

See Lester
[] 198

The Moscow Campaign, October - December 1941

by

MSG Larry A. Hartig

MSG Robert P. Harn

MSG Ronald W. Linville

MSG Hartman Wilkins

SGM Donald H. Halsey

Group 14

26 May 1994

Outline

Thesis: The German Army lost its October-December 1941 campaign against Moscow because of three factors.

I. Hitler and his military staff overestimated the ability of the German Army and underestimated the ability of the Soviet Army.

A. Hitler and his staff did not respect the Soviet Army or the Soviet soldier.

B. Hitler underestimated the will of both the Soviet soldier and the Soviet citizen to resist.

C. Hitler and his staff vastly underestimated the ability of the USSR to mobilize for war.

D. Hitler was so confident of his army that he made no provisions for strategic bombing of the USSR.

E. Hitler overestimated the ability of his forces to succeed against superior forces in prepared defensive positions.

F. Hitler overestimated the ^{SP}usefulness of "blitzkrieg" tactics in the vastness of the USSR.

II. The Soviet Army was able to field large numbers of replacement forces.

A. The Lend Lease Act was the basis for Russian success during World War II.

B. From the start, Hitler's attack on Moscow had little chance of success.

C. British aid to Russia was self-serving because Britain had its own war objectives against Germany.

D. The First Russian Protocol was an agreement with the Western Allies for military aid.

E. Promised aid began to arrive in the Soviet Union.

F. The ability of the Soviet Army to move troops and supplies exceeded that of the German Army.

III. The early onset of the severe Russian winter drastically impeded the effectiveness of Army Group Center.

A. The climate had a severe impact on the German soldier.

B. Movement in deep snow was extremely difficult.

C. Extreme cold reduced the efficiency of equipment.

D. German soldiers did not have adequate clothing for winter operations.

E. Rations froze during transport to field locations.

F. German soldiers suffered from disease and frostbite.

G. Weather conditions left German soldiers exhausted and unable to fight.

The Moscow Campaign, October - December 1941

Between 2 October and 8 December 1941, the German and Soviet Armies battled for control of the city of Moscow. This campaign was but a small portion of Hitler's strategic plans for the conquest of the USSR. But the results of the campaign were very significant. It marked the first time that German forces on the Eastern Front had failed to ultimately secure an objective. This campaign foreshadowed the Soviet Army's inevitable defeat of Hitler's Germany.

The German Army lost its campaign against Moscow because of three factors. First, Hitler and his military staff over-estimated the ability of the German Army and underestimated the ability of the Soviet Army. Second, the Soviet Army was able to field large numbers of replacement forces. And third, the early onset of the severe Russian winter drastically impeded the effectiveness of the German forces.

Before discussing these three factors, however, a historical understanding of certain events is necessary. These events include the military situation in Europe, the war on the Eastern Front, and the battle for Moscow itself.

In 1939, Hitler was fearful of Stalin's intentions in Europe. Hitler was ready to begin military campaigns on the continent. However, he was fearful of doing so with Stalin and the Soviet Army at his back. So Hitler directed his foreign minister to seek a treaty with the Soviet Union. On 23 August 1939, the foreign ministers of the USSR and Germany signed a Non-Aggression Pact in Moscow (Seaton 9). This pact allowed Hitler

to begin his armed conquest of Europe. It also allowed Stalin time to build up the Soviet Army.

By the fall of 1940, Germany's land war in Europe was at a temporary standstill. Germany had militarily defeated or had subjugated by military threat all of western Europe and most of eastern Europe. Britain remained as the only country that Germany had fought and not defeated.

The English Channel and the Royal Air Force saved Britain from falling to Hitler's Wehrmacht. The Royal Air Force gained air superiority over the German Luftwaffe during the Battle of Britain (Keegan 102). Without air superiority, Hitler decided that an amphibious invasion across the English Channel was too risky. So on 12 October 1940, Hitler cancelled Operation SEELOEWE ("Sealion"), Germany's planned seaborne invasion of England (Blau 1 and Keegan 131).

Yet even before cancelling SEELOEWE, Hitler was already considering an attack on the Soviet Union. Within days of France's surrender on 25 June 1940, Hitler had informally mentioned war with Russia (Seaton 36). On 21 July 1940, Hitler officially discussed this possibility with Field Marshal Walter von Brauchitsch, Commander-in-Chief of the Army. On that date, Hitler directed Brauchitsch to prepare plans for a campaign against the Soviet Union (Blau 1 and Fugate 61).

Hitler had long and ardently desired the defeat and subjugation of Russia (Keegan 128). Since his rise to power in 1933, Hitler had consistently implemented anti-communist and anti-Soviet policies (Seaton 24). In 1924, in Mein Kampf, Hitler

had written of his hatred of Jews, Bolshevists, and all of the Slav races (Seaton 24). He had written that his ultimate aim was the conquest of Russia with its grain, cattle, oil, and ores (Seaton 24). Hitler also wanted to defeat the USSR to secure "Lebensraum" ("living space") for the German nation (Anders 2).

