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STALINGRAD AND THE TURNING POINT ON THE
SOVIET-GERMAN FRONT, 1941-1943

A thesis presented to the Faculty of the U.S. Army
Command and General Staff College in partial
fulfillment of the requirements for the
degree

MASTER OF MILITARY ART AND SCIENCE

by

DENNIS W. DINGLE, CPT, USA
B.S., Texas Christian University, 1977

Fort Leavenworth, Kansas
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ABSTRACT

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Among the conclusions which may be drawn from this study are: the Battle of Stalingrad was not the economic turning point of the war when considering the criteria of industrial labor and armaments production; Stalingrad was the military turning point, considering military forces and equipment on the Soviet-German front.

This study concludes that this method of assessing relative national power of nations can be applied in an historical context to evaluate past wars. It may assist historians to better understand the factors that led to various turning points throughout history. /

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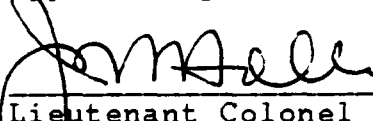
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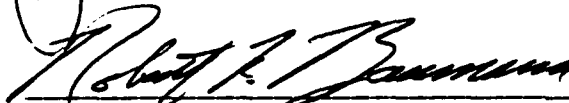
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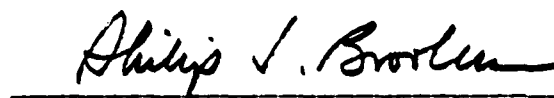
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The opinions and conclusions expressed herein are those
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CHAPTER 1

INTRODUCTION

In November 1942 the war on the Soviet-German Front was entering its seventeenth month. For the second consecutive year, the German Army made significant advances into Soviet territory. In 1942, however, the progress was not so rapid and early German victories were more costly than those in 1941. By November, the *Hehrmacht's* advance into the Caucasus was stalled and Army Group South was locked in a fierce struggle with determined Soviet defenders in the city of Stalingrad.

On 19 November, the Soviet Union struck back. Six Soviet armies attacked the weak German flank to the north of Stalingrad, and a day later launched a similiar offensive operation from the south. By 23 November, the German forces at Stalingrad were encircled. German attempts to relieve them failed in the face of growing Soviet strength. By 2 February 1943, the reduction of the pocket was complete. The Germans lost the entire Sixth Army and part of the Fourth Panzer Army, in excess

of 200,000 men. The powerful and confident *Wehrmacht* had suffered a significant defeat.

The Battle of Stalingrad was a major blow to the German war effort. It cost Germany numerous losses of soldiers and equipment. This battle raises several interesting questions regarding its impact on the final outcome of the Soviet-German conflict during World War II. For example, was the Battle of Stalingrad the turning point of the war on the German Eastern Front? Did Hitler lose the strategic initiative as a result of this battle? Was the Soviet Union now the stronger of the two antagonists? These are the questions that this study will attempt to answer.

Review of Literature

Many historians have called Stalingrad the turning point of the Soviet-German War. Their explanations for this may be grouped into three general categories depending on the individual's perspective. Most historians treat Stalingrad as the military turning point of the war. Others see it as the psychological turning point. Finally, several authors endeavor to portray Stalingrad as the economic turning point of the war.

Military Turning Point

Historians who treat Stalingrad as the military turning point of this war do so for several different reasons. Geoffrey Jukes views Stalingrad as the turning point simply because it marked the end of Germany's advance to reach its strategic objectives in the Caucasus.¹ He does not, however, indicate whether the strategic advantage shifted because of that failure. According to Earl Ziemke, Soviet weapons production had finally caught up with their tactics and operational concepts by the time of Stalingrad. And adequate manpower was finally available to execute those operations.

"The Stalingrad offensive ushered in a new stage in the Soviet conduct of operations, a stage in which the Russians demonstrated a command of offensive tactics equal to that of the Germans in conception and sufficiently effective in execution to prevail against an opponent who had passed the peak of his strength".²

Marshal of the Soviet Union Sergey Sokolov says that the Soviet victory at Stalingrad was the event that placed the strategic initiative in the hands of the Soviet General Headquarters.³ Iurii Plotnikov calls Stalingrad the "only turning point after which the progress of the war changed radically in the Soviets'

favor".⁴ Alan Clark writes that, with the defeat of the German Sixth Army at Stalingrad, the Red Army assumed the strategic initiative.⁵ He cites three factors that contributed to this shift: 1) German overconfidence; 2) erratic German leadership; and 3) the emotional obsession that led to the abandonment of proven tactics.⁶ Although the first two factors may be valid, the last one was really Hitler's abandonment of acceptable military strategy.

From the Germans' perspective, Wadysaw Anders claims that Stalingrad was the decisive battle, and cites as the primary reasons the decisions and policies of Hitler.⁷ Field Marshal Erich von Manstein, the German commander assigned the mission of rescuing the encircled German Sixth Army, agrees that without Hitler's interference, the outcome of the battle and of the war may have been significantly different.⁸

E. D. Smith states that the Battle of Stalingrad represented the turning point of the war because of the German inability to recover from the loss of the Sixth Army's "twenty high quality divisions".⁹ Marshal of the Soviet Union Aleksandr Vasilevsky claims that following Stalingrad, Hitler was unable to reestablish the fighting ability of the German Army, and from then on

Germany was in a "profound military and political crisis." He feels that it was the Soviet victory at Stalingrad that signalled the beginning of the downfall of the Nazis.¹⁰ Vasilevsky also states that the Battle of Stalingrad was a turning point in the development of Stalin as a military leader. According to him, by this time Stalin had discovered an effective system of command and was beginning to understand not only strategy, but the operational art as well.¹¹

Psychological Turning Point

Alexander Werth presents a strong case that the Battle of Stalingrad was the psychological turning point of the war. According to him, Stalingrad was perceived by the Soviet people as a last ditch effort. If the defense of Stalingrad was successful, "the conditions for ultimate victory would be created".¹² Werth went on to say that after Stalingrad, the Soviet people and the Red Army understood that all of the suffering endured to that point had not been in vain. "No one doubted that this was the turning point of World War II".¹³ William Craig expresses a similar view, that the victory at Stalingrad changed the Soviet "negative attitude" toward their leadership and the Army. After Stalingrad "they never again doubted they could win".¹⁴

In his memoirs, Marshal of the Soviet Union Georgii Zhukov, a key figure in the battle and one of the Soviet Union's premier military leaders, calls Stalingrad "the victory that turned the tide of the war in the favor of the Soviet Union." He states that Stalingrad represented a victory for both the Red Army and for the Soviet people. It not only opened the door for future Soviet offensive operations across the front, but it also caused Germany to lose credibility and the support of her allies and the neutral countries.¹⁵ Gordon Wright refers to Stalingrad the "psychological, if not the military," turning point of the war.¹⁶

Economic Turning Point

To argue that Stalingrad was the economic turning point of the war, the French historian Henri Michel states that by December 1942, Soviet war production exceeded that of the Germans, with similar gains in quality of equipment.¹⁷ Wright feels that Hitler waited too long to begin total mobilization of the German economy and that by early 1943, the Soviets had gained an economic advantage.¹⁸ S. A. Tyushkevich, in an official Soviet history, points out that Soviet production of tanks, aircraft and artillery had

surpassed that of the Germans by the beginning of 1943.¹⁹

In his excellent analysis of the German war economy, Alan Milward notes that while the Battle of Moscow caused Hitler to begin the transition from a blitzkrieg economy to a more extensive war economy, it was the Battle of Stalingrad that was "ultimately to convince everyone that blitzkrieg (strategy) was over. The strategic turning point of the war had come before the psychological turning point".²⁰

Opposing Views

Several historians argue that Stalingrad was not the turning point of the Soviet-German War. Generally, these scholars suggest that the actual turning point occurred later, in 1943. The premier historian of the Soviet military, John Erickson, states that while the Soviet Army had made great progress by February 1943, the German defeat at Kursk was really the battle that tipped the scales in the favor of the Soviet Union.²¹ Malcolm Mackintosh suggests that there was no single turning point at all. He argues that the shift in strategic power was the result of a gradual evolution. According to Mackintosh, while the Soviet leadership

certainly learned great lessons, both tactically and operationally, during the battles of Moscow and Stalingrad, they continued to repeat previous strategic mistakes until their victory in the Battle of Kursk.²²

The German historian, Paul Carell, addresses the issue of a shift in strategic initiative by stating that while Stalingrad represented the final halt of the German victorious advance, the German defeat did not begin until the Battle of Kursk.²³ John Macdonald agrees that while the German Army never recovered from the loss of an entire army at Stalingrad, it was not yet a broken force in February 1943.²⁴ Colonel David Glantz remarks that 1943 "marked the beginning of the end for the Germans" in the context of the development of Soviet operational art, with the actual transition of advantage taking place after Kursk and the liberation of Kiev.²⁵ Manstein equivocates somewhat, by stating that although Stalingrad was the turning point, in that the German effort receded from that point, it did not mean the war was lost. He felt that a stalemate could have been forced with a change of German military leadership and policy.²⁶

In a radically different view, Michel Garder looks back even earlier in the war to the Battle of

Moscow. He feels that October 1941 was the turning point of the war. He cites the *Wehrmacht's* weariness of the war, as well as the "psychological revolution" that took place in the Soviet people and in the Red Army as a result of the successful defense of Moscow.²⁷ Given the German Army's victories and continued advances in other sectors of the front, his designation of Moscow as the turning point seems to be somewhat premature.

In summary, although many historians have called the Battle of Stalingrad the turning point of the war on the Soviet-German Front, they have provided little objective evidence. Soviet historians and participants generally agree that Stalingrad was the turning point, because of the tremendous psychological lift it gave the Red Army and the Soviet people. German historians and participants tend to downplay the significance of Stalingrad and blame Hitler's bad decisions for Germany's ultimate defeat. The remaining historians are divided in their opinion over Stalingrad's significance. However, none has used an analytical approach, as this study attempts to do, to delineate why Stalingrad was or was not the turning point of the war.

The chapters that follow provide data to more accurately assess the relative economic and military

power of Germany and the Soviet Union during this period of the war. Using this data this study will attempt to determine quantitatively if Stalingrad was the turning point of this war. In other words, while it is agreed that the relative advantage shifted from Germany to the Soviet Union sometime during the war, it may not have been as a result of the Battle of Stalingrad. This study attempts to determine, based on analysis of quantitative information, when the turning point of the Soviet-German war did occur.

Why is it important to answer this question? If a quantitative method can be developed to analyze Stalingrad and a turning point can be determined, then we have another tool for historical analysis. If this method is successful, it can be used to assess the impact of other battles on war outcomes and to determine what conditions preceded a shift in strategic initiative.

Method

In attempting to answering the question of turning point, this study assumes that the determination of the turning point of a war can be made in the terms defined below:

a. Turning point - That event or point in time when the balance of power (irreversible shift in strategic power) shifts from one nation to another. In this case from Germany to the Soviet Union.

b. Power - "The possibility of imposing one's will upon the behavior of other persons."²⁰

c. National power - Using the above definition, national power is the strength or ability of a state to achieve its national goals through the imposition of its will on other states.

To determine whether Stalingrad was the turning point of World War II on the German Eastern Front, specific measureable criteria are necessary to allow comparison of the relative power of the Soviet Union with that of Germany. Many authors have developed definitions of power and elements that make up that power. John Kenneth Galbraith addresses military, economic, political and religious power. He also talks about the sources of power and the psychological impact of the implementation of that power.²¹ Other sources address these topics as well, though in different terms. Different agencies have formalized their analysis of power and use it as a tool for the study of international relations. One such model with the accompanying criteria for five elements of national

power is at Appendix A. This is the model used in this study.

As indicated in the model, national power can be measured in terms of economic, military, geographic and political power, and national will. This study considers only military and economic power because these two most easily lend themselves to quantifiable analysis. The other three elements of national power are only briefly addressed. To further limit the scope of this study, the military and economic power of the two countries are evaluated only during the period December 1941 to July 1943. This provides a sufficient time period over which to gather data. Moreover, there is little disagreement among historians that the turning point occurred sometime during this period.

The relative power of the two nations is examined at the following times: the Battle of Moscow; the beginning of the 1942 German campaign; the Soviet Stalingrad counteroffensive; and the Soviet defense of Kursk. Looking at these specific events, this study attempts to determine whether the advantage in relative national power shifted, and if so, when. This study considers only the Soviet Union and Germany as key players. Any successes or losses that Germany realized

on other fronts are assumed to be reciprocal losses and gains for the Soviet Union when looking at relative national power, and cancel each other out.

Economic power is a state's ability to manage its natural resources to achieve its desired strategic results. To evaluate economic power, this study examines each country's economic decision structure, mobilization potential, national resources and general economic conditions. To quantify this element, it specifically evaluates wartime industrial production and the availability and utilization of labor resources. The critical issue is each country's ability to support its individual war effort. A focus on this element of national power is important because of the impact economics had for both Germany and the Soviet Union during this period of the war. For example, in 1942, Stalingrad and the Caucasus region were critical to both nations because of the industry and oil reserves located there. The main German objective during their 1942 offensive was to deny those resources to the Soviets and to seize them for the Third Reich. Economic power would ultimately decide the outcome of the war.

Military power is the tool through which a state may focus its national power most quickly, to achieve

national strategic objectives. In evaluating military power, this study considers the following factors: size, organization, and equipment of forces; mobilization potential; deployment and employment philosophy; and military alliances. In order to quantify this element, this study looks specifically at numbers of soldiers in uniform and the numbers and type of equipment available to those soldiers. However, raw numbers alone are not the sole factor which bring about military victory. The ability to create doctrine that uses available forces, and the management of those forces is equally important and is examined as well. Military losses are also a factor with regard to each country's ability to replace them in a timely manner, or at all.

After these two elements are quantified, the available data for the previously mentioned events are presented in graphs to determine if and when a shift of advantage in national power occurred. This study then examines whether the shift occurred during the time of the Battle of Stalingrad, and whether that battle influenced this change. A downward trend in the German elements of national power and an upward trend in the corresponding Soviet elements, that converge during the period of November 1942 to February 1943, would indicate

a turning point of the war, based on the chosen criteria. Chapter 6 contains the analysis of these two elements of national power.

The final chapter presents the conclusions that are drawn from the analysis, and answers the research questions in the terms outlined above. That chapter also evaluates the completeness of the thesis and contains recommendations for further research. Obviously, research into additional sub-elements of this process could reveal additional conclusions that may further confirm or deny this study's findings.

ENDNOTES

¹Geoffrey Jukes, Stalingrad: The Turning Point (1968): 9.

²Earl F. Ziemke, Stalingrad to Berlin: The German Defeat in the East (1984): 52.

³Main Front: Soviet Leaders Look Back at World War II (1987): xiii.

⁴Iurii A. Plotnikov, The Battle of Stalingrad (1972): 19.

⁵Author's note: The Red Army of Workers and Peasants was the name for the Soviet armed forces that emerged from the Russian Revolution (1917). That name didn't change to the Soviet Army until 1946.

⁶Alan Clark, Barbarossa: The Russian-German Conflict, 1941-1945 (1965): 249.

⁷Wadysaw Anders, Hitler's Defeat in Russia (1953): 153.

⁸Erich V. Manstein, Lost Victories (1955): 276-277.

⁹E.D. Smith, "Stalingrad: The Frozen Hell" in Anthony Preston, ed., Decisive Battles of Hitler's War (1977): 157.

