

STUDENT ESSAY

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FIRE SUPERIORITY: OPERATIONAL LEVEL ARTILLERY LESSON FROM WORLD WAR II

BY

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USAWC MILITARY STUDIES PROGRAM PAPER

FIRE SUPERIORITY: OPERATIONAL LEVEL ARTILLERY LESSON FROM WORLD WAR II

AN INDIVIDUAL ESSAY

by

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ABSTRACT

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FIRE SUPERIORITY:
OPERATIONAL LEVEL ARTILLERY LESSON FROM WORLD WAR I

In World War II the United States and the Soviet Union were allied in the effort to defeat NAZI Germany. Larger manpower resources and greater national resources and productive capacity are often cited as the reasons for Allied victory. However, history reveals the German nation did not capitulate until the army surrendered. A study of the war's battles leads to the conclusion that Allied achievement of fire superiority over the Wehrmacht on both the eastern and western fronts defeated the German Army at the operational level. [Fire superiority was the end product sought of a combination of material and personnel with the doctrine that organized, commanded, and controlled these resources in combat operations.] It was the main factor for gaining the initiative and attaining a high momentum of advance (1). History reveals a progressive improvement in allied fire capabilities and application as the war progressed.

Many stress the differences in Soviet and American doctrine. In this article, however, I will examine the artillery doctrine of both nations to determine common principles which proved successful and may be applicable today. To accomplish this, I will describe a Soviet battle, analyze the artillery doctrine, and compare it with the US Army doctrine of the same period. I will then discuss current applicability.

Battle

In late 1944 it was clear that, strategically, Germany had lost the war. On the western front the allies had successfully landed in Europe and were pushing the Wehrmacht toward the Rhine River. In the east, the Red Army had pushed the Germans to the Vistula River. The Wehrmacht, although staggered by the blows, was still a formidable foe as demonstrated by the Ardennes Offensive. Against this backdrop the STAVKA (Soviet High Command) planned their winter offensive. The strategic goal was the destruction of the Germany Army on the eastern front in preparation for the final assault on Berlin and total defeat of Hitler. To do this the Soviets planned an advance by four Fronts (army groups) on a broad front through East Prussia, Poland, Czechoslovakia, and Hungary. The key attacks were parallel thrusts by the First Belorussian and First Ukrainian Fronts along axes converging on Berlin. Combat formations were to be ready by mid-January 1945. The operational mission assigned to the First Ukrainian Front was to advance to and bridge the Oder River in preparation for the attack on Berlin. (See Map)

Marshal Konev's First Ukrainian Front Plan was to advance from the Sandomierz bridgehead, destroy the enemy at Kielce, and reach a line from Radom through Czestochowa to Miechow within 12 days. From there Konev planned to move on Breslau, the capital of Silesia, along the Oder River. The breakout from the bridgehead was to be made on a nineteen mile front using six breakthrough artillery divisions and three armies (Pulkov's 13th Army, Koroteev's 52nd Army and Zhadov's 5th Guards Army). Two Armies (the 21st and 59th) were to follow in the second echelon and the 4th Guards Tank Army and 4th Tank Army formed a

front mobile group for exploitation. The 3rd Guards Army and 6th Army in the north and the 60th Army in the south were to make supporting attacks. Under the observation of the Germans Konev had secretly massed three armies with supporting tanks in the Sandomierz bridgehead and positioned over 300 medium or heavy artillery guns per kilometer in the forty by forty-five mile bridgehead. Constant probing and reconnaissance over the proceeding weeks had developed a detailed picture of the front line situation.

Marshal Konev's force was opposed by elements of General Harpe's Army Group A. Opposite the bridgehead were two German corps, the 48th Panzer Corps and the 42d Army Corps. A mobile reserve of two divisions was located so it could influence the action either at the bridgehead, at Kielce, or at Radom. The Germans defended the area between the Vistula and the Oder with a series of defensive belts, most located on water obstacles, made up of consecutive lines of battle positions and strongpoints. Belts were generally several kilometers deep, the main defensive belt along the Vistula being 6-8 kilometers in depth. Approximately 60 percent of the forces were in the main belt. One kilometer of front averaged tactical force densities of 1.7 battalions, 42 guns, and 23 tanks.

