.
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