- ¹⁰Aleksandr M. Vasilevsky, "The Battle of Stalingrad" in Igor Vitukhin, ed., Soviet Generals Recall World War II (1981): 189.
- ¹¹Earl F. Ziemke, Moscow to Stalingrad (1987): 507. At the time of Vasilevsky's comments it was standard practice to give Stalin great credit for the war. Later, however, his credentials became less credible.
- ¹²Alexander Werth, The Year of Stalingrad, a historical record and study of Russian mentality, methods and policies (1947): 197. Werth was serving as a foreign journalist in the Soviet Union during this year of Stalingrad and made his observations firsthand.
- ¹³Alexander Werth, Russia at War, 1941-1945 (1964): 543.
- ¹⁴William Craig, Enemy at the Gates: The Battle for Stalingrad (1974): xvii.
- ¹⁵Georgii K. Zhukov, The Memoirs of Marshal Zhukov (1969): 424.
- ¹⁶Gordon Wright, The Ordeal of Total War, 1939-1945 (1968): 194.
- ¹⁷Henri Michel, The Second World War (1975): 463.
- ¹⁸Wright: 61.
- ¹⁹S. A. Tyushkevich, The Soviet Armed Forces: A History of Their Organizational Development (1978): 313.
- ²⁰Alan S. Milward, The German Economy at War (1965): 89. The methods of blitzkrieg economy consisted primarily of manufacturing only those items necessary for the next short war. This topic is discussed in more depth in Chapter 4.
- ²¹John Erickson, The Road to Berlin (1983): 44, 135.
- ²²Malcolm Mackintosh, Juggernaut (1967): 203.
- ²³Paul Carell, Scorched Earth (1966): v.
- ²⁴John Macdonald, Great Battles of World War II (1986): 98.
- ²⁵Colonel David M. Glantz, The Great Patriotic War and the Maturation of Soviet Operational Art: 1941-1945 (1987): 37-38.
- ²⁶Manstein: 290.
- ²⁷Michel Garder, A History of the Soviet Army (1966): 108.
- ²⁸Max Weber on Law in Economy and Society (Cambridge: Harvard University Press, 1954): 323, in John K. Galbraith, The Anatomy of Power (1983): 2.
- ²⁹Ibid: 188, 110, 8.

CHAPTER 2

BACKGROUND

When the German Army invaded the Soviet Union in June 1941, they were opposed by a Red Army that was ill-prepared to repel their rapid and powerful attack. By November, Nazi forces had advanced, in some cases, as far as 700 kilometers into Soviet territory and were within sight of Moscow, the capital. The situation was so critical for the Soviet Union that the diplomatic corps and key officials were evacuated to the east. However, with the arrival of the Russian winter, the unpreparedness of the German logistics system and the stiffening of Soviet resistance, the German attack slowly ground to a halt.

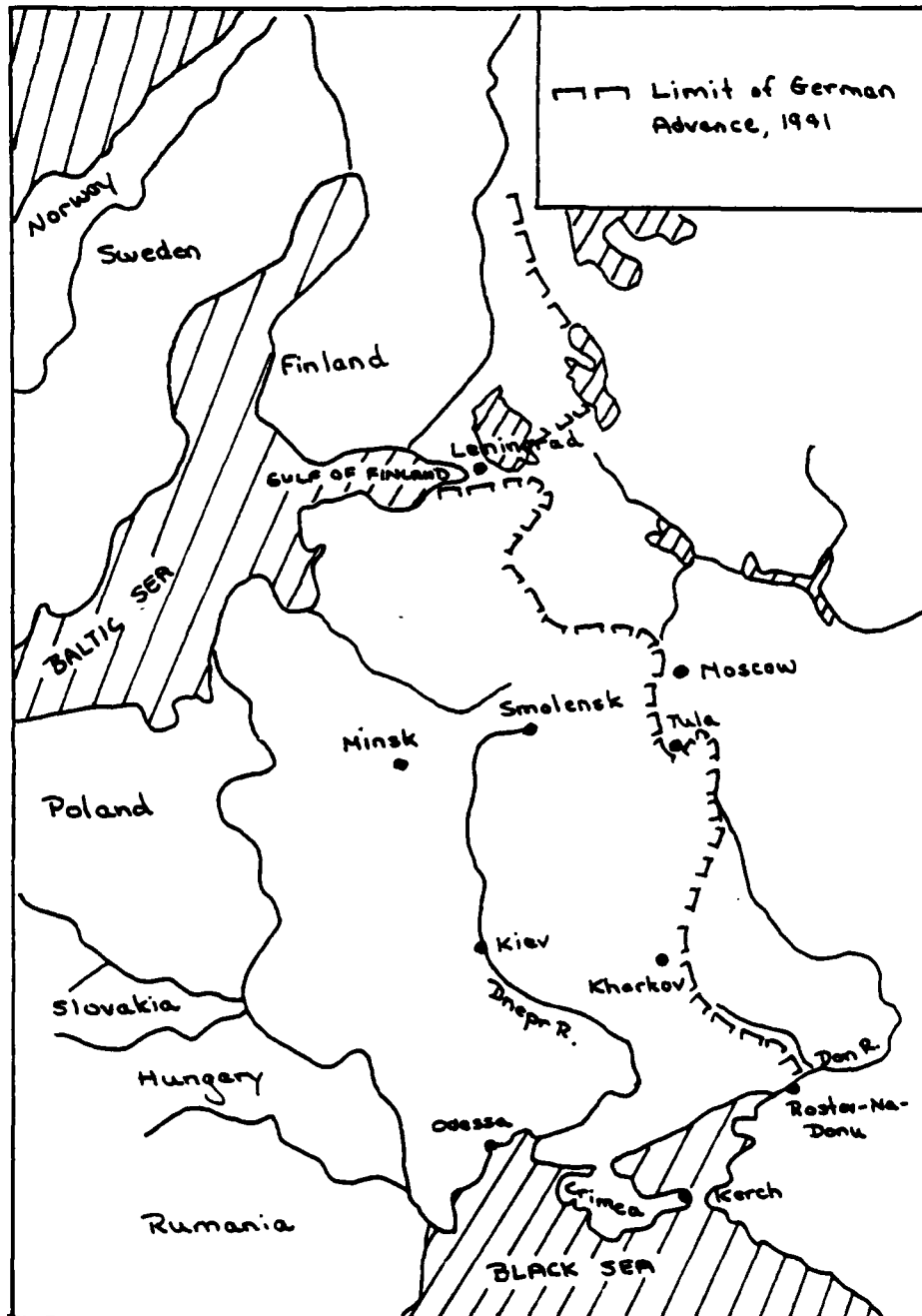
Fresh Soviet divisions, primarily from Siberia, began to fill the gaps in the defensive line, and a series of limited counterattacks was initiated to stabilize the defense. To the surprise of the Soviet leadership, the tide began to shift. The local attacks gathered momentum against the withdrawing Germans and soon developed into a counteroffensive. But, because the Red Army suffered from the same logistic

difficulties as the Germans, the Soviet counteroffensive soon came to an end. Regardless, the German Army had effectively been halted and forced to retreat for the first time since the war began.¹ (See Map 1.)

What developed as a successful counteroffensive at Moscow dashed Berlin's hopes of a quick victory. Whether it was the efforts of the Red Army, the Soviet people, Hitler's mistakes, the harsh Russian winter, or a combination of all these factors that led to the Soviet victory, it showed the world that the "invincible" *Hehrmacht* could be stopped. It was a great moral victory for the Soviet Union and a significant military event for the Allied cause. (Just as the Soviets were beginning to develop their counter-offensive, the Japanese attacked Pearl Harbor.) With the Soviet refusal to fall under the pressure of the *Blitzkrieg*, Hitler was faced with the prospect of a two-front and eventually a three-front war. But, in early 1942, the war on the Soviet-German Front was far from over.

In spite of the tremendous losses and the extreme hardships suffered by the German Army during 1941. Hitler felt that he still had sufficient forces to win the war in the east. He was further compelled by

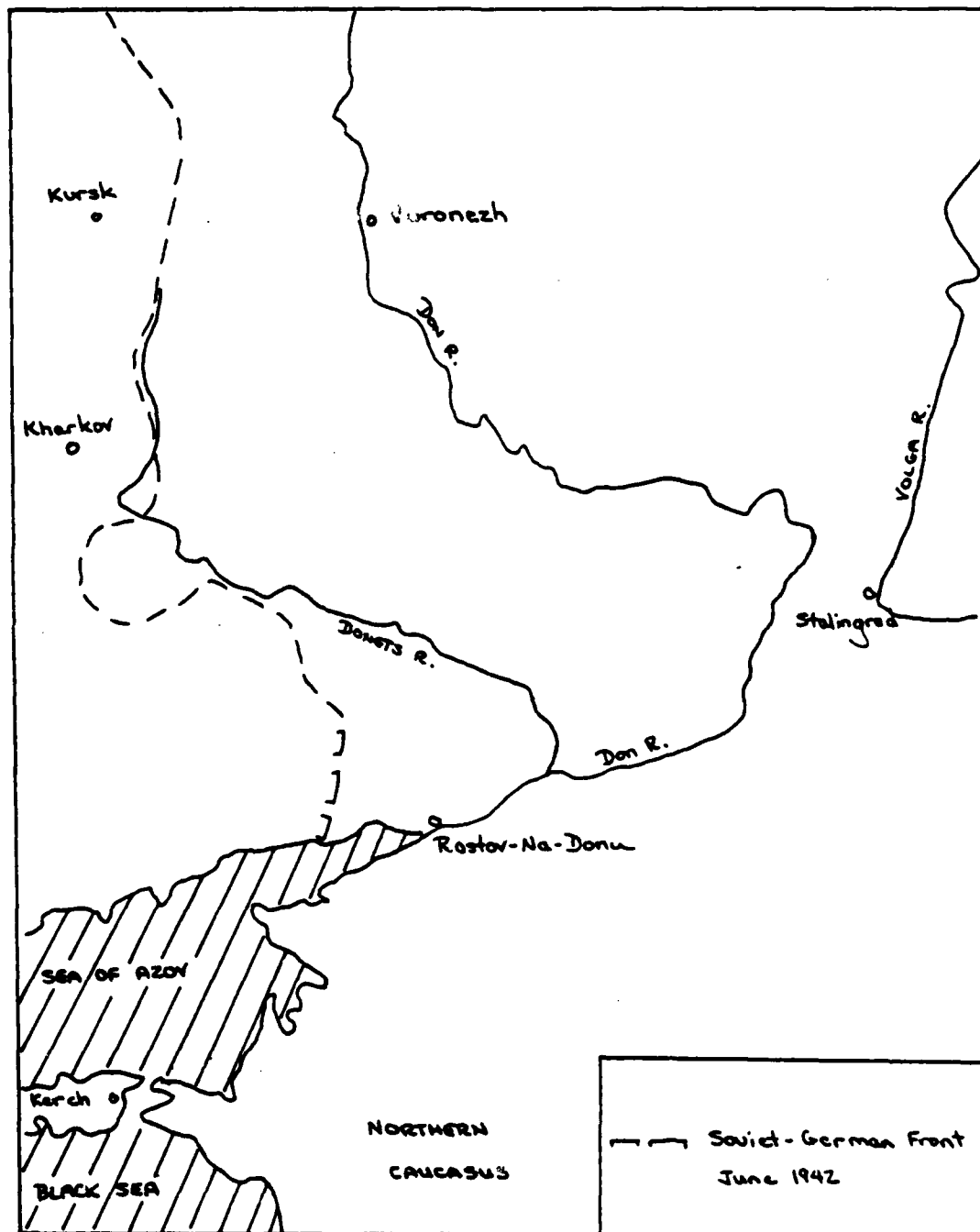
MAP 1
THE SOVIET-GERMAN FRONT
DECEMBER 1941



Germany's need for additional resources to continue what was rapidly turning into a total war. The Germans' unexpected halt at Moscow forced Hitler to change from a short-term blitzkrieg economy to total mobilization. He desperately needed additional resources, industrial capacity, and manpower to continue the German war effort. He hoped that a victory and subsequent occupation of the Soviet Union would provide those resources.² He was still fighting essentially a one-front war and he needed to take advantage of that situation while it lasted.

On June 28, 1942, Germany began a new summer campaign. Its objectives were the destruction of the Soviet forces' ability to resist and the seizure of the industrial regions of central Russia, as well as the oil-producing areas in the northern Caucasus. Because of the great distance between Germany and the oil centers in the Caucasus, Hitler chose to divide his southern forces into two army groups. Army Group A's mission was to attack into the Caucasus to seize the oil fields at Maikop, and to defeat any Soviet forces that it encountered. Army Group B was a covering force for Army Group A, along the Don River, to protect it against Soviet attacks from the north. (See Map 2.)

MAP 2
THE GERMAN CAMPAIGN
JUNE 1942



It appeared to be a viable plan until July 13, when Hitler changed the objectives of both Army Groups. Army Group A was now to continue all the way to the oil fields at Baku in the southern Caucasus, and Army Group B recieved the additional objective of capturing the city of Stalingrad. The German forces were being stretched dangerously thin. To complicate matters for Army Group B, on 17 July, Hitler diverted the Fourth Panzer Army from Army Group B to assist Army Group A in the crossing of the Don River. In spite of this handicap, Army Group B was still able to advance as far as Stalingrad by 23 August. However, without the additional combat power of the Panzer army, its progress was greatly slowed.

Frustrated by that slowness, on 29 July Hitler ordered that the Fourth Panzer Army return to Army Group B, just as Army Group A was in sight of its objectives in the south. After removing the German Army Chief of Staff and the Army Group A commander for protesting this move, Hitler was now personally in charge of an Army Group (A) in danger of being cut off by Soviet forces. By the time Fourth Panzer Army returned to Army Group B in the north, the advantage of surprise had been lost and the attack on Stalingrad had become a bitter struggle. Hitler had been overcome by the vast land

expanse of the Soviet Union, and had failed to realize that he could not achieve his goals with the forces he had available.