In the fall of 1940, Hitler had nothing to fear from the West. The German Armed Forces had the British contained. And for the meantime, the United States was neutral. But the untouched power of the USSR hung over Hitler and the German nation like the sword of Damocles (Anders 5).

In mid-June 1940, the Soviet Union had annexed the Baltic States--Lithuania, Latvia, and Estonia (Seaton 9). On 28 June 1940, the Soviet Union had annexed the border areas of Rumania--Bessarabia and North Bukovina (Seaton 9). Although a secret protocol to the Non-Aggression Pact of 1939 authorized these actions, they still alarmed Hitler (Keegan 129). Hitler saw these actions as a westward movement of the USSR's strategic boundaries (Keegan 129). Hitler realized that he could not defer a test of strength with the USSR forever; and, if so, it must be sooner rather than later (Keegan 129).

On 18 December 1940, Hitler issued Fuhrer Directive Number 21, or Operation BARBAROSSA, for the attack on the USSR (Fugate 84). This order called for three army groups--North, Center, and South--to attack the Soviet Union (Keegan 136-138). According to The Encyclopedia Americana, Germany committed "...148 divisions, including 19 panzer divisions, to the invasion of the USSR. Total personnel strength was 3,050,000 men. Initially the armies

had 3,350 tanks, 7,184 artillery pieces, 600,000 motor vehicles, and 625,000 horses, and the Luftwaffe provided 2,500 aircraft of all types" (422). The immediate objectives of Operation BARBAROSSA were Leningrad and the Ukraine (Kiev) (Fugate 84-85).

The first priority of all army groups was the total destruction of all Soviet forces stationed in western Russia (Blau 22). Initially, all army groups were to prevent the organized withdrawal of intact units to the interior of Russia (Blau 22). They were to use deep thrusts spearheaded by armored units to encircle and destroy Soviet forces along the border (Blau 19-22).

Army Group North was to attack toward Leningrad. The right wing was to thrust deep into the Baltic States and then force Soviet forces toward the sea (Anders 37). The ultimate objective of Army Group North was to occupy Leningrad and Kronstadt (Fugate 69-84).

Army Group Center was to attack toward Smolensk. After crushing enemy forces in White Russia, it was to send northward strong motorized units (armor) (Blau 23). These units were to annihilate enemy forces in the Baltic area in coordination with Army Group North (Blau 23). After successfully completing that urgent mission, Army Group North was to capture Leningrad and Kronstadt (Blau 23). Only then could the motorized units return to Army Group Center for an attack toward Moscow (Blau 23).

Army Group South was to attack toward Kiev. Army Group South was to crush all Russian troops in the Ukraine west of the Dnepr River (Blau 25).

According to Blau, the ultimate objective of Operation BARBAROSSA was "...to screen Europe against Asiatic Russia along the course of the Volga and thence along a general line extending northward toward Archangel. Thus, if necessary, the German Air Force would be in a position to neutralize the last industrial region remaining in Russian hands, i.e. that situated in the Urals" (22). The German Army High Command estimated "...that the Soviet Union would be defeated in a campaign not exceeding 8-10 weeks' duration" (20).

Before beginning Operation BARBAROSSA, Hitler had to secure the right flank of the Eastern Front. This meant conquering the Balkans. Conquering the Balkans also presented other benefits.

Hitler wanted the rich resources that the Balkans could afford him. Greece, Rumania, and Yugoslavia could provide resources that were important to Germany. To support his war efforts, Hitler needed the resources and fuel for his tanks that the Balkans had. Hitler also knew that the very location of the land itself would benefit him. Strategically, the region was a corridor between the east and west, a route to supply his armies in Russia.

Hitler committed ^{ten} 10 infantry and panzer divisions to the invasion of the Balkans. The occupation of Greece was his primary objective. This would ensure a secure Balkan flank for his planned attack against the Soviet Union. Hitler faced the problem of moving the troops and equipment into attack positions along the Greek border. This movement required diplomatic negotiations, which at the time involved Russia. The Soviet

Union began asking questions about Germany's interest in the Balkans. (Cited)

Hitler and his military planners concluded that an attack through Yugoslavia was the best option and approach. German forces overran Yugoslavia in 11 days during the invasion named Operation PUNISHMENT. The invasion of Greece was code-named Operation MARITA and took only three weeks to complete. Hitler's Balkan campaign took but a few weeks to complete during the spring of 1941. However, the time and resources expended during this campaign would cause Hitler to delay his invasion of the USSR. This turned out to be one of the domino pieces that caused Hitler's forces to fight during the Russian winter (Cochran 39-44).