Chronology of Operations

120500JAN (local) 1945 Heavy fog shrouded the battlefield, a light snow covered the ground and the roads were icy; but, the ground had frozen and was forecasted to remain that way for the foreseeable future. Marshal Konev,

concurring with the STAVKA decision to attack without air support in order to take advantage of the freeze, ordered the attack. At 0500 hours the artillery opened the artillery offensive with over 350 batteries firing a massive preplanned preparation which struck the northern 2/3 (approximately 20 miles) of 48 Panzer Corps' front. During the preparations the AAG's (Army Artillery Group) and KAG's (Corps Artillery Groups) fired counterbattery. The Soviets had located 70 percent of the German batteries by reconnaissance and sound ranging in the preceeding days. Counterbattery was fired approximately ten minutes after the initiation of the preparation in order to catch the enemy gunners "standing to"; several times throughout the preparations to prevent counterfire and, before the opening of fire by the direct firing artillery and the attack of the assault forces to prevent enemy artillery fires at these critical times. The preparation simultaneously struck the first three fortified belts of the German defense to a depth of 10 km. It destroyed or neutralized manpower, equipment, fortifications, and command and control installations. Reconnaissance (forward) battalions moved forward during the initial preparation, secured the first trench line, and took cover in front of the second. The initial preparation lasted fifteen minutes. The 1000 hours preparation then followed.

121117JAN Infantry platoons, supported with tanks, initiated the attack all along the front while the fire continued for another thirty minutes. The Germans believed this was the main attack and moved reserves forward, while the defensive belts prepared for the onslaught. However the fire proved to be only an artillery feint. The artillery feint, conducted by firing a preparation according to doctrine and conducting a demonstration attack conforming to usual tactics, convinced the Germans that the real attack was

underway. The subsequent German actions revealed the location of their reserves, artillery, and mortars; and, exposed them to the devastation of the follow on (real) preparation. The follow on preparation of fifteen minutes completed the destruction and neutralization of the defenses. During the main preparation two divisions of the German reserve, which had been positioned too far forward, were neutralized, dispersed and eliminated as a fighting force.

The artillery feint was one of a growing bag of tricks the Russians had developed to take advantage of the German Army's stereotyping of Russian tactics and doctrine. German literature, then and now, focuses heavily on the predictability of the Russian commanders. However, by 1944 it was clear that the Russian commanders were taking advantage of the German's tendency to stereotype Russian tactics. This was evident from the feint, the varying lengths of the preps, the attacks through fires, and even the attacks without fires. Russian artillery plans were elaborately detailed and multi-echeloned by this time. But to the enemy soldier in his shelter, the fire was one continuous hell that never abated, until he was killed, captured, or bypassed. He neither knew nor cared about the elaborate planning and preparation necessary to execute a coordinated event on so large a scale.

121200+JAN The last preparation transitioned into the assault as the tempo of fire increased in order to prevent a lull during which the enemy could recover. Direct fire artillery and weapons focused on the deliberate destruction of front line bunkers, pill boxes, and machine gun positions; while indirect fire weapons pounded the other defenses. The Soviets achieved simultaneous and effective employment of all artillery ranging from counterbattery forces through accompanying guns. Poor visibility hampered

direct fire, but did not effect the outcome of the bombardment. As the advancing troops approached the wall of fire (80-100 meters for tanks, 150-200 meters for infantry), the fires lifted on pre-determined avenues of advance. Cooperation between the artillery and maneuver arms on the procedures had been coordinated prior to the attack and the advance moved according to a precise time schedule in order to facilitate control.

The Soviets used the double barrage technique in order to increase the depth of simultaneous neutralization of the defenses and to create the high fire density. Artillery assigned to support the attack was divided into two groups. Soviet planners divided the enemy's defensive front into main lines coinciding with the trenches and intermediate lines between the trenches. Artillery battalions, within the two halves, were given sectors of 150-200 meters into which they were responsible to fire. One group fired at the main and intermediate lines while staying successively ahead of the advancing infantry, and, the second group fired only at the main lines beginning with the second. These barrages rolled ahead of the advancing infantry and could be adjusted according to prearranged signals. This produced a wall of destructive fire ahead of the attack and a curtain of fire that protected the advance into the trenches and Soviet consolidation of forces before their attack on the next main line. Front level coordinated this fire along the breakthrough sector for a distance of 20 km.

The assaulting forces were echeloned in depth (usually two echelons) in order to produce an attack of ever increasing intensity. As the infantry moved into the trenches they found an enemy who was dazed and confused by the destruction around him, and who offered only minimal resistance. In this manner the First

Ukrainian Front forces penetrated through the first and succeeding defensive belts. As the advance exceeded the ranges of artillery, the Soviets moved their artillery forward; but, as the penetration developed the Soviets relied more heavily on accompanying artillery and more decentralized control of fire support. Shortly after noon 13th Army had already penetrated the first defensive belt.