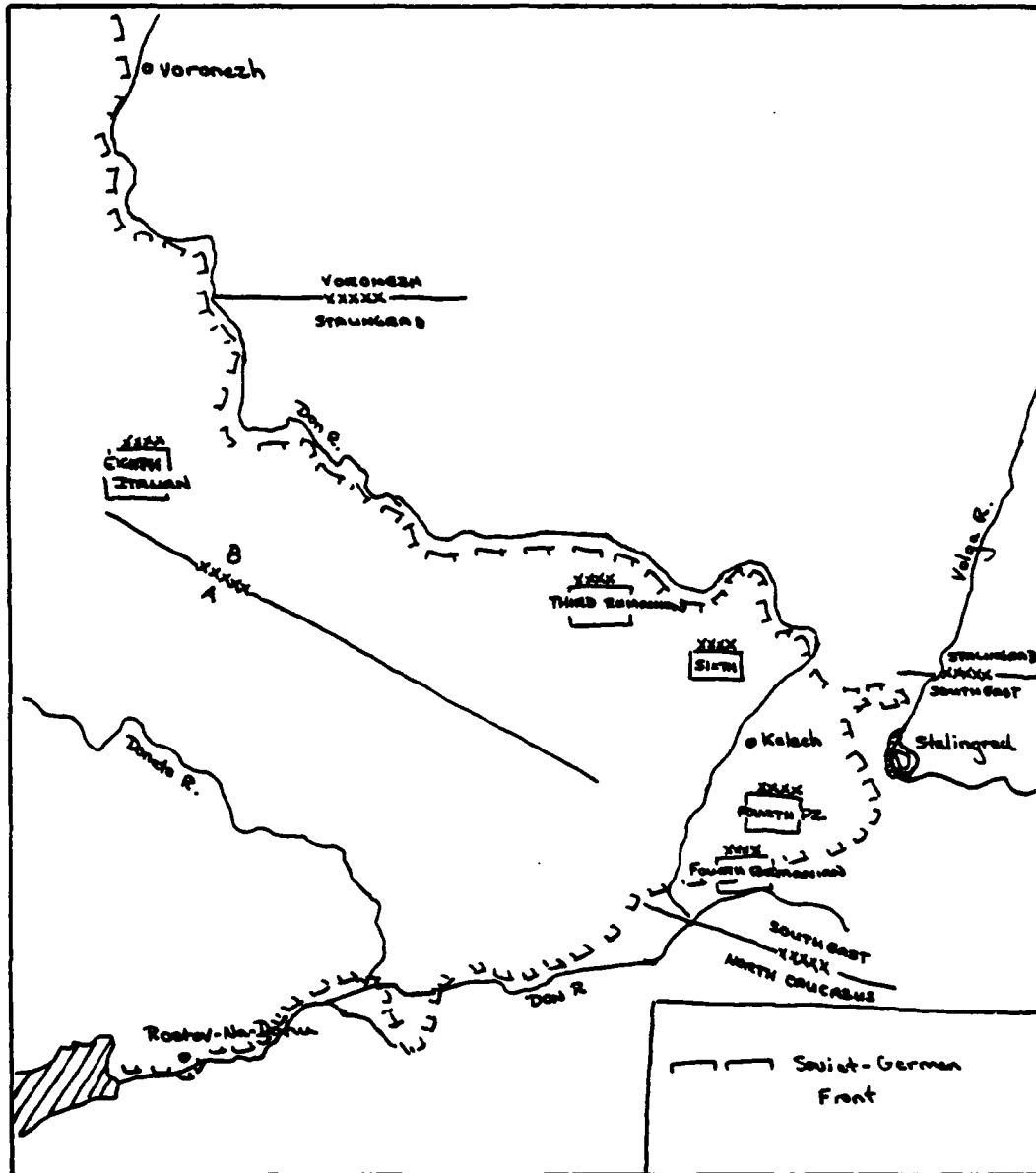
Between August and November 1942, the German Army continued to commit additional resources in an effort to defeat the Stalingrad defenses, but the Soviets refused to budge from a slim strip of land along the Volga River. Hitler's reasons for continuing to attack had changed from cutting off a major line of communication in the Soviet Union to capturing the "City of Stalin". By the time the Russian winter struck in the middle of November, Hitler had failed to achieve either of the objectives of his 1942 campaign. Additionally, his indecisiveness and the resulting delay of the German advances during the summer and fall had given the Soviet High Command time to execute a strategic deception plan, and the opportunity to establish a strategic reserve for a planned counteroffensive.

The Soviet counteroffensive at Stalingrad began on 19 November 1942 as one of a series of attacks along the entire front. (See Map 3) With the Southwest and Don fronts attacking from the north and the Stalingrad Front attacking from the south, Soviet forces made rapid advances against the Rumanian armies fighting on the

MAP 3

THE SOVIET COUNTEROFFENSIVE

NOVEMBER 1942



German flanks. By the 23d of November, Soviet forces linked up near Kalach and completed the encirclement of the German Sixth Army and part of the Fourth Panzer Army. Throughout December and January the Soviets conducted large-scale defensive operations to strengthen the outer ring against German attempts to relieve the Sixth Army, and began offensive operations to complete the reduction of the trapped German forces.

Hitler took personal command of the encircled armies and refused to let them withdraw in the face of the Soviet attacks. He was confident that he could support them by air, a belief was reinforced by the personal reassurances of Goering, the German Air Force commander. In the end, the Luftwaffe was unable to provide sufficient resources to sustain them. By 17 January 1943, German attempts to relieve the encircled forces had failed and the Soviet reduction of the pocket began. The German Sixth Army was slowly defeated by battle casualties, starvation, disease and frostbite.

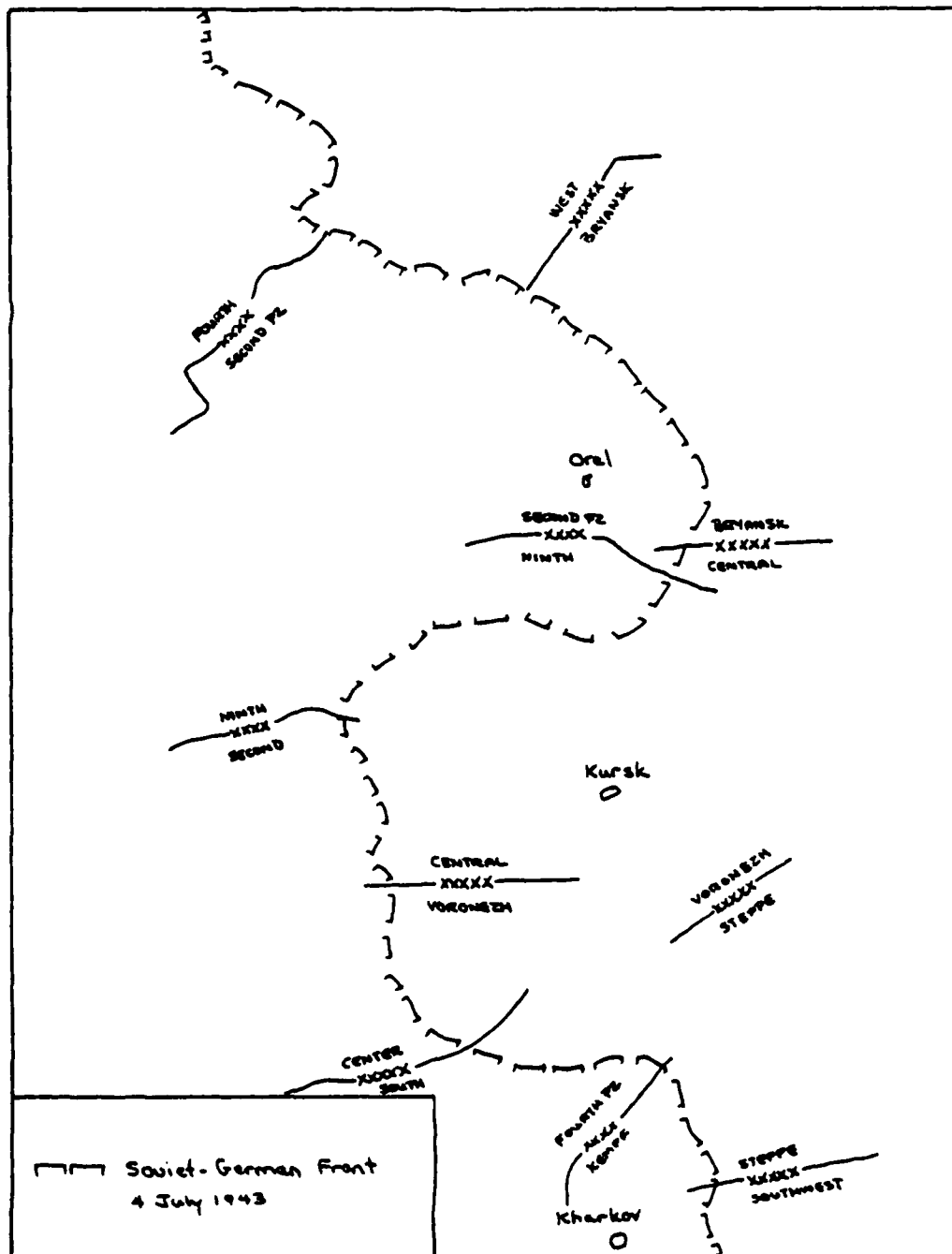
By January 31, Field Marshal Paulus, the Sixth Army Commander, could see no point in continuing the battle, and he surrendered his forces. On 2 February 1943, the fighting stopped and the Battle for Stalingrad was over. In losing the battle for Stalingrad, Hitler

not only sacrificed the Sixth Army and parts of the Fourth Panzer, but he also squandered any opportunity he might have had to seize the Caucasus. The eastern limit of the German advance had been reached by the Fall of 1942; by January 1943, the Soviet Army began to move west.

Although the Red Army suffered some tactical setbacks and eventually was forced to halt, most of the operations subsequent to the Stalingrad counteroffensive were successful. By the end of February, the Red Army had recaptured all of the territory lost to the Germans during 1942. The remainder of the spring and early summer was a relatively static time along the front, as both armies recuperated from the past winter's battles.

But the Germans were preparing for yet another offensive against the Soviet forces and the Soviet High Command was preparing to stop it. In Operation "Citadel" the Germans intended to eliminate a large Soviet salient that had formed around the city of Kursk as a result of the winter campaign of 1942-1943. (See Map 4.) However, the Soviets were well aware of the vulnerability of this salient, and they prepared defensive positions unlike any the Germans had seen up

MAP 4
THE BATTLE OF KURSK
JULY 1943



to this point in the war. In the resulting fight the world witnessed the largest tank battle ever fought. Not only were the Soviets successful in defeating the German armored forces, they finally gained the supremacy of the air from the Luftwaffe as well.

The Battle of Kursk marked the last large-scale attempt at offensive operations by the Germans on their Eastern Front. The Soviets had clearly gained the strategic advantage by this time, and as each month passed the superiority of the Soviet Union continued to grow. The chapters that follow examine the economic and military power of these two nations in an attempt to determine when the strategic advantage actually shifted and why.

ENDNOTES

¹Peter Young, ed., Atlas of the Second World War (1974): 192-205. Note: All information in this section was taken from this reference except as noted in the text.

²Gordon Wright, The Ordeal of Total War, 1939-1945 (1968): 61.

CHAPTER 3

GEOGRAPHY, POLITICS, AND
NATIONAL WILL

As stated previously, three factors of national power are excluded from detailed analysis in this study. This is not to play down their significance. Rather, these factors do not lend themselves to quantification in terms that would fit the scope of this study. The ultimate answer to the questions addressed in this study, however, must include an analysis of these factors.

Geography

Geography played a tremendous role in the outcome of the Soviet-German War. The vast expanses of the western part of the Soviet Union permitted Stalin to trade space for time and to eventually fight the war on his own terms. The Urals and beyond played a key role for industry and the marshaling of reserves. In the Soviet Union the Germans encountered a land quite different from Western Europe. They faced terrain almost without relief and with very few natural

obstacles. They were hampered by a lack of roads capable of supporting military operations in all kinds of weather. This poor road network affected both armies, but with the advantage of interior lines and equipment more suited to the terrain, the Soviets were better able to operate. While the Germans were continually hindered by a lack of forces to cover such a vast expanse and a lack of resources to operate extremely long lines of communication, the Soviets demonstrated the growing ability and resources to tailor their forces for fighting on a grand scale. The Germans also found themselves with the need to tie up valuable combat forces in the occupation of Soviet territories. Geography remained in favor of the Soviet Union throughout the war.

Political Power

The conflict in the two political ideologies was a significant factor in the Soviet-German war. Likewise, in both nations the amount of influence that the political system and leaders had on military operations played a decisive role in the final outcome. Both the communist government of Stalin and the Nazi regime of Hitler were political systems with idealistic goals in mind. Both were dictatorships, with highly

centralized power concentrated in the hands of one man and his close associates. In terms of alliances, it is of no small import that during the course of the war, the Soviet Union's prestige and impact among its allies increased, while Germany's decreased.

National Will

The last factor that had an important role for both countries is the psychological element or national will of each country to continue the war. Mackintosh states that neither Hitler nor Stalin had endeared himself to the population of his country when the war started. But, Hitler's harsh policies in occupied portions of the Soviet Union quickly extinguished much anti-Bolshevik sentiment in the Ukraine or Belorussia. Hitler announced that the war in the east was to be "a total war against communism and against Russia as a state and the Russian people as a nation. No quarter was to be given and the Russians, soldiers and civilians alike, were to be treated as an inferior race."¹ His policies were not designed to win the hearts and minds of the people in the occupied territories. In Germany the people supported Hitler and the war effort, but not to the extent of support required of the Soviet people.

On the Soviet side, Stalin quickly realized it would be easier to enlist the will of the people if the war was represented in terms of repelling the invaders, rather than fighting to support the Soviet government. Stalin appealed to that sense of nationalism in his speech in Moscow in November 1941 by evoking past national heroes. Stalin also sought to foster the spirit of a professional Russian National Army. Reviving the practice of wearing epaulets to denote rank is one example of his efforts.² What he succeeded in doing was to make this conflict a "Great Patriotic War" of the Soviet, and especially the Russian people. This feeling led to the whole Soviet nation becoming involved in the war effort. The population willingly sacrificed consumer goods for the sake of war materiel and worked whatever time it took to produce the items required for war.

ENDNOTES

¹Malcolm Mackintosh, Juggernaut (1967): 140.

²Ibid: 204.

CHAPTER 4

THE ECONOMIES OF GERMANY AND THE SOVIET UNION

An examination of the German and Soviet economies during World War II reveals two distinct and diverse economic systems. This chapter discusses each country's economic decision structure, mobilization potential, industrial output, national resources and general economic conditions. Economic strengths and weaknesses are presented and the relative economic power of the two nations is quantified by looking specifically at armaments production and the available industrial labor force. This chapter reviews each of the economies individually. Chapter 6 focuses on a comparison of their war efforts.

Since the mid 1930's, Hitler pursued a policy of "armament in width" to prepare his army for the war he determined was inevitable. This policy consisted of maintaining a high level of ready armaments, while using a low degree of armaments-producing potential.¹ His *blitzkrieg* strategy and economy were based on a short war that began with surprise and ended with a quick

victory.² According to Milward, the "German strategic and economic thinking before the war evolved around the concept of blitzkrieg."³ In retrospect, this policy was entirely appropriate for the military doctrine that Hitler chose to pursue. Because of the policy of arming only for the next battle, rather than building up an expanded armaments industrial base, the German economy had been able, until late 1941, to support a war with a vast amount of still untapped reserves.⁴

It appears that based on the pre-war German economy and the shortage of key resources needed for producing war goods, Hitler decided to continue the blitzkrieg economy for his attack on the Soviet Union. There were several reasons for this. It was convenient for the German economy and was proved successful during the previous two years. It conformed to the ad hoc methods of National Socialism, whereby many individuals were responsible for a number of different sectors in the economy. It followed the direction of the National Socialist party and facilitated Hitler's power, by fostering a sense that the people were really responsible for their own destiny.

One of the premises behind the theory of a blitzkrieg economy was that once sufficient amounts of

materials and armaments were stockpiled for the battle ahead, the same war industries could convert to the production of different requirements for future conquests. Since support of a blitzkrieg only required bursts of production, it allowed the country and its population to escape the burden of total war. It was an economically and strategically convenient method to wage short-term wars against weaker opponents.⁵

This policy also had another benefit for the perceived power of Germany: it gave them a psychological advantage. The world had the mistaken impression that Germany was a powerful militarized society. At the outbreak of World War II, the Allies believed that Germany was on a full wartime footing, and geared their wartime economic plans for a long war, in an effort to catch up. In reality, they did not have far to go to catch up, and soon surpassed Germany in all areas of war production.

This false impression of Germany's economic capabilities allowed her to be a world power, when in actuality she had some glaring economic weaknesses in the event of total war. As a result of attacking individual countries that were weaker than she, Germany was overwhelmingly successful. She even experienced the

same success, initially, against the Soviet Union. Still, a long war did not necessarily signal the end for the German war effort.

Before the war, Germany was greatly dependent on outside countries for the bulk of the natural resources needed to support her war industry. In an effort to be less dependent, Hitler directed that more emphasis be put on the exploitation of the low grade iron ore in Germany, and that those minerals which she did not have, such as chrome and nickle, be stockpiled.¹¹ In spite of this precaution, Germany still experienced a shortage of high grade armaments steel when outside sources of ore were cut off. However, this did not emerge as a problem initially, because during the first two years of the war, Germany was able to gain additional natural resources at a relatively small cost. When the Germans invaded the Soviet Union in June 1941, Hitler was convinced that his stockpiles of supplies were sufficient to last for the the five months it would take to defeat the Red Army.