Operation BARBAROSSA began at 0300, 22 June 1940 (Blau 44). According to The Encyclopedia Americana, Soviet forces in European Russia included 170 divisions and 41 motorized or armored brigades (422). This amounted to approximately 2,300,000 men and 10,000 tanks (422). The invasion of the USSR started the clash between two of the largest armies in the world (Compton's CD-ROM). Army Groups North, Center, and South achieved complete tactical surprise over Soviet forces (Anders 31).

After Germany invaded the Soviet Union, other nations quickly chose sides. Britain sided with the Soviet Union, providing aid to that country. Italy, Hungary, Finland, and Rumania allied themselves with Germany (Compton's CD-ROM).

"By mid-August [1941], the first phase of the offensive was nearly ended" (The Encyclopedia Americana 424). The German Front

extended from the Baltic Sea to the Black Sea, a distance of 2,000 miles (Trask 4). All three army groups, with the exception of Army Group South, had met or exceeded their objectives for the first phase (Blau 65). The Soviet Army's retreat had created havoc for the German Army's advance. The retreating Soviet Army had destroyed everything that was of value to the German forces. DA Pamphlet 20-230 refers to this as the "scorched-earth" concept (75).

Through mid-August, Army Group North had destroyed 12-15 Soviet divisions during fighting west of the Dvina River (Anders 39). The three-pronged attack that it had launched against Leningrad on 10 August 1941 was meeting stiff resistance (Blau 65).

Through mid-August, Army Group Center had captured 289,874 prisoners, 2,585 tanks, and 1,449 guns in the Bialystok-Minsk pocket (Anders 39). At the Smolensk pocket, it had captured 185,487 prisoners, 2,030 tanks, and 1,918 guns (Anders 43). And at the Roslavl pocket, it had captured approximately 38,000 prisoners, 200 tanks, and 200 guns (Anders 48). By 8 August 1941, Army Group Center had removed all of its panzer assets from the line for refitting (Blau 65). This left Army Group Center's infantry units to press the attack in the direction of Moscow.

From 22 June through mid-August, Army Group South had encountered stiff Soviet opposition and had advanced slowly (Blau 65). From its sanctuary in the Pripet Marshes, the Fifth Soviet Army had continually attacked Army Group South's left flank (Anders 44). In addition, Army Group South had met considerable

Soviet opposition around Kiev and was unable to capture the city (Blau 65). However, at the Uman pocket, it had managed to destroy 22 Soviet divisions, killing 200,000 soldiers and capturing another 100,000 (Anders 49).

According to Turney, on 21 August 1941, Hitler signed Fuhrer Directive Number 34 (81). This directive established the following as priority objectives: the Crimea, the Donets Basin, cutting off Russian oil supply from the Caucasus, Leningrad, and linking up with Finnish forces (81). Capturing Leningrad and linking up with Finnish forces were to occur in Army Group North's area of operations. The other priority objectives were all in Army Group South's area of operations. Army Group Center, with no priority objectives, was to defend its positions and release units to assist Army Group South (81). After Army Group North accomplished its missions and Army Group South made significant progress, the attack on Moscow could continue (81).

On 25 August 1941, Army Group Center's Second Army and 2nd Panzer Group turned southward (Encyclopedia Americana 424). On 14 September 1941, after three weeks of fighting, these units reached a point about 120 miles east of Kiev (Anders 54). There, they linked up with Army Group South's 1st Panzer Group, which had moved northward from the Dnieper bend (Encyclopedia Americana 424). This link-up completed the encirclement of several Soviet armies (Blau 73). When this pocket ^{PV} was reduced on 26 September 1941, Army Group South captured 665,212 prisoners (Fugate 270). In addition, it captured "...3,718 guns, 884 tanks, and a great amount of war materiel" (Anders 55).

According to Anders, Hitler issued Fuhrer Order Number 35 on 6 September 1941 (52). This directive "...ordered the rapid building up of Army Group Center, which was to launch the decisive offensive against Moscow" (52). Hitler wanted the operation to begin in 8-10 days (52). However, this was impossible because important units of Army Group Center were still fighting at the Kiev pocket (52).

Operation TAIFUN ("Typhoon") directed "...the encirclement and destruction of the Red Army on the front of Army Group Centre..." (Keegan 198). Only after Army Group Center destroyed these forces "...were the attack forces to launch a pursuit in the direction of Moscow along a front extending from the Oka River on the right to the upper Volga on the left" (Blau 75).

The Army High Command ordered the transfer of the 4th Panzer Group from Army Group North to Army Group Center (Blau 76). Army Group South transferred the 2nd Panzer Group and Second Army back to Army Group Center (Blau 76). For Operation TYPHOON, Army Group Center also had the 3rd Panzer Group and the Fourth and Ninth Armies (Anders 56).