121400JAN Konev committed Lelyushenko's 4th Tank Army and 3rd Guards Tank Army to combat and a separate tank corps of one of the second echelon combined armies followed the tank army. By this time the Germans had fallen back to their second defensive belt. Soviet armored elements recieved their artillery support from accompanying motorized artillery. Additionally, clearing conditions allowed some 300-466 air sorties along the front.

121800+JAN Soviet forces had penetrated the defenses to a depth of 15-20 km on a 35 km front. The Soviets disorganized German command and control and the offensive continued throughout the night with a continual commitment of forces. The 48th Panzer Corps was cut up and destroyed and 24 Panzer Corps' two divisions west of the bridgehead (operational reserve) were neutralized by the fire and overrun in their assembly area.

13----JAN During the preceeding night the Soviets occupied the second defense belt and on the 13th the Nida River was crossed. The 4th Tank Army wheeled northwest toward Checiny while 52nd Army and 3rd Guards Tank Army pushed due west past Chnielnik. The remainder of the 24 Panzer Corps dug in around Kielce. German forces then began a withdrawal to the west supported by counterattacks all of which faltered. Konev had broken the defense.

Meanwhile, the 60th Army had launched an attack toward Cracow and as the front broadened Konev forced the 59th Army and 4th Guards Tank Corps into the gap between 60th and 5th Guards Armies, also on a course for Cracow. Artillery support for these forces followed a similiar pattern to that discussed above.

/14-16JAN/ The attack picked up momentum with the commitment of the additional armies and the weather cleared thus permitting the Red Army Air Force to conduct some 2000 sorties which compensated for the diminishing amount of artillery support caused by the rapid advances. Although less than before, the artillery support was still substantial. The artillery could and did mass effectively to overcome the German strongpoints established in villages and towns and to defeat major forces such as the remainder of the 24th Panzer Corps at Kielce. On 14 January the First Belorussian Front launched their offensive on the north flank and on 15 January the Fourth Ukrainian Front launched their offensive on the south. On January 15 Kielce also fell to the Soviets after fierce fighting as 4th Tank Army swept around to flank it from the west while the First Belorussian Front threaten it from the north. German attempts to reinforce Army Group A were ineffectual, as they were too little and too late.

17 January 1945 The breakthrough was complete. The First Ukrainian Front had accomplished the first part of its operational mission six days early, and, had cleared a line from the east of Cracow to west of Modlin.

17 January - 1 February Throughout the continuation of the freeze, First Ukrainian Front advanced northwestward into Silesia and Germany parallel to

First Belorussian in a pursuit operation that continued day and night. Armored forces moved in multiple columns that deployed from the march to overcome resistance or simply bypassed it and left it for follow on echelons to clean up. Not until the February thaw were the Germans able to re-establish a coherent defense line along the Oder River line. By then the front had narrowed and the Russians were straining their lines of communications sufficiently for the offensive to grind to a halt. By this time, however, Marshal Konev had established a bridgehead over the Oder from which to launch future operations.

Artillery in support of the attack in the depth of the enemy's defenses relied heavily on advanced coordination between the maneuver and artillery commanders. Of primary importance was the means of communication and signals between the two to obtain fires. Additionally, the Soviets used artillery as a maneuver element and assigned it to physically occupy protective positions on the flank of the advances and to cover the flanks with fire. Artillery fires were preplanned on known or likely defensive positions along the avenue of advance. This enabled the artillery commander to position his unit for support. Air support and mobile artillery compensated for decreased artillery support during the decentralized mode of the advance. Direct fire guns accompanying maneuver forces also helped solve this problem. But there should be no confusion; soviet artillery, although less sophisticated in their fire control and mobility than the Germans or Americans, was still extremely effective and the quantity of it more than compensated for minor technical problems. More importantly, any resistance that slowed the ground advance simply allowed the follow on artillery to concentrate and resulted in a continuous increase in the tempo of fire. This was a defacto echeloning of

artillery that ultimately overcome enemy resistance. The degree of importance of fire control technology is relative; and, far more important to the artilleryman than the soldier under fire (2). To the soldier it is the quantity and effectiveness of opposing fire that counts, and not how it is technically controlled. In this case, the quantity of Soviet artillery, its organization for combat, and its destructive capabilities destroyed the German soldier's capability and will to resist and determined the outcome of the battle.

Soviet Doctrine

Doctrine comprises the fundamental principles by which the military guides its forces in support of objectives. It is authoritative but requires judgement in application. Artillery doctrine in the Red Army developed on the basis of hard experience and through an evolutionary process that focused on the achievement of total fire superiority. The guns and weapons of the maneuver units as well as the planes of the air armies contributed to obtaining fire superiority. Once the Soviets obtained fire superiority their task was to maintain it throughout the operation. The Soviets maneuvered artillery units in order to achieve a favorable fire ratio in the main attack sector, increased the general ratio of forces through concentration of fire on the enemy, and then advanced with an increased tempo and momentum created in part by systematic fire (artillery offensive) and the echelonment of maneuver units. In the defense they reduced the attacker's strength by applying an ever increasing level of fire power and by exchanging space for time in order

to maneuver sufficient units to counter the advance. Soviet artillery fired 90% of the munitions (by weight) used by the Red Army in World War II. This is indicative of the important role played by Soviet artillery.