During the interwar period, the Soviet economy was administered as a socialist institution with central control coming from the seat of government. This control would be a great factor in the transition of the

economy, and of the country in general, to a wartime footing. In June 1941, the Soviet Union was in the middle of Joseph Stalin's third Five Year Plan for the socialization of industry and agriculture, and it was making substantial headway toward that plan's industrial production goals.⁶ During the two years preceding the German invasion, Stalin had gained some additional time to continue his plan by signing the 1939 Nonaggression Pact with Hitler. This Pact allowed the Soviets to begin substantial development of industry and exploitation of natural resources in the areas east of the Ural mountains and in Western Siberia.

By the time of the invasion, these two areas produced thirty-nine percent of the Soviet Union's total steel output, thirty-five percent of the nation's coal, twenty-five percent of the electricity and fifty percent of the tractors. However, oil production in this region lagged and in June 1941, only twelve percent of the nation's oil came from this area.⁷ The remaining eighty-eight percent came from the Caucasus region, and as the war progressed, this unequal distribution coupled with a seriously degraded Soviet transportation capability, would create some major problems for the Red Army and for the Soviet economy in general.

Even though the Soviet economy was making progress in industry, in 1940 it still lagged behind the German economy in the production of both coal and steel, key strategic materials. In that year, the German economy and her satellites produced 391.2 million tons of coal and 30.9 million tons of steel, while the Soviet Union's output was 153.7 and 18.3 million tons respectively.⁸

While in the Soviet estimation the industrial aspects of the economy were progressing satisfactorily, agriculture was the USSR's weakest economic area. The socialization of farming had not been very successful. To illustrate this point, in 1940 the raising of cattle and sheep in the Soviet Union still lagged behind the levels recorded prior to World War I.⁹ This prewar weakness was magnified as a result of the German occupation.

The Soviet Union's prewar economy was expanding, but it was not on the same level as Germany. However, the economic potential of the Soviet Union was much greater, particularly in terms of available labor for meeting the manpower needs of both the economy and the military. The 1941 population of the Soviet Union was estimated at 190 million, including ninety million Great

Russians, forty million Ukrainians and ten million White Russians. In contrast, the German population in 1939 was estimated at 78 million. While the German population would be augmented by foreign labor, the Soviet Union would retain the manpower advantage throughout the war.¹⁰

THE GERMAN ECONOMY, 1941-1943

Because of Hitler's confidence in Germany's ability to rapidly defeat the Red Army, in July 1941 he shifted the priority of war production from the *Mehrnacht* to the Luftwaffe and the German Navy. The production of war goods was now focused on the war against the British.¹² As a result, after reaching a peak in the July 1941, overall German armament production declined twenty-nine percent by December 1941. Table 4.1 shows the production decline of selected weapons between April and December 1941.

Still, Hitler did not see this decline as detrimental to the conduct of the war with the USSR. He felt that the war would soon be over and that vital Soviet industrial areas would be in his hands. This was a major miscalculation on his part. The war did not end, the Soviets evacuated many of their industries

farther east and the *Wehrmacht* paid a heavy price for its advances. As described in Milward's The German Economy at War, "The unforeseen economic factor in the invasion of Russia was the heavy losses of (German) equipment....Still, had the USSR collapsed, as Hitler had hoped, before the end of 1941, the blitzkrieg would have justified itself."¹³

German Armament Production
April - December 1941

<u>Armament</u>	<u>Month of Highest Production</u>	<u>Decline by December</u>
Lt Inf Arms	April	-38%
Hvy Inf Arms	August	-49%
Army Arty	April	-67%
A/C Armament	August	-36%
Tank Guns	December	-0%
Flak	November	-17%
Total Weapons	July	-29%

Table 4.1

Source: Milward, The German Economy at War

According to Milward, the blitzkrieg phase of the German economy lasted from "the beginning of the war until the Soviet capture of Rostov on the Don in December 1941."¹⁴ At that point it was rapidly becoming apparent that the resources of Germany would not be sufficient to continue to wage war in the same manner. Even with the occupation of Soviet territories, thanks

to Stalin's "scorched earth" policy, the Germans would have to find a new way to support the war.

Administration

Beginning in the winter of 1941-1942, "Germany was arming for total war."¹⁵ Abandoning the blitzkrieg required the German government make significant changes in the way that the economy was being administered. No longer would *ad hoc* methods suffice. Greater centralization would be required if the economy was to effectively meet the demands of a protracted war. As a result, the civilian Ministry of Armaments and Munitions was organized and the separate service organizations, most notably the German Army, lost some of their economic authority. On 10 January 1942, Hitler issued Fuhrer Command "Armament 1942", which declared a new phase in the German economy. By February, the first great period of expansion in German war production had begun.¹⁶

Fritz Todd, the first Reichminister for Armaments and Munitions, died in a plane crash in February 1942. Hitler chose as Todd's successor his architect, Albert Speer. This is when the real business of organizing the Third Reich for war began. Under Speer, described by

some as a miracle worker, the German war economy increased production significantly, and the process of running the economy in support of the German Army became more centralized. By April 1942, the Central Planning Board, headed by Speer, had been established, and was empowered to allocate raw materials to industry. German industrial production rose dramatically, and by the middle of 1942 Germany's basic "total-war" economy had been established.¹⁷ However, further examination of that economy shows that it still was not what could be described as an economy totally dedicated to a war effort.

Even with the Central Planning Board, some of the splintered control of the economy still existed. Seaton characterizes the German economy of 1942 as "extemporized and makeshift" and "in the hands of competing groups."¹⁸ The Navy and Air Force still exercised individual control over their production requirements and priorities. This disconnect would not be solved until well after the middle of 1943. Production of consumer goods was not restricted to the degree that might be expected in a mobilized economy. In fact, the *Wehrmacht* was one of the greatest users of consumer goods, requesting millions of "unnecessary" items such as scissors and rubber stamp pads.

Labor

Throughout this period of economic expansion, one area that proved to be unsolvable for Germany was the efficient distribution of the labor force. As the need for military manpower increased, Hitler was faced with the dilemma that every additional man in uniform meant one less worker in the factories. This problem was compounded by the fact that Nazi propaganda recommended that the place for women was in the home and not in a factory. As a result, many factories were restricted to operating with only one shift, leaving machines and tools very often underutilized. Hitler had been counting on a great influx of labor from the occupied territories to fill the void. He thought the captured populations would compensate for the initial drop in the labor force that resulted from the sudden withdrawal of labor to the armed forces at the beginning of the war. However, during the first two and one half years of the war, 7.5 million German men were drafted, but only 3.8 million workers were gained from foreign countries to replenish the labor force.¹⁷ Table 4.2 shows the composition and growth of the German labor force, to include foreign labor, between 1941 and 1943.

German Labor Force
1941-1943

	<u>1941</u>	<u>1942</u>	<u>1943</u>
German Labor Force (millions)	33.1	31.3	30.3
German Labor in Industry (millions)	8.9	8.0	7.9
Foreign Labor Total (millions)	3.0	4.1	6.3
Foreign Labor in Industry (millions)	0.6	1.0	2.1

Table 4.2

Source: Michel, The Second World War.

In 1942, additional demands for military manpower made the shortages in the trained labor force even more acute. Hitler compounded the labor problem by treating the population of occupied territories with total disdain. As a result, the production output of individual workers from those areas continually declined. Additionally, the military draft initially took many of the technically qualified personnel out of the factories. Only as a result of a Speer initiative were certain "key workers" eventually exempted from conscription. Finally, although Speer gained much power in the administration of the German war economy, the responsibility for the distribution of labor remained in the hands of Fritz Sauckel, chief of Hitler's manpower agency. Sauckel's ideas of using manpower differed significantly from Speer's and his methods of "procuring labor were self-defeating, and actually resulted in a

steady decrease in labor just when the need was the greatest."²⁰

Raw Materials

Coal and overall steel output continued to grow between 1941 and 1943 and exceeded Soviet output in both areas. But, oil was to be a continuing problem for the German war effort. By the end of 1941, Germany was down to one month's supply of oil and Hitler is quoted as saying "If I do not get to Maykop and Grozny oil, I shall be forced to stop the war."²¹ While Hitler actually got very little oil from the Caucasus oil fields, Germany was not forced to stop the war. In fact, German oil production actually grew between 1941 and 1943. Additionally, Germany produced 5.5 million tons of synthetic motor-fuel in 1941 and by 1943 production increased to 7.5 million tons.²²

As early as 1939, Germany experienced problems with stockpiles of critical metals, most of which Hitler was forced to get from outside the country. In 1939, German consumption of copper, tungsten, lead, nickel, molybdenum, and chrome exceeded the amount added to the stockpiles by six percent. In 1941, Germany consumed twenty-three percent more of those metals than they

stockpiled and as requirements for high grade steel for war production increased, the gap continued to widen.²³

Armaments Production

In spite of these handicaps, Speer still made great progress. Using February 1942 as a base month (100 percent), German war production rose to 153 percent of that figure by July 1942, 229 percent by July 1943 and 322 percent by July 1944. During this same period the production of weapons, ammunition and aircraft tripled and the production of tanks increased sixfold.²⁴ Table 4.3 shows production of selected items between 1941 and 1943.

German War Production
1941-1943

<u>Item</u>	<u>1941</u>	<u>1942</u>	<u>1943</u>
Guns (thousands)	7.0	12.0	27.0
Tanks (thousands)	5.1	9.4	19.8
Aircraft (thousands)	12.4	15.4	24.8
Bombers	4.4	6.5	8.6
Fighters	3.7	5.2	11.7

Table 4.3

Source: Michel, The Second World War.

Even though production increased, Speer was never able to overcome the problem of Hitler's meddling. His interference continually complicated the efficient administration of the economy. After the early

successes of the 1942 summer campaign, Hitler seriously considered a return to the blitzkrieg economy. It wasn't until the Battle of Stalingrad that he finally abandoned that idea. Even after Stalingrad, though Hitler abandoned the idea of winning the war in the east, he felt as though Germany still had a chance of to win the war as a whole.²⁵ In 1943 he was convinced that superior technology could triumph. He directed the German war economy to shift its focus from quantity to technological superiority. However, this idea was shortlived: it simply wasn't possible to stay ahead of the Allies. They could easily copy new German technology from armaments captured on the battlefield, and they were able to replace equipment losses when the Germans were not.

Summary

To summarize the state of the German economy during this period would be to say that, while production of armaments increased greatly, the economy never reached a full wartime footing. Three consistent bottlenecks in arms production plagued Germany throughout the war and probably precluded the implementation of a full wartime economy. There was never sufficient production of high grade steel for

armaments production. This was primarily due to an insufficient prewar investment in the refinement of low grade ores. Second, there was a continuing difficulty in the procurement of spare components for the repair of weapon systems. While the prewar system of individual contributions to the economy served to disperse existing industry, it also made it extremely difficult to assemble any substantial stockpile of parts. The third bottleneck was the shortage of skilled labor, a problem continually aggravated by conscription.²⁶ The German war economy grew tremendously during the period 1941-1943, but ultimately that growth was not sufficient to meet the constantly increasing demand.

THE SOVIET ECONOMY, 1941-1943.

The Soviet economy presents an entirely different picture, both in the philosophy for and the execution of a war economy. According to Voznesensky, "World War II only marked a new period in the development of Socialist economies, a period of the economy of war."²⁷ The invasion by the Germans in 1941 simply required that the process of preparing the economy for an inevitable conflict, must now continue at a faster rate.

Administration

The Red Army had already received some new combat technology when the war with Germany began, but modernization was originally scheduled to take place over several years. Execution of this plan was obviously complicated by the forced retreat of the Red Army and of industry from the west and central regions. As a result of the invasion, the Soviet Union developed a two-phased plan designed to bring the economy to a wartime footing. The first phase was to rebuild the economy, heavily damaged during the invasion, and the second phase was to increase the production of that rebuilt economy.²⁸

When the Germans swept through the western USSR during the summer of 1941, the Soviet Union lost great reserves of armaments, technology and ammunition stockpiled there. They also lost regions of the country that before the war had contributed 63 percent of the coal, 58 percent of the steel, 41 percent of the railroads, 38 percent of the wheat, 84 percent of the sugar and 60 percent of the livestock in the Soviet Union. By November 1941, 5 months after the invasion, total Soviet industrial production was reduced to forty-eight percent of prewar levels, the production of

critical armament industries almost came to a halt, and the transportation of coal to the eastern factories amounted to little or none.²⁹

To minimize the losses in these valuable regions, and to deny the Germans the industrial capability contained there, the Soviets undertook the monumental task of dismantling numerous industries and relocating them into new industrial complexes in the east. Between August and October 1941, no less than 1360 large factories were moved. They were transported in over 1.5 million railroad carloads of cargo and were accompanied by over ten million people. Of the factories that were moved, 455 went to the Urals, 210 to western Siberia and 250 to Central Asia. As a result, the total industrial output of the Urals factories increased 2.5 times and military armament production increased 5 times, between 1941 and 1942. During the same period, Western Siberia's industrial output increased 2.4 times and military production, 27 times. The Volga River region experienced similiar increases.³⁰

Armaments Production

As early as December 1941, the Soviet Union began to see the fruits of this labor. The industrial decline

resulting from the invasion was stopped and production began an upward trend that would continue until 1944. By March 1942, total industrial output exceeded that of June 1941, and by December the industrial output of the eastern factories alone exceeded the prewar output of the country as a whole. By 1943 the Soviet war economy had passed from the rebuilding phase into the next phase of increasing the quantity and quality of production.³¹ Table 4.4 highlights the production of selected armaments between 1941 and 1943.

Soviet Armaments Production
1941-1943

<u>Item</u>	<u>1941</u>	<u>1942</u>	<u>1943</u>
Guns (thousands)	30.7	29.6	130.0
Tanks (thousands)	4.7	24.7	24.0
Aircraft(thousands)	3.9	25.4	34.9

Table 4.4

Source: Michel, The Second World War

Labor

In spite of the great demands for soldiers, throughout this period, the number of workers in the national economy steadily increased. By 1943 the industrial labor force was more than double that of Germany. Table 4.5 shows the Soviet industrial labor force during 1941-1943.

Soviet Industrial Labor Force
1941-1943

	<u>1941</u>	<u>1942</u>	<u>1943</u>
Labor Force (millions)	26.2	18.4	27.5

Table 4.5

Source: Michel, The Second World War.

Accompanying this increase in the number of workers was a corresponding increase in the productivity of each worker. Using 1940 as a base figure (100 percent) for the production output of each individual worker, by 1942 that figure had risen to 130 percent and by 1943 it was up to 139 percent. Additionally, because the Soviet Union had a much larger population base to work with, they were able to continue training programs for workers throughout the war. In 1942, of 3,772,000 replacement workers were trained. In 1943 replacement workers numbered over five million men and women.³² These programs resulted in a steady supply of trained technicians and workers, who were able to continue the effective operation of the growing war economy.