On 30 September 1941, the 2nd Panzer Group advanced from the southwest toward Orel (Anders 56). This maneuver skirted the left flank of the Soviet defense forces in front of Moscow, taking them by complete surprise (Anders 56). This was a prelude to the beginning of Operation TYPHOON (Anders 56).

According to Anders, the main assault of Operation TYPHOON began at 0530, 2 October 1941 (56). "The initial impetus of the offensive was tremendous mainly due to the great effort of the

infantry divisions which raced along in the wake of the tanks" (56). Within two weeks, Army Group Center completed three large encirclements of Soviet forces, two near Bryansk and one near Vyazma (Encyclopedia Americana 425). Liquidating these pockets was time consuming, but yielded "...663,000 prisoners, 5,412 guns, 1,242 tanks, and an immense booty in war materiel" (Anders 58).

"Then, on 7 October [1941], the autumn rains began turning the ground into a sea of mud" (Blau 80). "In general, the period from 7 to 20 October was marked by heavy fighting; hot pursuit of a defeated enemy gradually turned into a desperate effort to make headway in rain, snow, and mud" (Blau 80). The Soviets threw everything that they could into the battle (Anders 59). Through the beginning of November, Army Group Center made no further progress (Anders 59).

"During the night from November 3 to 4, the first frost came. On the 7th, the Germans suffered the first severe cases of frostbite. On the 12th, the temperature dropped to 5 degrees (Fahrenheit), and on the 13th to 8 degrees below zero" (Anders 60).

On 17 November, with the ground now frozen, Army Group Center resumed its offensive (Anders 61). It "...pushed forward and immediately began developing a sweeping double envelopment, which it intended to close east of Moscow" (Encyclopedia Americana 425). Through the end of November, the two enveloping forces advanced slowly against stiff opposition (Blau 87).

During November and December 1941, the German advance ceased to be effective. The German military commanders realized that the snow and harsh weather had stopped their offensive for the winter. Soon, keeping the German Army supplied became a serious problem. The dispersion of the German forces made it difficult to move materials along such an extensive front (Compton's CD-ROM).

"From 1 to 5 December the entire offensive gradually bogged down. Winter came suddenly with temperatures down to -40 degrees Fahrenheit. The German troops were in a state of almost complete exhaustion" (Blau 87). On 2 December, the final German attempt to reach Moscow began. The Russians ended Hitler's plans of taking Moscow with a massive counterattack of a hundred divisions. The counterattack left the German leaders debating the quantity of reinforcements the Russians could produce. After the Soviet counteroffensive, many of Hitler's top commanders either resigned or asked to be ^{PV}relieved (Liddell 28-30).

The German offensive against Moscow was over; the northern forces had come within 21 miles of the city and the southern forces within 40 miles (Encyclopedia Americana 426).

Hitler and his staff had overestimated the ability of the German Army and underestimated the ability of the Soviet Army. This is one factor that caused Germany to lose not just at Moscow, but the entire war against the USSR.

The German military staff did not respect the Soviet Army or the Soviet soldier. Since the initial planning phases for Operation BARBAROSSA, Hitler had expected a quick victory over

the Soviet Army. The German military staff had estimated that the German Army would win the entire war within 8-10 weeks (Blau 20). "...ever since the Red Army had performed so badly during the campaign against Finland in the winter of 1939-40, the average German General Staff officer had a low opinion of the military potential of the Soviet Union" (Blau 14). Hitler expected that the Soviet Army would collapse early on (Blau 78).

Hitler undertook his war against the Soviet Union even though the Wehrmacht had no numerical superiority over the Soviet Army (Anders 19). The German Army's mobility was not much better than that of the Soviet Army (Anders 19). But Hitler was certain that the German soldiers and their commanders were vastly superior to their Soviet counterparts (Anders 19).

However, the German Army found out otherwise in combat. "An analysis of Russian combat methods revealed that the Red Army offered strong resistance and exploited every opportunity to counterattack. What astounded the Germans was the strength displayed by the Russians, their ability to improvise quickly in any given situation, the apparently inexhaustible flow of new divisions arriving at the front, and the absence of any true symptoms of disintegration" (Blau 78). The Germans found that the Soviet forces displayed unwavering determination and an unwillingness to admit defeat (Blau 88). Despite its large losses, the Soviet Army was a powerful adversary (Blau 78).

Hitler underestimated the will of both the Soviet soldier and the Soviet citizen to resist. According to Blau, Hitler assumed that the people in the areas recently occupied by the

USSR were anti-Russian and anti-communist (14). He assumed that dissatisfaction in the Ukraine, the Crimea, and the Caucasus was equally rampant (14). Further, Hitler believed that the Soviet purges of 1937 were evidence of the vulnerability of the USSR (14).