The success of the artillery doctrine resulted from Soviet study of the principles for artillery organization, its operational and tactical employment, command and control relationships, staff planning and coordination, and the use of artillery in combined operations. The genesis for these principles took place in 1941-1942 as evidenced by a STAVKA directive issued in 1942, which called attention to the inadequacies of the army's use of artillery and which replaced the practice of the artillery preparation with the more comprehensive artillery offensive. Prior to 1942 artillery employment was characterized by even distribution of artillery along the front, lack of fire support during the movement of units, reliance on area fire, and the use of stereotype preparations with little support for advancing ground units. The artillery offensive embraced the combined arms approach and required the artillery to advance with the infantry and deliver fires at short intervals in the offensive until the enemy defenses had collapsed throughout their entire depth. It required the infantry to advance during the fire, instead of after the preparation. Lastly, it required the artillery to be concentrated in the area of the main attack of the front or army. An "artillery offensive" meant neutralization of enemy defenses, as well as, continuous concentrated effective fire support of the infantry and tanks throughout the entire offensive. The Soviets divided the artillery offensive into three phases: artillery preparation of the attack, artillery support of the attack, and artillery support of infantry and tanks in the depth of enemy defenses. By the time of Marshal Konev's offensive, the Soviets had perfected

the artillery offensive (3).

The organization of artillery forces responded to both the administrative and operational requirements. The Soviets divided artillery units into two categories. Organic units were assigned directly to the regiments, divisions, and armies and provided the basis for support to the infantry and armor. Non-organic units were part of a large general reserve pool (RVGK - Supreme Command Reserve) from which they were assigned to support specific combined arms operations. Prior to the war the majority of artillery had been at the lower echelons, but, experience had proved that artillery was better used at the combined arms levels - corps, army, and front. Thus, although the capabilities of direct support artillery improved through technology throughout the war, the numbers of weapons never reached the pre-war levels. Artillery at the combined arms levels and within the General Reserve increased considerably. Instead of regiments, battalions, and separate batteries, the Soviets created artillery divisions, brigades, and corps in the General Reserve.

Operationally, artillery was organized by use of tactical groupings. A group consisted of two or more battalions. The groups were subordinate to the combined arms commander and received their name from the tactical organization supported. Both on the offense and on the defense regimental (RAG), division (DAG), corps (KAG), and army (AAG) artillery groups were formed. The number of battalions in a group varied based on the mission and the amount of artillery allocated to support it. This number varied during the different phases of the operation as artillery was often moved from one role or priority to another. In addition, special groups for specific tasks, such as

counterbattery and point destruction, were organized at the corps or army levels in addition to the KAG OR AAG. The use of the groups was an important operational principle. Its practice enabled the combined arms commander to rapidly and effectively task organize his artillery support from within or integrate additional forces from the General Reserve. The group concept and the Soviet artilleryman's adeptness with it permitted the concentration and control of large formations of artillery and the delivery of effective concentrated fire.

The offensive of the First Ukrainian Front was not an isolated instance of the effective use of artillery. It was an integral part of the STAVKA strategic drive on Berlin, and, but one operation among several simultaneous front operations toward that objective. Integrated operations among Front levels were characteristic of Soviet strategy. The Soviets allocated, maneuvered and employed artillery at all levels designed to provide overwhelming weight to the main effort in the offensive and to counter the enemy's main attack in the defense. This was possible because of Soviet centralized control over artillery forces.

Allocation of artillery at all levels was based on the simple principle of weighting the main effort. Subordinate commanders from front to division allocated artillery on the same basis. The Soviets created sufficient artillery resources at every level by reallocating artillery from quiet, unimportant sectors and by fully using all available artillery. This often led to the regrouping of artillery units across large areas of the front in relatively short periods of time. Concentration of firepower by the regrouping (maneuver) of artillery from front to front, army to army, and even

flank to flank of the infantry division was one of the greatest strengths of Soviet artillery. The Germans were continually confronted by overwhelming artillery ratios at the critical points, and, the Germans were increasingly hardpressed to predict where that critical point would be.