Natural Resources

While great success was achieved in industry, as mentioned previously, agriculture was a continuing problem for the Soviet Union throughout the war. By

1942, the Soviet Union's gross agricultural output was only thirty-eight percent of the 1940 output. The war also reduced the amount of sowing areas by forty-two percent. During the same period, livestock production declined to fifty-two percent of 1940 production. These drastic reductions were a direct result of the German occupation as they swept up the rich land of the western USSR. Not until 1943, when the Soviets were able to begin liberating occupied territory, did the production in these agricultural areas begin an upward trend.³³

In the processing of raw materials, the Soviet Union was dealt a great blow with the land lost to German occupation. Soviet steel production continually lagged behind the Germans and in 1943 steel output was only forty-five percent of prewar levels. Coal and petroleum production remained at less than sixty percent of 1940 output in both 1942 and 1943. Processing of strategic metals declined to less than seventy percent of 1940 production during the same period.³⁴

Transportation

Transportation was also a significant and continuing problem. Rail, the primary means of transporting goods, was severely restricted by a

shortage of fuel and by damage sustained during the war. The shortage of trucks in the Red Army was also a great concern. Available vehicles were used mainly for transportation of supplies and could not be used for the movement of soldiers. Even though the number of trucks in the Red Army increased from 272,000 in 1941 to over 600,000 by the end of the war, it was still not enough to meet the seemingly endless demand.³⁵

Lend-Lease

A number of problem areas in the Soviet conomy received some relief in the form of Lend-Lease assistance from the Allies. Throughout the war, Lend-Lease shipments provided the Soviet Union with over 409,000 motor vehicles (jeeps and trucks), over 2,600,000 tons of petroleum products, 13,041 locomotives and 4,478,000 tons of foodstuffs. Lend-Lease also provided numerous tanks, artillery and combat aircraft, but the Soviets considered them to be of inferior quality and number, and not a significant influence on the Soviet war effort. The Soviets claim that allied contributions provided less than two percent of the total Soviet artillery, less than ten percent of the Soviets tanks and less than twelve percent of the aircraft.³⁶ Delivery of over 14,000 aircraft and over

6,000 tanks suggests that the impact may have been more than insignificant.³⁷

Of greater importance to the Soviet war effort were the items other than actual weapon systems. The great quantities of transportation assets provided to the Soviet Union allowed her to concentrate her industrial resources on the production of weapon systems and not have to worry about trucks, trains or cargo aircraft. Equally significant were the petroleum products, particularly one million gallons of high octane aviation fuel, and the strategic metals critical to the production of high quality armament steel. Metals supplied to the Soviet Union by both the United States and Great Britain included aluminium, copper, nickel, tin, lead and zinc. All of these were essential for the production of war materiel. Lend-Lease provided food and clothing that was critical to the sustainment of the Red Army soldier. Assuming an average Soviet Army strength of twelve million men, the food supplied amounted one half pound per man per day.³⁸

Summary

The Soviet economy between 1941 and 1943 was characterized by a period of great mobilization and

continuing self-sacrifice on the part of the Soviet people. In contrast to the German economy, the Soviet Union was mobilized in 1941 and on a full wartime footing from early 1942. Not until after the period discussed in this study did consumer goods appear in any appreciable amounts. Hitler underestimated the economic might and great potential of the Soviet Union and this was undoubtedly one of the reasons for his ultimate defeat.

While downplayed by the majority of Soviet sources, because most of the aid came after 1942, Lend-Lease played a significant role in the war effort of the Soviet Union. It most notably provided the key food, fuel and transportation assets needed to sustain the huge Red Army on the way to Germany.

ENDNOTES

¹Alan Milward, The German Economy at War (1965): 6.

²Ibid: 1.

³Ibid: 7.

⁴Ibid: 6.

⁵Ibid: 8.

⁶Nikolai A. Voznesensky, The Economy of the USSR During World War II (1948): 6.

⁷Gordon Wright, The Ordeal of Total War, 1939-1945 (1968): 57.

⁸History of the Great Patriotic War of the Soviet Union, 1941-1945, Volume Six, "Results of the Great Patriotic War" (1965): 140. Hereafter cited as HGPW.

⁹Ibid: 138.

¹⁰Albert Seaton, The Russo-German War, 1941-1945 (1970): 95.

¹¹Milward: 12.

- ¹² Ibid: 43.
- ¹³ Ibid: 44-45.
- ¹⁴ Ibid: 28.
- ¹⁵ Ibid: 50.
- ¹⁶ Ibid: 71.
- ¹⁷ Wright: 62.
- ¹⁸ Seaton: 40.
- ¹⁹ Milward: 46.
- ²⁰ Ibid: 113.
- ²¹ Henri Michel, The Second World War (1974): 551.
- ²² Ibid: 225.
- ²³ Milward: 48.
- ²⁴ Wright: 64.
- ²⁵ Milward: 100.
- ²⁶ Ibid: 110.
- ²⁷ Voznesensky: 5.
- ²⁸ HGPW: 144.
- ²⁹ Michel: 461.
- ³⁰ HGPW: 149.
- ³¹ Ibid: 140.
- ³² Voznesensky: 68.
- ³³ HGPW: 225.
- ³⁴ Ibid: 196.
- ³⁵ Ibid: 156; Earl Ziemke, Stalingrad to Berlin: The German Defeat in the East (1984): 500.
- ³⁶ HGPW: 156.
- ³⁷ Hubert P. van Tuyll, Lend-Lease and the Great Patriotic War, 1941-1945 (1986): 51.
- ³⁸ Seaton: 625.

CHAPTER 5

THE SOVIET AND GERMAN ARMIES

The relative military power of the Soviet Union and of Germany is the second element of power that is examined in greater detail. The German Army that attacked the Soviet Union was a powerful and experienced force. It possessed the most modern weapons and technology in the world and was a highly disciplined fighting machine. As a result of their convincing victories in Western Europe, German soldiers were very confident. In stark contrast to the *Wehrmacht* were the forces of the Red Army, who in 1941 were licking their wounds from the Finnish War and were in the middle of a rearming period. They were not yet prepared to fight a war of the magnitude that faced them. This chapter looks at both of these armies and the changes that occurred in each, between the Battle of Moscow in December 1941 and the Battle of Kursk in July 1943. It looks their forces and equipment, and the strategy employed by their leaders to fight the war. Senior leadership in both the *Wehrmacht* and the Red Army is

examined, as is the influence of the political leaders on the actions of the armed forces.

Background

During the interwar years, the German Army had the opportunity to train in the Soviet Union and to practice its craft during the Spanish Civil War. Throughout this period, Hitler continued to develop and stockpile new equipment. Prior to the invasion of the Soviet Union, the German Army gained valuable experience in armored mobile warfare in Western Europe. The *Wehrmacht's* senior leaders were experienced and professional officers who gained Hitler's confidence during the campaigns of 1939 and 1940. In preparation for the invasion of the Soviet Union, they assembled a force of over three million men, and armed it with over 3,300 tanks, 7,200 artillery pieces, supported by over 2,700 combat aircraft.¹

The Germans encountered a force that was the opposite of the *Wehrmacht* in almost every respect. In the years preceding the German invasion, Red Army leadership had suffered under Stalin's purges, during which over fifty percent of the commanders at brigade level and above were "dismissed, imprisoned or shot

without trial."² With the loss of many of its forward thinkers, the Red Army was left primarily with mediocre or young and inexperienced leaders. The purges also created great fear among the remaining Soviet military leaders. The morale and initiative of those who survived collapsed.³ Because Soviet advisors drew wrong conclusions from the employment of armor in the Spanish Civil War, the Red Army turned away from the innovative doctrinal ideas of the 20's and 30's. They returned to a doctrine calling for the primacy of infantry supported by tanks and artillery.

During the Winter War of 1939-40, this new Red Army attempted to secure territory from Finland. Although the Soviets eventually prevailed, it required a force of over one million men to defeat a nation of only 3.5 million people.⁴ This small and costly war finally convinced Stalin and the new Red Army leadership that military reforms were needed. A frenzied effort to reorganize and train the army then began. As mentioned in the previous chapter, Stalin negotiated a nonaggression pact with Germany in 1939. He hoped to gain time in order to prepare his armed forces. That time, however, was running out faster than the Red Army could reequip and rearm itself.

When the Germans invaded, much new Soviet equipment existed only on the drawing boards. The famous T-34 tank, arguably the best medium tank of the war, had yet to be produced in any great quantity. Modern combat aircraft were also just beginning to be seen on the front. As a result, much of the Red Army's refitting and training would come in battle, after the German invasion.

The following pages examine both the German and the Soviet armed forces as they became locked in a bitter struggle of monumental proportions.

THE GERMAN ARMY, 1941-1943

Forces

In terms of available forces and logistical support, the Germans were well prepared to conduct a five-month war in the USSR much like they had done in Western Europe. In those first five months, they were able to advance great distances and capture huge numbers of Soviet soldiers and great quantities of Soviet equipment. But this great advance was not without significant costs.

Between June and November 1941, German casualties numbered over 680,000; the original invasion force of over three million had been reduced by twenty percent. Only about a third of their vehicles still worked and the Panzer divisions were down to thirty-five percent of their original strength.⁵ Army Group Center, fighting in the vicinity of Moscow, had yet to receive a single replacement division. The 136 German divisions on the Soviet front had an estimated strength of only 83 divisions.⁶ Still, on 5 December, the Germans were able to concentrate more forces around Moscow than were the Soviets.⁷ By the end of 1941, the Germans had 3.9 million men on the front, but they had run out of available replacements and reserves, and out of time to establish a credible defense.⁸ With the severe Russian winter compounding resupply efforts, the Germans could only hope to hold out until spring.

German personnel losses between December 1941 and March 1942 amounted to over 1.3 million men. Of that number, almost four hundred thousand were battle casualties, the rest were due to sickness.⁹ According to Colonel General Franz Halder, Chief of the German General Staff, in the spring of 1942, German losses still exceeded actual replacements of men and equipment on the front. To replace over one million personnel

losses, only 450,000 new soldiers had arrived. In Halder's estimation, Army Group South had only fifty percent of its original firepower and Army Groups Center and North were down to thirty-five percent firepower by 1942.¹⁰

While the number of German divisions increased for the 1942 summer offensives, they were grossly undermanned and the forecast for future replacements remained dim. According to Field Marshall Keitel, Chief of the High Command of the *Wehrmacht*,

"the monthly losses of land forces alone under normal conditions, excluding major battles, averaged 150,000 to 160,000. Of that number only 90,000 to 100,000 could be replaced. As a result, the Army was effectively being reduced by 60,000 to 70,000 men each month and it was only a matter of time before the replacement flow would run dry."¹¹

Keitel blames the replacement problem on the industrial exemptions demanded by Speer. He estimates that there were 500,000 exemptions, enough to fill 150 divisions of three thousand men each.¹² Still, the Germans were able to begin the 1942 offensive with six million men (including allies). By November 1942, just prior to the Soviet counteroffensive at Stalingrad, that figure had risen to 6,100,000.¹³

Stalingrad and the subsequent Soviet offensives, rapidly drained the German Army's manpower and equipment resources. During the winter of 1942-43, the Germans

lost forty-three percent of their soldiers on the Soviet-German front.¹⁴ However, in spite of those losses, by the summer of 1943 Hitler was able to assemble over five million men for what he hoped would be the decisive blow against the Soviet salient at Kursk. But at this point, even those forces were not sufficient to gain victory and the retreat to the west began. Table 5.1 shows the various strengths of the German Army (including allies) on the front between December 1941 and June 1943.

Equipment

When the Germans invaded the Soviet Union, they had a qualitative but not a quantitative advantage in major weapon systems. Their rapid advance and encirclements of Soviet forces quickly eliminated any initial numerical advantage that the Red Army may have enjoyed. However, like personnel, German equipment losses were not being readily replaced. Of 74,000 vehicles and 2,340 tanks lost during the winter of 1941-42, only 7,400 and 1,847, respectively, were replaced.¹⁵ Transportation of equipment to the front was also a problem. Of 3,256 tanks manufactured in 1941, less than one hundred had been delivered by early 1942 to compensate for over three thousand losses.¹⁶

By May 1942, however, the Germans were able to replace most of those losses and they began the 1942 summer campaign with twenty more aircraft on the front and only 360 less tanks than in June 1941. They did, however, suffer from a shortage of tank ammunition.¹⁷ The Germans sustained some equipment losses throughout the summer and fall of 1942, but it was during the struggle for Stalingrad that those losses had the greatest impact. Soviet sources claim that between November 19, 1942 and February 2, 1943, German losses amounted to more than 2,000 cannons/mortars, 2,000 tanks and similiar numbers of other equipment.¹⁸ Although it is difficult to find firm German figures, for the amount of forces employed these estimates appear to be reasonable.

Luftwaffe losses were also heavy during this period. In addition to aircraft losses sustained in the resupply efforts during the winter of 1941-42, many aircraft were pulled from the German Eastern front to defend against British raids. During the winter of 1942-43, Luftwaffe losses were estimated at over 3,000 aircraft.¹⁹ Hitler's gamble to resupply the Sixth Army cost his air forces dearly.

In spite of increased armaments production in Germany, the decrease in equipment on the Soviet-German

front was inevitable. As the losses mounted and resources were drawn to other theaters, the *Wehrmacht's* strength was gradually being sapped. By the Battle of Kursk, the quantities of available German equipment declined in every case. Table 5.1 shows a summary of German equipment at the front between 1941 and 1943.

German Army Forces/Equipment
1941-1943

	DEC <u>1941</u>	JUN <u>1942</u>	NOV <u>1942</u>	JUN <u>1943</u>
Forces (millions)	4.7	6.0	6.1	5.2
Guns/Mortars (thousands)	36.0+	53.8	70.0	54.3
Tanks/SP Arty (thousands)	1.5	2.9	6.6	5.9
Combat Aircraft (thousands)	2.5	3.4	3.5	3.0

Table 5.1

Source: Michel, History of the Second World War;
Tamanov, "The Battle for Stalingrad."

Leadership

When Germany invaded the Soviet Union in 1941, the *Wehrmacht* had senior military leaders who were as experienced, as professional and as talented as any in the world. However, Hitler's influence and sheer will soon dominated the activities of the German Army and severely hampered the ability of the German General Staff to fight the war. Following the Battle of Moscow, Hitler was convinced of his ability to win this war, with or without his generals. He continually subjected German Army leadership to his indecisiveness and

impulsive decisions. As the war went on, he trusted the judgement of fewer and fewer military advisors. He had made a competent officer corps much less effective. It was a gradual process, but it began almost as soon as the war did.

During the invasion of the Soviet Union, Hitler was told repeatedly by his senior military advisors that to defeat the Red Army, he had to seize Moscow. After the initial success of Army Group Center, he chose to ignore that advice, or failed to recognize the importance of the capital city, and instead aimed to the south. When he finally decided to return the main effort to the advance to Moscow, it was too late and the opportunity to defeat the Red Army was lost.²⁰

Up to this point in the war, while the Germans were enjoying such great successes, Hitler generally stayed out of the fighting of the battles. He did not however, refrain from imposing his will on the overall strategy. Hitler's insistence on splitting his forces, instead of concentrating on Moscow, probably saved the Soviet capital from capture, but also may have doomed the German war effort. As the German Army bogged down in the winter of 1941, he became frustrated and began a practice of relieving competent field commanders and

taking command of units himself. This practice would be repeated again and again and would ultimately lead to disaster for the German Army.