However, Hitler had underestimated the internal political stability of Stalin's regime (Blau 88). The Soviet citizen's innate readiness to defend Mother Russia was stronger than his assumed aversion to the communist regime (Blau 88). Hitler's barbaric policies toward Soviet prisoners and the local population only strengthened the average Soviet citizen's will to resist (Anders 172, 216). Most Soviet soldiers would rather fight to the death than surrender to the German Army (Anders 172). Also, hundreds of thousands of civilians, mostly women, helped prepare the defenses around Moscow (Seaton 178).

Hitler and his military staff vastly underestimated the mobilization capabilities of the USSR. They estimated that the USSR would be able to mobilize a maximum of 140 divisions in the event of war ("Barbarossa" 1802).

During the summer of 1941 alone, the Soviet Supreme Command sent 324 new divisions to the front ("Barbarossa" 1802). During the first week of October 1941, 14 divisions, 16 tank brigades, and 40 artillery regiments arrived at Moscow ("Barbarossa" 1810). In mid-November, Soviet reinforcements for Moscow included 100,000 men, 300 tanks, and 2,000 guns ("Barbarossa" 1811). At the beginning of December, Soviet reinforcements for Moscow included the 1st, 10th, and 20th Armies ("Barbarossa" 1811).

Hitler and his military staff overestimated the abilities of the German Army. Their estimate of conquering the USSR in 8-10 weeks is evidence of this. Hitler was so confident of his forces that Operation BARBAROSSA made no provisions for strategic bombing by the Luftwaffe (Blau 25). Hitler gave the Luftwaffe a ground-support mission and equipped it accordingly (Blau 25).

According to Blau, by November 1941, the combat efficiency of the German Army had dropped tremendously. In infantry divisions, efficiency was down 35 percent (83). In armored divisions, efficiency was down 40 to 50 percent (83). The tank attrition rate varied from 65 to 75 percent (83). Thus, the real combat value of the 136 division on the Eastern Front was equivalent to 83 full-strength divisions (83).

The 58 German divisions attacking Moscow presented a real combat value of about 33 divisions (Seaton 203). At Moscow, 91 Soviet divisions in prepared defensive positions opposed the German force (Seaton 203). In addition, the Soviet forces were receiving fresh units daily. The great disparity of the two forces demonstrates Hitler's overestimation of the ability of his forces.

According to Blau, Hitler and his military staff overestimated the usefulness of "blitzkrieg" tactics in the vastness of the USSR (89). Time and time again, the panzer units had to halt and wait for the infantry units to catch up (89). The German Army did not have adequate motor transport for its soldiers or supplies (89). Panzer units by themselves could not effectively destroy encircled enemy units. They needed infantry

support to accomplish that mission. But the infantry units could not keep up with the fast moving panzers.

The Soviet Army was able to field large numbers of replacement forces. This is another factor that caused the German Army to lose its campaign against Moscow.

Support from the United States and England helped the Russians to maintain the ability to move troops. To understand the full impact of the war from October to December 1941, you must return to 11 March 1941. On that date, President Roosevelt signed the Lend Lease Act. The Lend Lease Act allowed the United States to provide support to Russia in the war against Germany. Roosevelt determined that the defense of Russia against aggression was vital to the defense of the United States. The Lend Lease Act enabled the United States to provide defense articles, defense services, and defense information. These items included weapons, munitions, aircraft, water vessels, and boats. This also meant that the United States would supply any and all repair parts to repair any of the items. The Act also included things to help in agricultural needs and industrial repair or setup of factories. The bottom line was to supply Russia with everything and anything that would help in a fight against Germany (Stettinius 335).

In June 1941, Hitler launched an attack on the Soviet Union. This attack strengthened the support from the United States and England toward Russia. The policy of these countries put into operation a plan that provided immediate aid to Russia. This

plan released about \$9,000,000 worth of supplies for shipment to Russia (Stettinius 119-122).

By June 1941, the Germans had inflicted a large amount of damage on the Russian forces. Russia sent a request to the President of the United States for an additional \$21,940,000 in support materials. This request received approval overnight (Stettinius 123-124).

In August 1941, the British started moving arms to Russia more quickly and began developing major supply routes through Iran. The first step began with improving the ports in the Persian Gulf to handle the increased shipping. The railroad from the Gulf to Tehran could not begin to handle the heavy traffic of supplies needed by Russia. So the request went out for locomotives, flatcars, boxcars, railroad track, and railroad ties. England, Canada, India, and the United States responded, and by November the first thousand cars were on the way to Iran. Once in Iran, they transferred the supplies to trucks and moved them to Russia (Stettinius 124-125, 128, 213-214).