The employment of artillery during the preparation evolved into a fine art during the war. The preparation served not only to neutralize and destroy the enemy's command and control, counterfire capability, and defensive positions, but, the Soviets varied its employment and changed its order to confuse the enemy's responses. The artillery feint, double barrage, and counterbattery program in the Vistula-Oder operation illustrate this point.

The success of Russian fires hinged on several factors. Use of the artillery feint indicated the importance of posturing the enemy or surprising him in an exposed condition. Second, the Russians did not depend entirely on area fires. Increasingly after 1942, when artillery units fired, it was at designated targets determined through detailed reconnaissance and intelligence analysis. They treated suspected locations as real targets and used the same detailed fire planning. Third, fire planners used very precise formulas to determine the amount of fire necessary to neutralize or destroy targets which considered the type of target, number of rounds, area to be covered, and length of fire. In addition, they did not fire to hit the target, rather they fired to create an effect on the target. The formulas determined the amount of fire necessary to destroy or neutralize the target. Lastly, the Russians concentrated on placing as much fire (number of rounds) on as many targets in as short a time as possible. The Soviets measured this combination of massed fire over a given area in the shortest time as fire density. Fire density

created fire superiority, which in turn prevented the enemy soldier from performing his primary tasks, denied him advanced warning and prevented him from finding cover. Artillery support of the attack was planned in as much detail as the preparation itself.

Artillery commanders and staffs were located at every echelon and had a dual command and control relationship within the combined arms and artillery channels. Each commander was responsible to the next higher artillery commander and to the appropriate maneuver level commander for the efforts of all the artillery units in the group. The front combined arms commander resolved the issue of allocating forces and fires, but, the component commanders and staffs determined the precise resources, the missions to be accomplished and artillery employment throughout the stages of the operation. The artillery commander and the air army commander were members of the powerful and prestigious front's military council, and that facilitated the coordination between artillery and air staffs, as well as, with the Front general staffs. The artillery and air commanders planned their offensives with emphasis on organizing the regrouping of artillery organizations, artillery readiness, artillery and air strikes, reconstitution of forces, the all round support of combat operations, and troop training. It was common for the Front commander to personally check the terrain and determine the fire tasks during the penetration phase. Marshal Konev claimed that he checked and approved all the artillery offensive plans of the armies.

Centralized planning and control and decentralized execution characterized artillery employment. The personal involvement of commanders and the centralization of planning insured unity of effort and freed the firing units

to focus on the technical quality and responsiveness of support. The quality of the staffs made this possible.

At the same time the STAVKA mandated use of the artillery offensive it took positive steps to improve the staff operations. First, it instituted a system of recording and disseminating combat experience. The effectiveness of this technique was apparent in the manner with which innovations in artillery employment spread through the Red Army. Second, it improved staff officer training and assigned those trained officers to staff positions. Third, as the requirements and level of detail increased, it enlarged the size of the staffs. These concerted efforts to improve the quality and strength of staffs led to more detailed planning and more effective staff coordination. Staffs used a combination of successive and parallel planning to master the necessary details. Questions on the employment of systems or units were coordinated up and down the chain and between the general and artillery staffs and staffs developed and implemented a clear delineation of tasks. Some headquarters reduced the requirements to a set of standard forms.

As a general rule RAGS and DAGS performed the direct support (immediate response) missions, while the specific tasks such as counterbattery or neutralization were assigned to the Corps and above. Artillery commanders at the corps and division levels, in coordination with the maneuver commanders, planned fire on the direct laying targets and the use of close support (direct fire) artillery. Thus, as the staffs increased in efficiency, control of artillery centralized toward the Front level through organization, tasking, and the detailed level of planning (4).

Centralization also resulted in other organizational changes that had a positive impact on the quality of fire support. Artillery reconnaissance resources were centralized in order to acquire detailed target data and "clearing houses" organized that data. Commanders also used the intelligence resources of the G-2 and the intelligence gathering capabilities of the air army in this effort, thus, gaining greater benefit from these previously uncoordinated sources. The artillery offensive was a key element in Soviet combined arms doctrine and by war's end the Red Army was a combined arms army with a sophisticated and effective artillery doctrine.