During the Battle of Moscow, von Brauchitsch, the Commander-in-Chief of the German Army, gave Hitler a plan for withdrawal from the front to consolidate forces. Von Brauchitsch was retired and Hitler became the new Commander-in-Chief. By Christmas 1941, Hitler had relieved the commanders of all three Army Groups in the east and the commanders of the two Panzer Groups in the center that led the drive to Moscow.²¹ His orders to the field were that the Germans would stand to the last man. Because of the poor condition of German forces and the pressure being applied by the Red Army, this decision may have saved the *Wehrmacht* from complete disaster. It also convinced Hitler that his "stand-fast" policy was the key to future victories. From this point on he was convinced of his own military prowess and the "incompetence" of his generals. The German Army was subject to his every whim.²²

Field Marshal Erich von Manstein says that Hitler lacked military skill based on experience and, while Hitler felt otherwise, that his intuition was no substitute. He says that Hitler refused to compensate

for that lack of skill by using his staff. To the *Fuhrer*, the early victories of the German Army had confirmed his "military skills." Manstein states that Hitler also lacked a sense of judgement of what could and could not be achieved with the forces available. Hitler felt that his will could conquer over all. He goes on to say that Hitler procrastinated when making tough decisions, took few risks and refused to give up anything once taken. Stalingrad turned out to be an excellent example of all these criticisms.²³ His insistence on continuing to pour available reserves into the Stalingrad sector weakened his flanks significantly. And he did this in spite of continued warnings that the forces were not available to hold the defensive line of the Don.²⁴

After Stalingrad, Hitler showed briefly that he may have questioned his own judgement. He put Manstein and Guderian in charge of his Eastern front and intended to let them fight the war there. This respite was shortlived, however, as he grew impatient with their efforts and soon returned to his one-man leadership of the war. Hitler had the leaders to prosecute this war for him, but failed to heed their advice.

Summary

In 1941, Germany had the necessary forces and equipment to defeat the Red Army. But, indecision and unpreparedness for a long campaign ultimately spelled defeat for the *Wehrmacht* in the east. In spite of mobilization and an expansion of the German war industry, Hitler was unable to keep pace with the Soviets in both equipment and manpower. Allied actions in North Africa and Italy complicated the problem for Hitler and caused him to disperse, even further, his dwindling forces. In November 1942, seventy-two percent of Germany's divisions faced the Soviets. By July 1943, that figure was reduced to sixty-six percent.²⁵ This percentage was destined to drop even further as the war expanded in the west. Germany was not a beaten power in 1943, but she had lost the opportunity for victory in the Soviet Union.

THE RED ARMY, 1941-1943

Forces

The Soviets' increasing ability to execute more complex levels of operational art was a natural product of the growth in the size of the Red Army and the

increases in the quantity and quality of the equipment they received. When the German Army invaded, the Soviet Union had a numerically superior force of approximately 4.2 million soldiers in 150 divisions, but they lacked adequate organization, modern equipment and the experienced leadership to hold the front. The Red Army was, however, an army with great potential. In July 1941, the Soviet Union had sixteen million men of military age. Even if the western USSR was lost, they still had the ability to call up ten million soldiers. The capability was there, what they needed was time.²⁶

In spite of the tremendous Soviet losses suffered during the German invasion (four million prisoners in the first eight months), the Red Army was able to train and equip large numbers of new soldiers. After reaching low points of 2.3 million soldiers on the front and a total force of 6.9 million in November 1941, by June 1942, Soviet strength at the front exceeded 5.5 million soldiers. By November 1942, during the Battle of Stalingrad, over six million men faced the four German Army Groups.²⁷ The growth of the Soviet Army allowed them to concentrate forces without endangering other sectors. As an example, the forces employed at Stalingrad represented twenty-five percent of the infantry, twenty-five percent of the air and sixty

percent of the tank/mechanized formations in the Red Army.²⁸

However, increasing the size of the Red Army was not a smooth process. The summer of 1942 started much the same way as 1941 did. In March, the Soviet Southwest Front launched a preemptive attack against German forces in Kharkov and lost 240,000 prisoners, at least that many casualties, 1,200 tanks and 2,600 artillery pieces.²⁹ The Red Army lost 150,000 casualties in the Kerch peninsula in May and an additional 100,000 soldiers in the fall of Sevastopol in July. But, even with these losses and the losses sustained during the Battle of Stalingrad, at the end of the winter offensives in March 1943, the Red Army still had 5.1 million soldiers on the front and a total armed forces strength of almost thirteen million.³⁰

As the two armies faced each other in the summer of 1943, the Red Army was able to field 6.4 million soldiers along the front to meet the last major German offensive.³¹ The Red Army had finally achieved the requisite number of forces to fight a successful defensive battle and to initiate and sustain an equally successful counteroffensive. Table 5.2 shows the growth of the Red Army during the period 1941-1943.

One factor that served to enhance Soviet manpower was their increasingly efficient use of replacements. During the battle for Moscow, they were forced to use replacements to hastily create new units and send them directly into the fight. However, as the number of available forces grew, the Soviets were able to pull combat ineffective units off the line before they were completely destroyed. They then used the remaining soldiers from these units as the base for reconstitution and filled in the gaps with replacements.³²

Another significant force multiplier for the Red Army was the extensive partisan movement in German occupied Soviet territory. The Soviet Union officially recognized the partisan effort and issued formal instructions for partisan activities in July 1941. Partisans were able to cause considerable disruption to already extended German lines of communication and as a result tied up significant German forces that could have been used elsewhere. During the fall of 1942, partisan forces are given credit for occupying 15 German field divisions, 10 security divisions, 27 police regiments and 144 police battalions. By the fall of 1943, a full ten percent of the German forces on the eastern front are reported to have been fighting partisans.³³

Equipment

While the number of Soviet soldiers increased, so did the amount of equipment supporting them. As a sample of this increase in Soviet equipment distribution, between May and November 1942 the density of certain equipment (amount per thousand soldiers) increased significantly. The density of automatic rifle guns went from 39.6 to 94.1, guns and mortars from 12.9 to 18.3, and tanks from 0.7 to 1.1, per thousand soldiers. Combat aircraft density also increased slightly, but auto/truck density declined, due to the great losses during the 1942 summer campaign.³⁴ However, as mentioned in the previous chapter, the severity of the vehicle problem was greatly lessened as a result of Lend-Lease shipments.

The increase in available equipment allowed the Red Army to mass firepower in breakthrough sectors without weakening other sectors of the front. As an example, at Moscow the Soviets were able to mass 7,985 guns and mortars for the counteroffensive. At Stalingrad they massed 14,200 guns and mortars, and by the Battle of Kursk over 34,000 were employed. Available aircraft were also massed for breakthrough operations. At Moscow, 1,170 aircraft supported the

counteroffensive. At the time of Stalingrad the number of aircraft in support declined to 800, but by Kursk, it was back up to over 2,900.

However, these increased quantities of soldiers and equipment presented some other problems for Soviet leadership. As the size of the forces increased, so did the equipment requirements for more effective command and control. It was not until May 1942 that front and Army commanders got radios that actually worked, but from then on, communications equipment and procedures improved rapidly.³³

As the factories in the Soviet Union produced more and more equipment, the technology associated with that equipment also improved. As mentioned previously, the Soviet T34 and KV heavy tanks were among the best in the world and tanks that caught the Germans by surprise during the battles at Moscow. Guderian, the renowned German armor officer, stated that during the German 4th Armor Brigade's advance to Tula, was

"the first occasion on which the vast superiority of the T-34 to our own tanks became plainly apparent. Up to this point we had enjoyed tank superiority, but from now on the situation was reversed."³⁴

While the T-34 was an outstanding tank, by the time of Moscow it was not yet available in sufficient numbers to

be effective. Employed individually with light and medium tanks in support of infantry, it had trouble surviving.³⁷ But as the Soviet war industry recovered from the invasion, the percentage of T-34 and KV tanks in units increased and the Soviets were able to employ advanced armor tactics more effectively.

Soviet air forces experienced similar increases in quality and quantity of equipment. Soviet designers focused on aircraft primarily for two roles, air defense and close air support. The aircraft employed in 1942 were comparable to the Germans' and very effective in their assigned roles. Table 5.2 shows quantities of selected Soviet equipment between 1941 and 1943.

Red Army Forces/Equipment
1941-1943

	DEC <u>1941</u>	JUN <u>1942</u>	NOV <u>1942</u>	JUN <u>1943</u>
Forces (millions)	4.2	5.5	6.1	6.4
Guns/Mortars (thousands)	32.1	57.5	77.7	103.0
Tanks/SP Arty (thousands)	1.9	4.9	6.9	9.9
Aircraft (thousands)	3.5	4.2	3.2	8.3

Table 5.2

Source: Ziemke, Moscow to Stalingrad; Michel, The Second World War; Erickson, The Road to Berlin.

Leadership

In contrast to the German field commanders, most of the senior Soviet military leaders were initially

woefully inadequate. However, after the battles of 1941 and the accompanying "purges by combat", the real talent of the Soviet military began to emerge. As senior leaders like Zhukov, Vasilevsky and Timoshenko came to the forefront, Stalin relied on them more and more to pursue the war effort. Gradually, competent commanders at lower levels developed and the Soviets could increase the size and complexity of their forces.

At the highest level of command, Stalin was the leader of the Soviet war effort. Shortly after the invasion, Stalin took control of the State Committee of Defense. This committee, which became essentially the wartime government, was composed of senior party, military and industrial leaders of the Soviet Union. It made all decisions affecting the transfer of the country to a war footing and the overall conduct of the war. On 23 June, Marshal Timoshenko was appointed as the first head of the STAVKA. STAVKA, Russian for Supreme High Command, was created to serve as the military organ of the State Defense Committee.³⁸ It was composed of the Chief of the General Staff, commanders of the Army, Navy, arms of service of the ground forces, artillery, armored, air defense and rear services. In July, Timoshenko was sent to the front and Stalin assumed post as head of the STAVKA with future Marshal of the Soviet

Union Georgii Zhukov as Chief of the General Staff. With his third hat as Commissar for Defense, Stalin had effectively consolidated his power as the supreme military and political leader of the Soviet Union. One of his official titles throughout the war was "Supreme Commander."

In spite of this absolute power, Soviet history describes the military-political relationship as a "cooperative one based on collective creativity."²⁹ In reality, Stalin dominated the STAVKA and held the ultimate decision authority. However, the successes and abilities of soldiers like Marshal Zhukov permitted him and other professional leaders to gradually have greater influence on military decisions. STAVKA representatives were sent to the front both to coordinate strategic offensives and to gain input from commanders on the situation in the field. This role of the STAVKA representatives caused some resentment on the part of field commanders, but it proved to be an effective way to plan and execute critical military operations. While the strategic leadership remained in the hands of the General Headquarters of the Supreme Command, as the war progressed, the operational management of the battle was progressively turned over to the front and army

commanders. As early as 1942, tactical command posts began to appear at front level.⁴¹

In addition to posing strategic problems and guiding the combat activities of all services, the Supreme High Command was also responsible for the coordination of the fronts. This coordination included distribution of forces and means between fronts, as well as the integration of fronts during large-scale operations. They also established and managed the very important strategic level reserve--STAVKA Reserves--as additional forces became available. Having this strategic reserve and being able to employ it effectively, gave the Red Army a decided advantage over the Germans. (German reserves, on the other hand, were often consumed in the fight or squandered by Hitler before they could be brought to bear as a strategic force.) As the war economy expanded and the forces of the Red Army increased, the STAVKA's improved strategic warfighting skills were demonstrated repeatedly during offensives conducted on more than one front.

Summary

To summarize the changes in the Soviet Army during this period is a relatively simple task. They

went from an ill-prepared, inexperienced gathering of conscripts to possibly the most powerful army in the world. They excelled in quantity and quality of equipment and in their ability to maneuver large formations around the battlefield. They were able to recover from initial early losses and quickly exceed the capabilities of the *Wehrmacht*. As the Supreme Commander, Stalin recognized the necessity of using his military leadership to fight the war and increasingly gave them the opportunity to do so. The next chapter will take a quantitative look at the capabilities of the Red Army and compare them directly with the Germans' capabilities.

ENDNOTES

- ¹Earle F. Ziemke, Moscow to Stalingrad (1987): 7.
- ²Malcolm Mackintosh, Juggernaut (1967): 93.
- ³Ibid: 94.
- ⁴Ibid: 100.
- ⁵Ziemke: 45.
- ⁶Albert Seaton, The Russo-German War, 1941-1945 (1970): 191.
- ⁷Ziemke: 66.
- ⁸Paul Carell, Hitler Moves East (1964): 193
- ⁹Seaton: 240.
- ¹⁰Henri Michel, The Second World War (1975): 224.
- ¹¹Carell: 194.
- ¹²Ibid.
- ¹³History of the Great Patriotic War of the Soviet Union, 1941-1945, Volume Six, "Results of the Great Patriotic War" (1961): 662. Hereafter referred to as HGPW.
- ¹⁴I.F. Tamanov, "The Battle of Stalingrad" in John Wiczynski, ed., The Modern Encyclopedia of Russian and Soviet History 8: 88.

- ¹⁵Michel: 224.
- ¹⁶Alan Clark, Barbarossa: The Russian-German Conflict, 1941-1945 (1965): 195.
- ¹⁷Ziemke: 294.
- ¹⁸Tamanov: 80.
- ¹⁹Ibid.
- ²⁰Erich von Manstein, Lost Victories (1955): 176.
- ²¹B.H. Liddell Hart, The Red Army (1956): 109.
- ²²Manstein: 282.
- ²³Ibid: 278.
- ²⁴Hart: 113.
- ²⁵Michel: 477.
- ²⁶Carell: 74.
- ²⁷Hart: 144; Ziemke: 440,515.
- ²⁸Mackintosh: 187.
- ²⁹Ziemke: 282.
- ³⁰Manstein: 144.
- ³¹HGPW: 667.
- ³²Ibid: 736.
- ³³Hart: 157.
- ³⁴Louis Rotondo, "The Road to Stalingrad." Journal of the Royal United Services Institute for Defence Studies 132/2 (June 1987): 60.
- ³⁵HGPW: 183, 760, 745)
- ³⁶Clark: 163-164.
- ³⁷Carell: 76.
- ³⁸Mackintosh: 142.
- ³⁹HGPW: 788. This view has been challenged by recent writers and by the revelation of unpublished materials now coming to light under glasnost.
- ⁴⁰Ibid: 788-789.

CHAPTER 6

COMPARISON OF ECONOMIC AND MILITARY POWER

This chapter compares the relative economic and military power of the Soviet Union and Germany between 1941 and 1943. The data presented in Chapters 4 and 5 is graphed to facilitate a direct comparison of these elements of power. Those graphs will show if there was a shift of advantage in the relative military and economic power of these two countries and when it occurred.