Next, the emphasis was for materials and tools for the arms factories in Russia. War had damaged many of the plants needed for the Soviet's own production of war materials and resupply operations. Admiral Akulin asked, "Please send us raw materials and manufacturing equipment, with this you actually increase the combat strength of the Red Army." By the end of September the support of Russia had grown to \$145,710,823 (Stettinius 125-127, 222-224).

With this increased amount, the United States called a conference with Russia to discuss a repayment plan. Repayment terms included no interest charge, with repayment to begin five¹/₂ years after the war. On 1 October 1941, Moscow agreed to these repayment terms, known as the First Russian Protocol (Stettinius 129-130).

By now the supplies shipped in July and August began to arrive. This included British tanks and two squadrons of Hurricanes with pilots and ground crews to train the Russian Air Force. Also, 28 ships sailed from the United States with 130,000 tons of cargo for Russia and arrived in mid-October. With the large loss of livestock, the Russian Army needed a large amount of leather for boots. In late October 1941, the United States sent 10,500 tons of shoe leather to Russia for shoes. But the Russian factories could not keep up with the needs of the Army. To help with this shortage of boots, the United States sent four million pairs and England sent three million pairs. These arrived in Russia in late November 1941. In addition, the United States setup the "Tsar's boot factory" to help with the production of the boots (Stettinius 126-129, 203-215).

The first shipment of Curtiss P-40 fighter aircraft left from England in late September and arrived in Russia in October. By the end of November, the United States sent 79 light tanks, 59 P-40 fighters, and over a 1,000 trucks (Stettinius 124-125).

After the attack on Pearl Harbor in December 1941, supplies from the United States slowed greatly, but did not stop. The Japanese did not bother Russian ships in the Pacific so the

Russians moved the supplies. Aside from the planes, tanks, and trucks, the United States sent a lot of raw materials.

Some of the most important things sent by the United States were: field telephones and telephone wire, military barbed wire, Thompson .45 sub-machine guns, and millions of pairs of boots.

The field phones and the wire enabled the Russian Army to maintain good communications along its 2,000 mile front. They could then more quickly direct their forces to the most important and critical points on the battlefield. It also let the Russians pass information on what the Germans were doing. This link played a great role in the defense of Moscow. The United States and England sent Russia a total of 189,000 field phones and 670,000 miles of wire.

The barbed wire helped setup the defense of Moscow. This proved to be a great asset when the Germans attacked in the winter of 1941. The United States sent 216,000 miles of barbed wire to Russia.

The Russian soldiers took a great liking to the "Tommy gun" and they killed many Germans with them. The United States sent 50,000 of them by the end of December 1941.

The boots that the United States made and sent to Russia played a great role in the winter fighting. The Germans had come to Russia ill prepared and had very little winter clothing. The Russians on the other hand had heavy winter boots and thick coats to protect them from the cold. This let the Russian soldiers maintain a fit force while the Germans froze.

The raw materials that the British and other allies sent helped in the production of many war items. The Russians made tires from 38,000 tons of rubber. The Soviets used the following to make munitions: 18,000 tons of lead, 8,000 tons of tin, 13,000 tons of jute, and 60,000 ton of brass. Besides metals, the Western Allies also shipped many chemicals and over 100,000 tons of gunpowder and TNT for bombs.

Once these supplies reached Russia, the problem of getting them to where they had to go lay ahead. The Russian people knew how to live and work in the winter cold. They would move the supplies by truck as far as the road would let them. Once the trucks became stuck or the road ran out, they would switch to tracked vehicles. Once these could no longer move effectively, they used pack animals and carts or sleds. Using all of these different modes of transportation, they moved a large amount of supplies very fast and very far.

These combinations also worked in the moving of troops. They would use whatever motor transport was available. If motor transport was impossible or unavailable, they used carts or sleds. This worked quite well because they could move a squad of troops with every vehicle. With special equipment like widened tracks and grousers, tanks could go through three to four feet of snow (Corotneff 10-12).

Using horses, carts, or sleds is a lot quieter than using a vehicle. This allowed the Russians to resupply their troops without alerting the Germans to what was happening (Corotneff 12).

When moving troops and supplies the Russians used a few common rules:

1. When moving in a column formation in deep snow with a tank, make your own tracks.
2. When using a truck, always stay in the tracks.
3. When using a horse and cart, walk ahead of the cart to make sure the route is safe.
4. When moving troops in snow, use ^{SP} skies.
5. Always use enemy equipment to help you in anyway it can.
6. When crossing a frozen river or stream, cut a hole in the ice to see how thick the ice is. If the ice is too thin, pour water on the ice and let it freeze. Repeat this action until you get the thickness that you need (Corotneff 9-12).

Before the war the Russians had done experimental work and training to condition their men and machines for the cold. With this training they were able to keep more troops and equipment at the front and in reserve (Corotneff 10-11).

The horse mounted Cavalry used its great mobility to move troops and to strike fast with extensive firepower. With up-to-date weapons these men could move with little or no support (Gorodovikov 3-4).