US Army Doctrine

The US Army doctrine that emerged from World War II was similar in aims to Soviet doctrine, but, varied greatly from the Soviet in how the aims were achieved. The US Army required artillery to achieve fire superiority over the enemy artillery and maintain that superiority throughout the conduct of the campaign. However, maneuver was considered the dominant element of the engagement and artillery's primary role was the support of maneuver in contact. This was a basic difference in outlook. The Soviet Front Commander accepted his mission, determined the necessary fire ratios to achieve success, compared the necessary support to that allocated, and, if insufficient, received additional fire support or adjusted his mission accordingly. The US commander received his mission, developed his scheme of maneuver, and allocated those fire support units available to him. He might request additional fire support, if his artillery officer was efficient, but, he did

not adjust the objectives to achieve a favorable fire superiority ratio. The US commander sought to out maneuver the enemy, and not neutralize or destroy him through fire superiority. Operations on the western front generally reflected this approach. When fire support was inadequate, the offenses simply stalled until sufficient fire superiority was achieved or until the situation was changed by events elsewhere. The US artillery had no equivalent of the artillery offensive. Four years of war experiences permitted the Soviets to predict better the amounts of artillery support necessary to produce operational success in a given situation and to adjust their forces accordingly.

The US entered the war with a basic doctrine that ultimately proved successful for them. At first however, they were poorly organized to achieve it. The Battle of Kasserine Pass in the North African Campaign highlighted the problem. Their forces were organized in battle teams with the artillery cross attached to armor and infantry units. The artillery support was fragmented, inadequate, and ineffectual and defeat resulted. A July 1943 reorganization order of the army addressed these problems. A new structure established the battalion, rather than the regiment, as the lowest self sustaining unit and replaced the fixed artillery brigades with a corps artillery headquarters. The corps artillery commander was dual hatted. He replaced the artillery brigade commander and became the artillery officer on the corps staff. The order established a field artillery group headquarters, containing a variable number of battalions, all subordinate to the corps artillery. A corps could have any number of artillery groups attached. Division retained its direct support artillery which was as mobile as the supported unit. The same order reduced the tank strength of the tank division and increased the ratio of

artillery to armor. The assignment of artillery officers (with supporting staff sections) at army and army group levels, and, the creation of the artillery brigade headquarters with subordinate units at army level completed the new artillery structure (5).

Division direct support artillery were the only organic firing units within a corps or army. All other artillery battalions, groups, and brigades were part of the war department reserve and were allocated to the various theaters according to the situation. Generally, these units were allocated all the way down to the corps level for employment, although in one instance, First Army did employ the 32d Artillery Brigade in army support. The army groups and armies had no technical fire capabilities. Tactical employment of artillery, to include preparations and counterfire, was done at the Corps and below. Units were shifted between corps and armies to weight a major effort, but, a review of after action reports indicates that this practice did not approach the frequency or scope of such moves on the eastern front. [Probably because US experience was limited and German resistance never really warranted it.] Moreover, a concerted effort was made to develop habitual relationships between the corps level and direct support artilleries that made artillery regrouping more difficult. This is indicative of a less well developed and universal set of staff coordination procedures than that used by the Soviets. Samples of staff work, detailed by today's standards, support this assessment.

The success of American artillery was based on its ability to mass fires in a short period against a single point through fire control, rather than movement. "Serenade", a Third Army procedure, could mass all available fires

against a limited area within a corps in less than eight minutes. Although this massing was effective against tactical targets, artillery quantities limited the US ability to mass heavy fires against operational targets (a wide sector of the front). This explains US difficulties in achieving large operational breakthroughs. Operation COBRA is an example of where massed airstrikes were used to achieve an operational level breakthrough. However, the airstrikes lacked the precision of the artillery offensive and friendly casualties alone were sufficient to preclude future use of the technique. The Soviets routinely used artillery at this level with success.

Radio communications provided extreme responsiveness and American cannoneers enjoyed greater mobility and better technical fire control than their contemporaries on the eastern front. Both flexibility and control were achieved by the assignment of tactical missions: direct support (DS) of a maneuver unit; reinforcing (R) the fires of another artillery unit; general support - reinforcing (GSR); and general support (GS) of the Corps. Direct support was the most decentralized and general support the most centralized. Artillery was attached under special circumstances to maneuver units when the normal control measures weren't applicable. The tactical mission indicated the degree of command (control) exercised by the supported unit and the logistic and administrative relationship. More centralized control was equated to greater flexibility.

Command in the American artillery ended at the corps level. The Corps Artillery Commander exercised control over the corps artillery (battalions assigned to Corps) and the artillery of the corps (organic division artillery). Army and Army Group (AG) Artillery Officers were staff officers

only. There is no doubt that this affected the role of artillery at the operational level. After action reports and a series of published articles at the end of the war advocated the need for artillery commanders at Army and Army Group levels. These publications argued that the Artillery Officer in reality was responsible for and exercised on a daily basis "command" prerogatives with subordinate artillery units. Regardless of structure, a dual command relationship similar to that of the Soviet artillery had evolved within the artillery channels and between the artillery and the maneuver units. The degree of interface between the artillery commander/officer and the combined arms force commander varied from organization to organization and was often a factor of personalities rather than combat needs. In many organizations the senior artillery officer did not have access to the commander and the force commander did not become personally involved in the achievement of fire superiority (6).