Economic Comparison

Labor

The first economic factor to be compared will be each country's industrial labor force. Industrial labor and labor in general were extremely critical to both nations as they expanded their economies to a full war footing. Equally important, the armed forces were a significant user of the total available labor pool and in Germany's case, the *Wehrmacht* took many workers away from industry. Figure 6.1 shows comparative industrial labor data between 1941-1943. The three data points

INDUSTRIAL LABOR 1941-1943

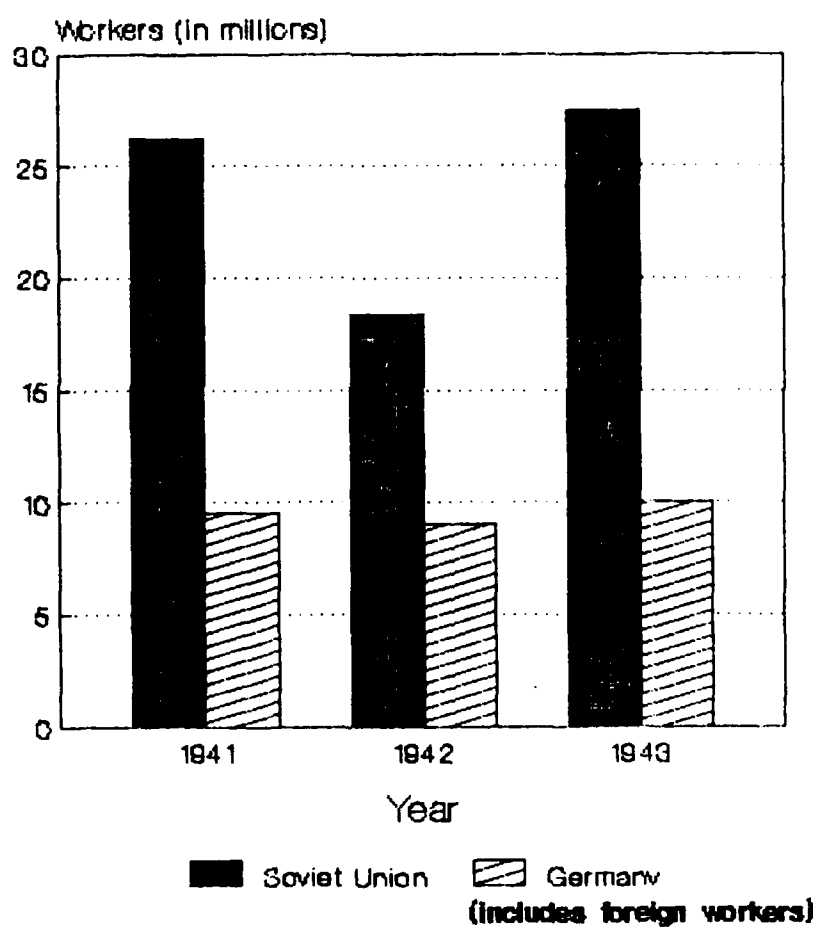


Figure 8.1

Source: Michel, The Second World War.

represent the total workers for each year, as of the end of the year. The German labor totals include foreign workers employed in German industry.

The Soviet Union started with a huge industrial labor advantage over Germany in 1941, almost 3:1. But that advantage declined by half, as a result of the invasion, when the USSR experienced a thirty percent decline in the industrial labor force during 1942. This decline can be attributed to the loss of a large portion of the Soviet population to German occupation. The areas occupied by the Germans at the end of 1941 contained forty percent of the Soviet prewar population.¹ The rapid mobilization of the Red Army also required a significant portion of the labor force.

During the early months of 1942, the relocation and rebuilding of Soviet industry meant that there was a smaller requirement for industrial labor. But as the factories were activated and the exploitation of resources expanded, the industrial labor force rapidly increased. In 1942, the Soviet labor advantage was almost 2:1. As the Soviet economy expanded and the requirement for industrial workers increased, more and more women were introduced into the labor force. By 1942, fifty-three percent of the Soviet industrial labor

were women and the percentage employed in agriculture was even higher.²

By 1943, the Soviet industrial labor force surpassed that of 1941 and as occupied territories were liberated, industrial labor continued to grow. During 1943, the Soviet Union had 17.5 million more industrial workers than did Germany. Along with this quantitative growth in the labor force, there was a corresponding increase in productivity. This increase in the labor force is even more impressive when considering the concurrent requirements of the armed forces. Between 1941 and 1943 the Red Army's total strength rose from less than seven million to over thirteen million soldiers.³

During this same period the German industrial labor force remained relatively constant. However, in contrast to their Soviet counterparts, the quality and quantity of work decreased. During 1942 and 1943, the German requirements for industrial labor increased tremendously as Albert Speer attempted to mobilize the economy, but the labor force only grew by 100,000 workers. The manpower requirements for the *Hehrmacht* increased concurrently. With limited personnel

resources, the Germans began to experience a manpower crisis early in the war.

While the Germans did not experience a significant change in the overall labor force, the ratio of foreign workers to Germans employed in industry increased as the war progressed. By 1943, twenty-five percent of the German industrial labor force was made up of foreign workers. Due to Hitler's methods of procuring foreign labor, the Germans were not able to increase productivity like the Soviets did.

The Soviet Union began the war with a decided labor advantage and retained it in spite of a significant decline in 1942. Even in 1942, the Soviet Union had an industrial labor force almost twice that of the Germans. After Soviet industry stabilized and new workers were trained, that advantage grew to almost 3:1 by 1943. Another factor to consider is the Soviet Union's conscious effort to train replacement workers and the resulting increased productivity. In 1943, Germany was not only facing the industrial might of the Soviet Union, but also that of the Allies. In spite of Germany's slight growth in 1943, the relative advantage of the Soviet Union increased significantly.

Armaments Production

The second economic factor evaluated is the German and Soviet production of armaments. This factor represents each country's ability to sustain the forces in the field. Figures 6.2 through 6.4 graph selected German and Soviet armaments production between 1941 and 1943. The various data points represent the total number of guns, tanks and combat aircraft produced for the entire year. As with the labor chart, it does not indicate increases or decreases in production within that year.

Overall, Soviet armaments production increased between 1941 to 1943. However, some additional information must be provided to expand upon the graphs. Most of the production in 1941 took place during the first half of the year. Following the German invasion, armaments production almost came to a complete halt while the factories were being relocated. By the spring of 1942, the movement of industry was complete and armaments production began a steady climb.

In 1941 the Germans held slight advantage over the Soviet Union in tank production. By 1942, however, that advantage had shifted rather dramatically. By the

TANK PRODUCTION 1941-1943

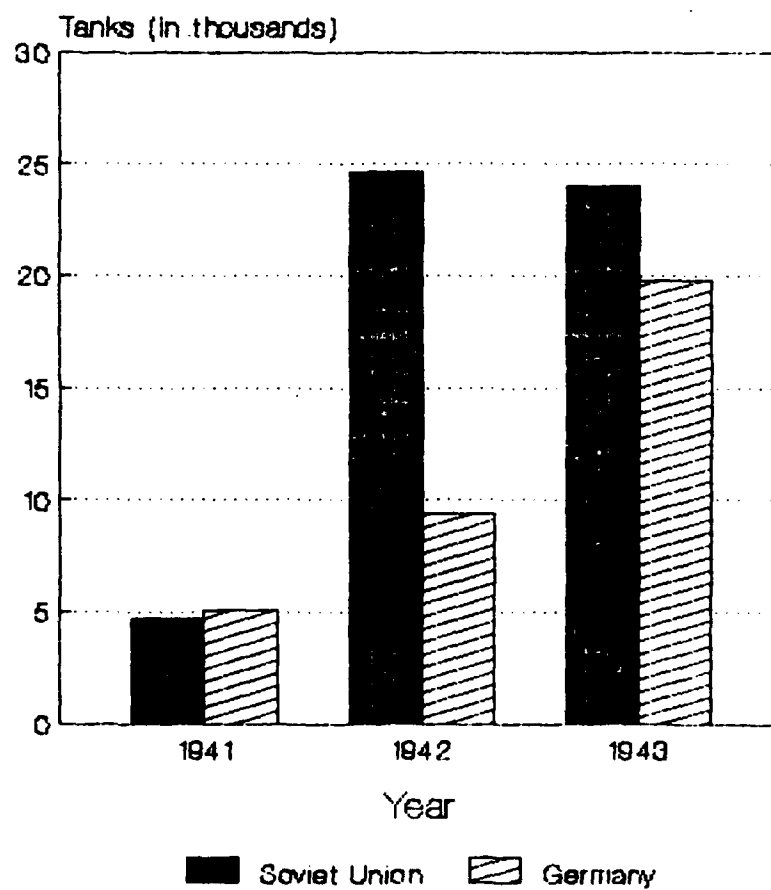


Figure 6.2

Source: Michel, The Second World War.

GUN PRODUCTION 1941-1943

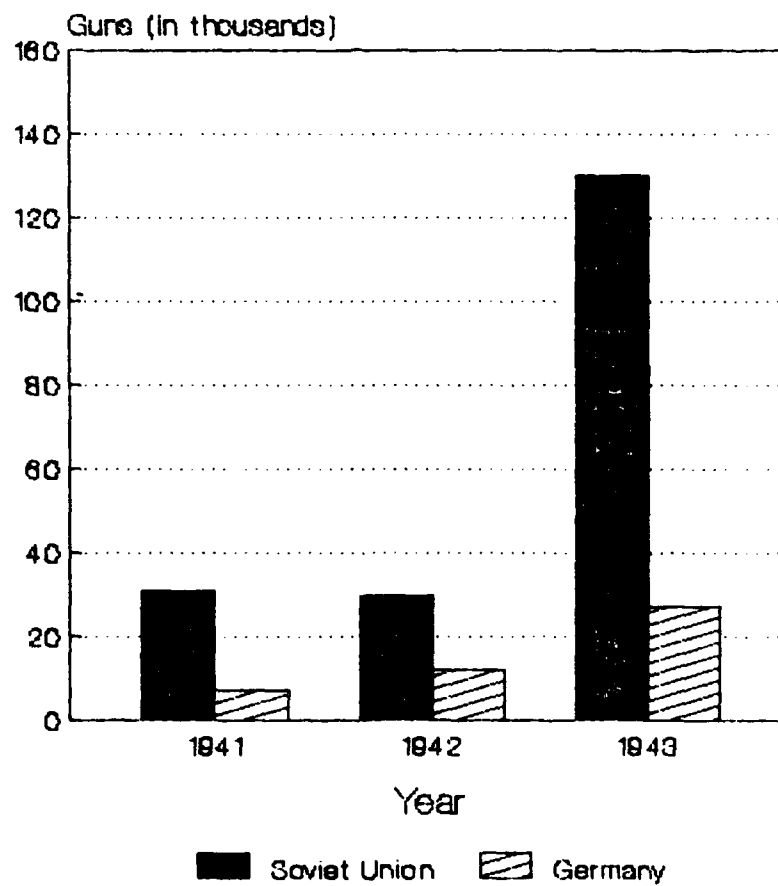


Figure 6.3

Source: Michel: The Second World War.

A/C PRODUCTION 1941-1943

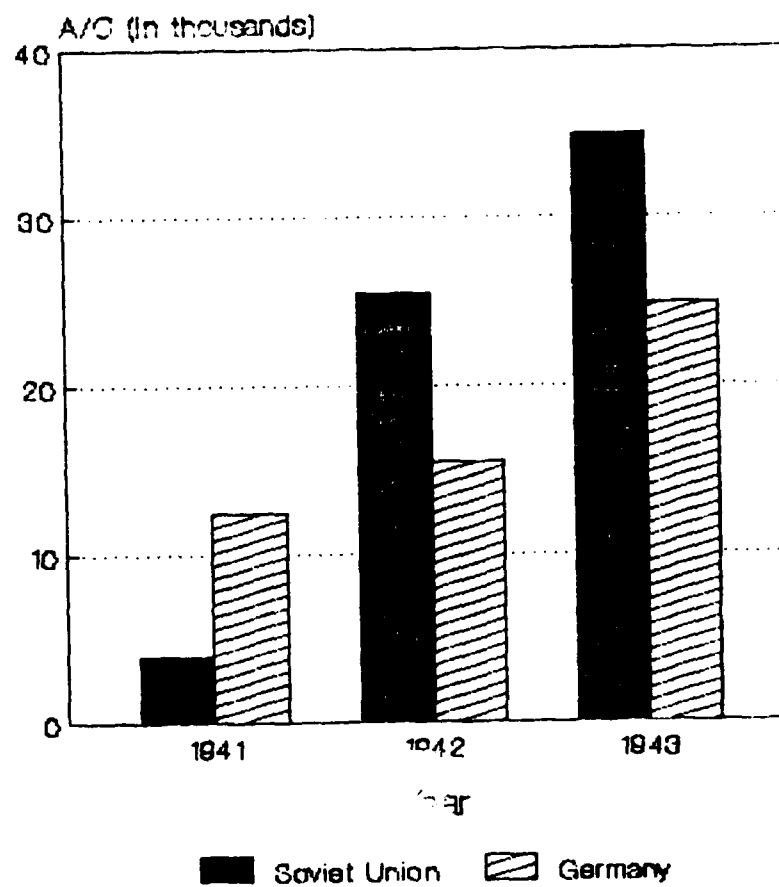


Figure 6.4

Source: Michel: The Second World War.

end of 1942, the USSR had a 2.5:1 advantage over Germany. In 1943, that advantage was reduced, but was still 1.2:1. During 1941, the majority of the tanks produced by the Soviet Union were older light or medium tanks rather than the T-34 or KV tanks. So, in addition to having a quantitative deficit in 1941, the Soviets also suffered from a qualitative shortfall. However, by 1942, Soviet tank production was almost five times that of 1941 and sixty-six percent of the tanks produced were T-34s. In 1943, overall tank production remained essentially the same, but over ninety percent were T-34s.⁴ In 1944, Soviet tank production increased again and still remained ahead of German production.

German tank production experienced a gradual increase in both quantity and quality between 1941 and 1943. By 1943, the effects of Speer's industrial mobilization is apparent as the Germans narrowed the tank production gap significantly. But, by then, they were actively fighting the war on more than one front and the availability of tanks on the Soviet-German front did not increase concurrently. Looking at the graph, the turning point for tank production obviously occurred in 1942, when the Soviet Union gained a 2:1 advantage, and they retained the advantage for the remainder of the war.

The Soviet Union began the war with a slight advantage in the production of guns and mortars. In 1941, the USSR outproduced the Germans with a ratio of almost 4:1. During 1942, that advantage declined to slightly over 2:1, but in 1943 the Soviet production advantage was almost 4:1 again. During 1941-42, Soviet production was concentrated on mortars (because they were easier to manufacture) and remained virtually the same in both years. As industry was able to replace the losses sustained during the first year of the war, priority was switched to the production of guns. During 1943, Soviet production was over four times that of 1942. As a result, by November 1942, the Soviet war industry had made up previous artillery losses and was able to arm new forces and build a reserve of modern and capable weapons.⁵

German gun production showed a significant increase during this period, but nowhere near the magnitude of Soviet growth. In spite of the fact that Germany produced 27,000 guns in 1943, that was still 103,000 less than the Soviet Union produced. Again, the Germans were faced with a multi-front war in 1943, making this disparity in gun production even greater. There was no shift in advantage between the Soviet Union and Germany with regards to gun production, but it is

obvious that by 1943, the Soviet industry had put the race for artillery out of reach.

Soviet aircraft production suffered tremendously during 1941, as a result of the invasion, and production fell to less than half that of the Germans. During this same period, the Soviet Union was attempting to integrate new aircraft technology into that production. By 1942 they had succeeded. Between 1941 and 1942, Soviet aircraft production increased by almost six and times and their advantage over the Germans was about 1.5:1. During 1943 production continued to grow, but the advantaged remained about 1.5:1. Soviet aircraft production concentrated on a limited number of aircraft for specific missions. The technology associated with those missions improved as production increased. During this same period, Lend-Lease aircraft supplemented Soviet aircraft production, supplying about twelve percent of the total Soviet aircraft inventory.

German aircraft production also increased between 1941 and 1943, but not as rapidly as the Soviets. By 1942, the Germans had lost their initial production advantage and remained behind Soviet production for the remainder of the war. After 1942, the relative difference in aircraft production remained essentially

the same, but German planes were being shipped to several theaters instead of just to the Soviet-German front. German production also constantly shifted between various aircraft models as Hitler tried to find the qualitative advantage he so desperately needed.

Soviet aircraft production experienced a trend similar to its tank production and they had gained the advantage by 1942. While this advantage remained essentially the same for the rest of the war, Soviet aircraft could be dedicated to the Soviet-German front, while German production had to be split between several theaters. This German dispersion served to widen the production gap in the favor of the Soviet Union.

To summarize the comparison of armaments production, by 1942 the Soviet Union had gained an advantage in these three weapon systems. In the case of tanks and aircraft, the Soviet Union realized significant increases during 1942. Gun production had a similar large gain in 1943. While German production increased in every case, it was at a lesser level than that of the USSR. By 1943, the Germans were forced to further disperse their production, as the fighting on the western front gained in intensity. This dispersion widened the relative gap and as the quality of Soviet

weapon systems improved, the advantage became even more significant.