By using the supplies that the United States and England sent, the Russians were ^{PV-} well prepared for the German attacks. Under Stalin's instructions, these armies moved troops and supplies in, around, and through the Germans. Stalin would hold his forces in reserve to the last minute. By doing this, he was

sure that the Germans had committed all of their forces and could not win (Shilovsky 55).

The early onset of the severe Russian winter drastically impeded the effectiveness of Army Group Center. This is another factor that caused the German Army to lose its campaign against Moscow.

Hitler ordered the assembly of his army along the frontiers of the USSR early in 1941. Hitler's initial attack would begin in May, but the invasion of Greece and Crete caused a six-week delay. Six weeks of good weather probably made all the difference to the outcome of the 1941 campaign against Russia. Hitler expected a whirlwind victory against the huge but less well-equipped and supposedly ill-led Russian forces (Chandler 37).

The German soldier that crossed into Russian territory felt that he had entered a different world. His opposition was not only the forces of the enemy, but also the forces of nature. The elements of nature were more difficult to conquer because their fury and effect ^{PV} were not fully recognized. The Germans were ^{PV} neither trained nor equipped to withstand them (Historical Study: Effects of Climate on Combat in European Russia 1).

Before the war began, the German high command believed that the USSR would lose within 8-10 weeks. The German high command believed that there would be no need for conducting operations in the cold, snow, and mud. Hitler would not permit German factories to switch production to cold weather equipment, maintaining that it would not be necessary.

Movement during war is very difficult in deep snow. Because of the extreme cold, some men, still in summer uniform, were freezing to death at their posts. Foot marches in twenty inches of snow are slow; in depths of more than twenty inches they are exhausting. Movement on foot or with wheeled vehicles is impossible in snow depths of forty inches. The Germans used details to tramp down snow trails. Ski troops were also used as trail breakers. The Russians used their T-34 tanks to pack down snow. The Germans discovered that the tracks were too narrow for this purpose.

The winter of 1941-42 was the most severe in European Russia in a hundred years. The mean temperature in the area of northwest Moscow was minus 32 F. The same area saw the lowest recorded temperature of the entire Russian Campaign, minus 63 F. Soviet ski troops and Russian armor went on the offensive during a counterattack in Moscow in December 1941. The Russians were ^{PV} infinitely better equipped for winter warfare. This type cold reduced the efficiency of men, equipment, and weapons (Historical Study: Effects of Climate on Combat in European Russia 18).

The snow-covered landmarks and terrain made orientation very difficult. The paralyzing cold prevented the German troops from aiming their rifles. Bolt mechanisms jammed, ^{SP} strickers [?] shattered, and machine guns became encrusted with ice. Recoil liquid froze in guns and ammunition supply failed. Mortar shells detonated in deep snow with a hollow, harmless thud, and mines were no longer reliable.

Maintenance of weapons is difficult in the winter. The German's automatic weapons froze and would only fire single shots. Their antitank ammunition would not fit into the breach because the packing grease froze solid. German rifles and machine guns malfunctioned because the grease and oil were not cold resistant. Strikes and ^{SP}stricker springs broke like glass, and fluid in artillery recoil mechanisms solidified.

The need for spare motor vehicle and tank parts increases during low temperatures. The Germans had to cannibalize broken-down and abandoned vehicles to get spare parts. The Russian winters render self-starting vehicles useless. The Germans built fires under vehicles to keep engines warm. During alerts, the Germans frequently left motors running for hours.

The Russian winter ^aeffected the German soldier the worst. Lacking suitable clothing, any sentry who fell asleep on duty risked freezing to death. The ^{GE}few winter clothing the Germans had, if they had any at all, were for winter wear in Germany.

Frostbite casualties were numerous. A panzer division had up to eight hundred frostbite casualties a day. To keep warm, some German soldiers acquired Russian-type fur caps, which proved dangerous. The wearers ^{PV}were often mistaken for the enemy and fired upon by their own troops (Historical Study: Effects of Climate on Combat in European Russia 18).

The Germans found that at extreme low temperatures, short hauls from the field kitchens turned food into lumps of ice. Butter had to be ^{PV}cut with a saw or served with an axe. Boiling

soup froze solid in 60 seconds. For soldiers to defecate in the open invited death.

The German troops advanced to within fifteen miles of Moscow. Their aim was to capture the Russian capital before the full fury of winter struck. However, the tenacity of the Russian resistance had stopped them in their tracks by early December (Chandler 116).

The Russian supply lines were safer. Their transport was lighter, lessening the danger of having it sinking into the snow. The Russians equipped all wheels with chains. The Russians lubricated machinery with oil that did not freeze.