Artillery staffs at all levels integrated with the general staffs in order to gain information and stay abreast of the situation. Particularly strong relationships developed with the air staff and the G-2, the former because of the need to integrate air and artillery support, and, the latter because of the target development potential and the exchange of real time intelligence. Staffs above Corps were responsible for keeping the commander advised on all aspects of artillery employment and for maintaining a six month outlook at operational, administrative, training, and logistics problems. In addition, they tackled immediate problems, coordinated conflicts, and provided an up to date information flow in artillery channels on all of the above problems. These staffs were organized parallel to the general staffs with an S-1, S-2, S-3, and S-4. Liaison members of the artillery staff were co-located with the

G-2, G-3, Air Corps, and logistical headquarters to expedite issues. The problems were multiple and the liaison officers were well justified. Corps artillery staffs supervised the ongoing battle and had primary responsibility for the counterbattery fires and corps artillery preparations. On occasion they did send fire missions to direct support units. Corps artillery developed and executed fire plans. However, these plans were not developed in as much detail as those that existed in Soviet fire planning, and hence, they were much less effective. In essence Corps and Army fire planning in the US Army remained in its infancy.

The conduct of the war on the western front also involved multiple and sequential army operations. In these operations, decentralized planning and decentralized execution focused at the division level characterized US artillery employment. Decentralization was facilitated by the radio communications and mobility of firing units. American artillery doctrine at the division level was successful. However, experience indicates that the scope and intensity of conflict on the western front was less than the eastern, and, lessons drawn from this success must consider that fact. As on the eastern front the amount of artillery support requested and employed at all levels increased as the war progressed, but US artillery organization and employment techniques at corps and army level did not evolve commensurate to the growing scale of war. In part this was due to the large amount of air power available to US commanders and in part because of the relatively short period that US forces were involved in large scale combat.

Conclusions

Today the major threat to the United States' security is the Red Army. It is a thoroughly modern force that has adopted modern technology in its weapons, mobility and command, control, and communications. FM 100-5 credits the Soviets with the ability to accomplish massive troop concentrations and concentrate immensely destructive fires. Future battles may be of a greater scope and intensity than ever fought before. The offensive of the First Ukrainian Front, comparable in scope and intensity, portrays the future battlefield. The Soviet Army's doctrine incorporates that experience and still predicates offensive success on the achievement of the initiative and a high level of momentum through fire superiority. Its technology is new, but, its goal is the same. The US Army, until recently, has lacked a coherent doctrine for operational level warfare (corps, army, army group). World War II experiences offer a sound basis for the development of such a concept for the artillery.

The increasing level of violence necessary to achieve victory is an escalating trend in the history of warfare. Fire superiority won the last war. Maneuver was essential for creation of fire superiority in the critical sector, but, the Germans capitulated only after their army was destroyed in the field. Hitler successfully maneuvered his forces to Moscow, but, lost the battle because the Russians created fire superiority. The implication is that both on offense and defense the balance of effort spent on developing fire superiority and maneuver should lean toward the creation of fire superiority for fire superiority is a necessary prerequisite for maneuver to succeed.

Both the Red and US Armies were combined arms forces. On the operational level the degree of integration of the effort of the separate arms into the overall scheme of battle was directly reflected in the results achieved. Proper integration proved to be essential to the effectiveness of the campaign and to the efficiency of the separate arms. In the case of the artillery and the air arms it eliminated duplication of effort, increased the attack options, maximized the destruction capabilities of both systems, and allowed for mutual support. An example of mutual support is artillery air defense neutralization fires.