Dysentery riddled the German troops and there were more than 100,000 cases of frostbite. Many committed suicide, most by holding a hand grenade against the stomach. This was the only weapon certain to function in such conditions. ^{Too many spaces} ↓ German casualties included at least 1,073,006 either killed, wounded, missing in action, taken prisoner, or victim of frostbite. The Russians never announced their losses, but the most informed estimates places them in excess of 2,000,000.

On 4 December, German units forced their way onto Kuntsevo, a southeastern suburb of Moscow. Men, women, and children fought a guerrilla type engagement against the exhausted Germans. It appeared that the Germans would penetrate the Russian barricades and would gain entry into the city itself. The Germans were so close that they could see the Kremlin. But their ammunition and fuel gave out. This would be the last attempt to seize the communist capital (Turney 150).

A victory by the German Army may have hung on a single artillery shell or a malfunctioning machine gun. Perhaps maybe even a slain officer or noncommissioned officer, whose death at a critical moment demoralized the living.

On 6 December 1941, the temperature stood at an incredible fifty degrees below zero. The Russian reserve forces launched a tremendous, well-timed counterattack against the exhausted German forces along the Moscow front. The German troops abandoned their tanks, whose motors refused to run. Their light and heavy guns refused to function. They did not run, for that was impossible in the frozen Russian terrain. They did not rout or panic, as they had no more energy left. They could not attack anymore. The attempt to conquer Moscow in 1941 had failed (Turney 151-153).

"On 8 December, the German Armed Forces High Command announced tersely: Due to the onset of the Russian winter the operations in the East are being curtailed."

The German Army lost its October-December 1941 campaign against Moscow because of three factors. First, Hitler and his military staff overestimated the ability of the German Army and underestimated the ability of the Soviet Army. Second, the Soviet Army was able to field large numbers of replacement forces. And third, the early onset of the severe Russian winter drastically impeded the effectiveness of Army Group Center.

The German Army's campaign against Moscow can serve as a lesson for all commanders and war planners. At a strategic level, commanders must accurately assess the capabilities and the

limitations of their forces. Commanders must have access to reliable intelligence data regarding the capabilities and limitations of the opposing forces. War planners must have accurate data regarding the capability of the opponent to mobilize forces and to produce war materials. Finally, commanders must understand that weather is a critical factor in planning, preparing for, and conducting combat operations.

Works Cited

- Anders, Wladyslaw. Hitler's Defeat in Russia. Chicago: Henry Regnery Company, 1953.
- "Barbarossa." Purnell's History of the 20th Century. London: Purnell & Sons, 1972. 7: 1801-1811.
- Blau, George E. Historical Study: The German Campaign in Russia- Planning and Operations (1940-1942). DA Pam 20-261a, Mar. 1955. Washington: GPO, 1960.
- Chandler, David G. Battles and Battlescenes of World War Two. New York: Macmillan, 1989.
- Cochran, Alexander S. Jr. "Time Out For Another Conquest." World War II May 1991: 39-44.
- Corotneff, N. "Red Army Tanks in Winter." The Cavalry Journal Jan.-Feb. 1943: 9-12.
- Fugate, Bryan I. Operation Barbarossa: Strategy and Tactics on the Eastern Front, 1941. Novato, CA: Presidio Press, 1984.
- Gorodovikov, O. J. "Soviet Cavalry Fights." The Cavalry Journal Jul.-Aug. 1942: 4-7.
- Liddell, Hart B. H. "How Hitler Failed At Moscow." Marine Corps Gazette Mar. 1957: 28-30.
- "Moscow or Kiev". Illustrated World War II Encyclopedia. 1978 ed.
- Seaton, Albert. The Russo-German War 1941-45. New York: Praeger Publishers, 1971.
- Shilousky, E. "Military Art of the Red Army." The Cavalry Journal May-Jun. 1944: 55-56.
- Stettinius, Edward. Lend-Lease. New York: The Macmillan, 1944.

- Trask, David F., Earl F. Ziemke, and Magna E. Bauer. Moscow to Stalingrad: Decision in the East. Center for Military History. Washington: GPO, 1987.
- Turney, Alfred W. Disaster at Moscow: Von Bock's Campaigns 1941-1942. Albuquerque: The University of New Mexico Press, 1970.
- United States. Center for Military History. Historical Study: Effects of Climate on Combat in European Russia. CMH Pub 104-6. Washington: GPO, 1986.
- . Department of the Army. Russian Combat Methods in World War II. DA Pam 20-230, Nov. 1950. Washington: GPO, 1950.
- "World War II." Compton's Interactive Encyclopedia. 1992 ed.
- . The Encyclopedia Americana. 1987 ed.
- . The New Encyclopaedia Britannica. 1990 ed.
- Wray, Timothy A. Standing Fast: German Defensive Doctrine on the Russian Front During World War II. U.S. Army Command and General Staff College. Washington: GPO, 1986.