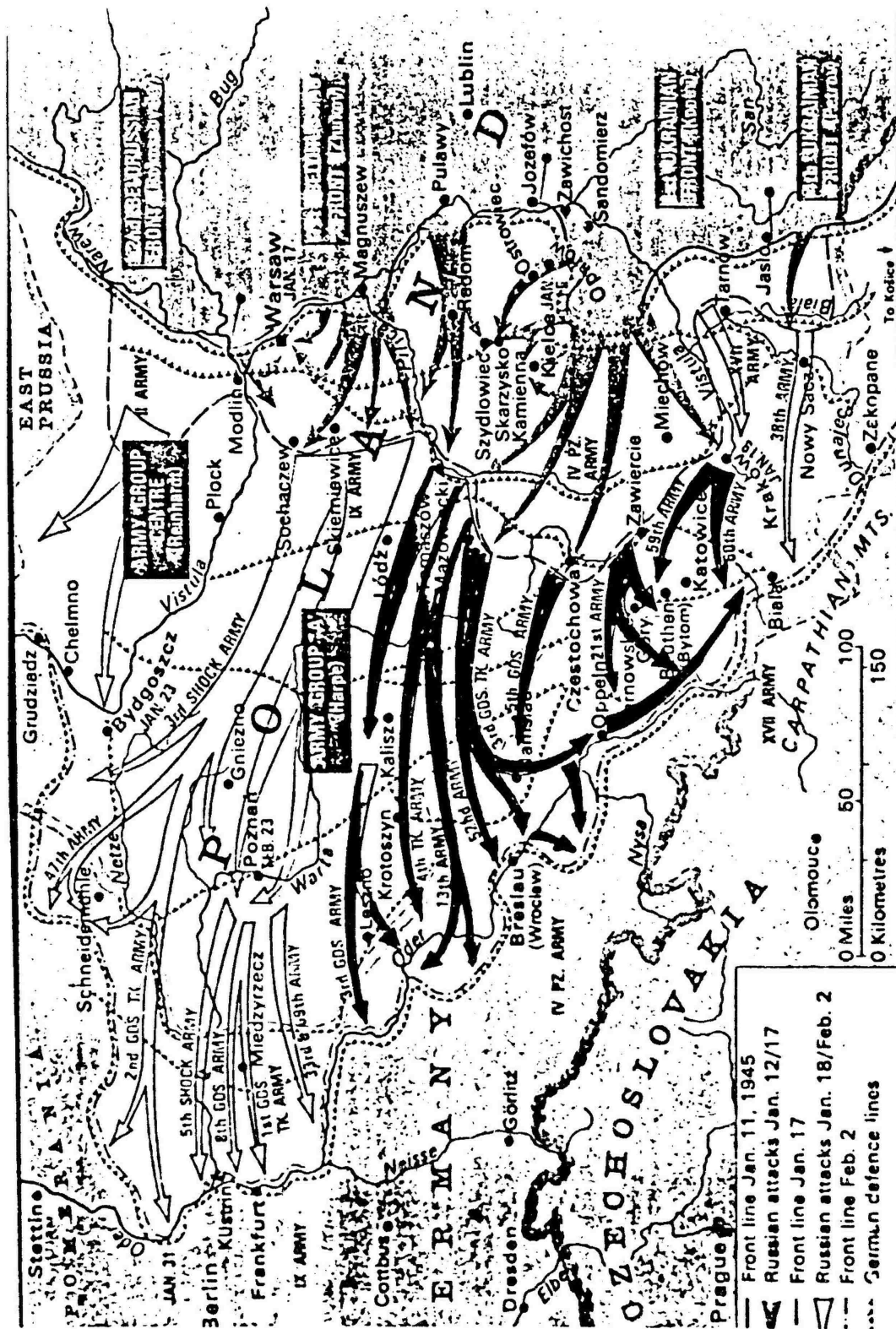
Equally important to the success of the Red Army was the level of personal interest the commander took in developing and executing the combined arms offensives. Early on, the STAVKA concluded that only a commander's personal involvement would produce the effective combined arms effort necessary to achieve fire superiority. This principle was reinforced through training, directives, and the exchange and emphasis of successful techniques within the army. Successful US commanders demonstrated the same interest and expertise. Commander to commander relationships were more effective than senior staff officer to commander relationships. This applied within the artillery channels and between the artillery and maneuver elements. "Commanders" and staffs were found to be appropriate at operational levels in both armies.

Both armies recognized the need for training and assignment of quality staff officers in adequate numbers. Extensive coordination in fires, intelligence, and logistics was required at all levels and liaison officers were needed at critical staffs and headquarters. Both forces concluded that effective liaison and staff officers could be developed through training and experience.

Both armies advocated the centralization of artillery in excess of the direct support artillery in order to provide flexibility, responsiveness, and a capability to influence the battle immediately at the operational level. Analysis of both the US and Soviet attempts to centralize artillery indicates that the Soviet model offered more overall flexibility and capability. The ability of Soviet artillery to regroup on a large scale and integrate effectively into a new group is particularly impressive. Since the Soviets were forced by circumstances to focus on army group (Front), army, and corps operations it is natural their experience would produce an effective artillery organization at these levels.

In addition, the procedures used by the Red Army for calculating and achieving fire density appear adaptable to computer formats.

There is no doubt that the technological advances in the last thirty years have had a dramatic impact on the battlefield. It has expanded in scope and the accuracy of fire has increased as well as the intensity. The challenge for today's battle commanders is greater than that of either Marshal Konev or General Harpe. The World War II experience indicates that victory will belong to the one who best achieves fire superiority at the operational level.



FOOTNOTES

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