Summary

The graphs clearly show that the Soviet Union gained the economic advantage by the end of 1942 and as the war progressed, that advantage continued to grow. By 1943, German production and labor both showed increases, but Germany was, by then, faced with the combined war efforts of the Allies. This combined Allied effort served to increase the Soviet Union's relative economic advantage.

Military Comparison

Forces

To compare the relative military power of these two nations, two factors will be examined. The first will be the number of forces employed by each army on the front, and the second will be the amount of equipment available to those forces to fight the battles.

Figure 6.5 graphs the relative forces of each nation during the period 1941-1943, at selected points.

ARMED FORCES 1941-1943

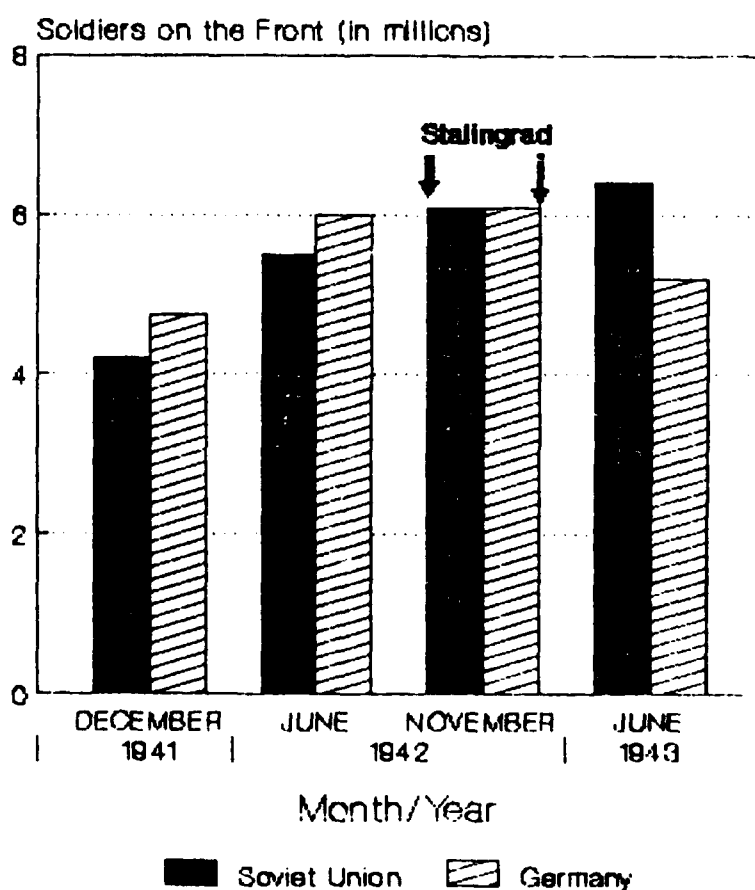


Figure 6.6

Source: Erickson, The Road to Berlin; Michel, The Second World War; Tamanov, "The Battle for Stalingrad"; Ziemke, Moscow to Stalingrad.

Those points are the time of the Soviet counteroffensive at Moscow, the beginning of the 1942 German offensive, the Soviet counteroffensive at Stalingrad and the start of the German offensive at Kursk. The totals are the number of soldiers actually employed along the front at those times and do not include reserves.

Soviet figures indicate a steady increase in the size of her forces with each successive battle. However, immediately following each of these battles, there was a significant drop in strength due to casualties. Not indicated on the graph, on 1 January 1942, the Red Army's field strength was at its lowest point since 1939. Still, by November 1942, the Soviet strength on the front was almost equal to the German's. This gave the STAVKA an increased capability to concentrate forces at desired points along the front and to develop the necessary reserves for offensive actions. By the time of the German offensive at Kursk, the Soviets had gained a significant advantage in personnel strength fielding 1.2 million more soldiers than the Germans. As a result of this advantage, they were able to plan and carry out their successful counteroffensive.

Germany was also able to increase her strength at the front between December 1941 and November 1942. But

it was becoming more and more difficult to stretch the limited personnel resources that the Germans had available. Additionally, the figures represented on the graph are the totals for Germany and any allied forces that were fighting on the eastern front at the time. The total German strength on the front remained at approximately three million from the invasion of the Soviet Union until after the Battle of Kursk.

By June 1943, Germany was required to commit additional forces in North Africa, Italy and Greece, taking soldiers away from the Soviet front. That fact and the large number of German losses during the winter of 1942-43 are responsible for the obvious decline in German strength. Between 1941 and 1943, while the total number of German divisions on the Eastern front increased from 190 to 232, the percentage of the German Army that they represented declined.⁴ The result of this decrease in German forces was their forfeiture of a viable strategic reserve.

When considering relative military force strength, the graph clearly shows that there was a shift of advantage from the Germans to the Soviets and as indicated, it occurred in early 1943. Considering the impact of Soviet reserves, (not included in these

figures) the Soviet force advantage was magnified by the fact that the German forces were fully committed. They had no reserves. After 1943, the Red Army continued to grow in strength and Germany was forced to strengthen her western flank, at the expense of the units in the east. While the Soviet advantage in 1943 was not extremely large, in reality, it was only the beginning of a trend that would see the gap continue to widen.

Equipment

Figures 6.6 through 6.8 show the quantities of selected equipment that the two armies had available at the front. The time periods correspond to the ones listed in the previous section. The data points represent the total number of guns/mortars, tanks/self-propelled guns and combat aircraft available to the forces on the front.

Soviet equipment levels show a steady increase for each of the time periods shown, with the exception of aircraft in November 1942. But, in actuality, there were significant declines following each of those battles. The Soviet Army began the war with an advantage in quantities of equipment, but not in quality. As a result of the tremendous losses incurred

GUNS/MORTARS 1941-1943

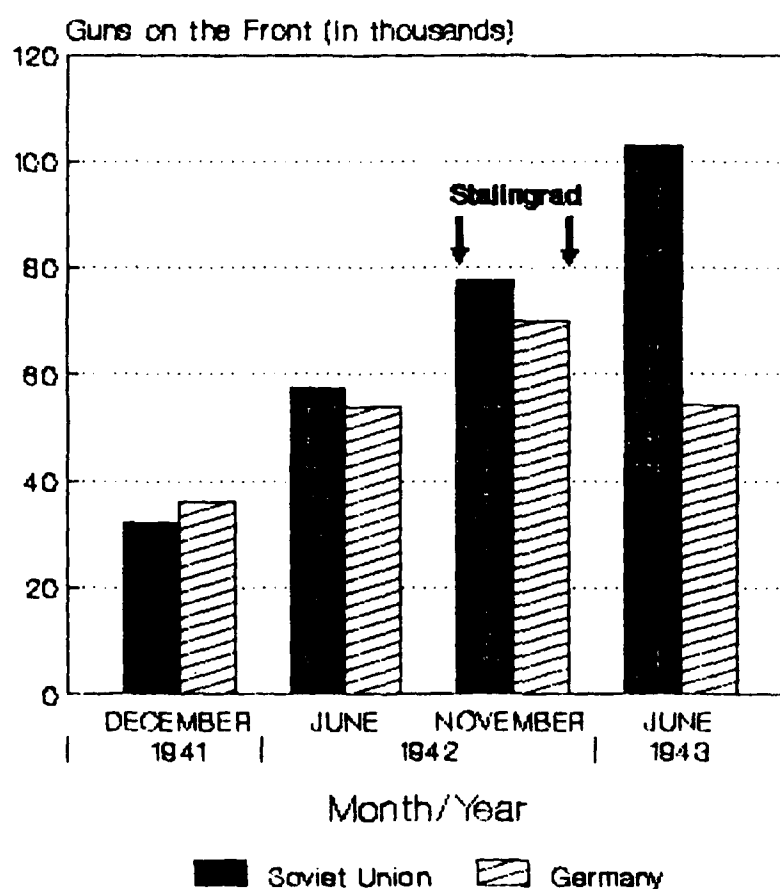


Figure 6.6

Source: Erickson, The Road to Berlin; Michel, The Second World War; Tamanov, "The Battle for Stalingrad"; Ziemke, Moscow to Stalingrad.

TANKS/SP ARTY 1941-1943

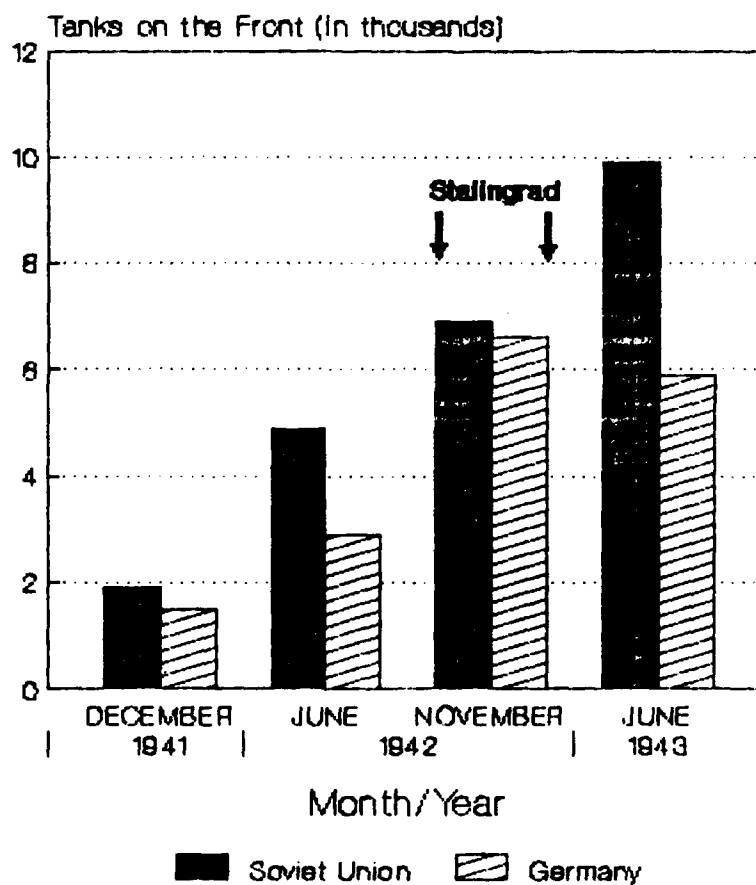


Figure 6.7

Source: Erickson, The Road to Berlin; Michel, The Second World War; Tamanov, "The Battle for Stalingrad"; Ziemke, Moscow to Stalingrad.

COMBAT AIRCRAFT 1941-1943

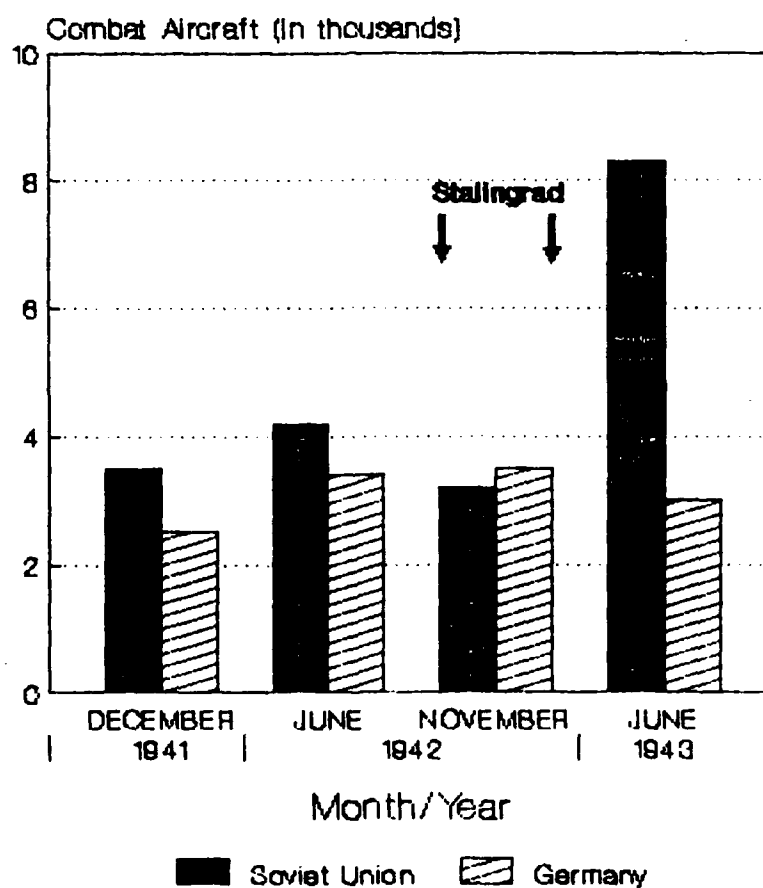


Figure 6.8

Source: Erickson, The Road to Berlin; Michel, The Second World War; Tamanov, "The Battle for Stalingrad"; Ziemke, Moscow to Stalingrad.

during the German invasion, that advantage was lost by the counteroffensive at Moscow. However, by early 1942, the Soviet war industry had made up some of those losses and by the German offensive in 1942, the Red Army had gained a slight advantage in available equipment.

That equipment advantage was again lost during the German offensive in the summer of 1942 and it was not until November that the Soviets regained the advantage. After the winter campaigns of 1942-43, the advantage belonged to the Soviet Union for good. In spite of significant losses during that winter, the Soviet industry had begun to establish equipment reserves and losses could quickly be recovered. By the time of the German offensive at Kursk, the Red Army had achieved a significant advantage in equipment, almost double the Germans.

Immediately following their initial offensive in 1941, the German Army began to experience shortages in equipment. This was due primarily to Hitler's production priorities discussed earlier. Although, as a result of Speer's efforts, they were able to increase the total amount of equipment available on the front, the quantities still fell short of the *Wehrmacht's* requirements. After the winter campaign of 1942-43, the

Germans experienced a significant decline as a result of the losses on the front, and the increased requirements to support the war on other fronts.

While the Soviet Union had a slight disadvantage in guns and mortars at the Battle of Moscow, by the beginning of the summer of 1942, they had gained a slight edge. They retained that slight advantage through the Battle of Stalingrad, but by the time of Kursk, the advantage in guns and mortars on the front was almost 2:1. The introduction of the rocket launcher by the Soviets also contributed significantly to their increased firepower as the war progressed. The winter of 1942-43 was obviously the turning point in terms of artillery.

The Soviet Union began the war with Germany with a numerical advantage in tanks and held that advantage throughout the war. In spite of losses suffered at each major battle, quantities of tanks in the field continued to grow. At the beginning of the 1942 summer campaign, the Soviet advantage was almost 2:1. That advantage had declined significantly by Stalingrad, but at Kursk the effects of the war on Germany are apparent. In June 1943, in spite of increased German tank production, the Soviet Union had a 1.5:1 advantage in tanks in the

field. As the war continued, the numbers of Soviet tanks continued to grow while the German numbers declined. Again, the winter of 1942-43 is the point at which the Soviet advantage really began to grow and after which German quantities declined.

The increasing quality of the Soviet tanks also served to enhance their relative advantage. As the inventory of medium and heavy tanks grew, the Red Army was able to employ them in larger units. The larger units served as the Soviet breakthrough force and opened the gap for the infantry. The Red Army also increased their anti-tank capabilities as the war progressed. By June 1943, they fielded 1,450,000 anti-tank rifles and 21,000 small caliber anti-tank weapons in the infantry units on the front. These quantities were double the number fielded in 1942.⁷

The Soviet Union began the war with an advantage in quantities of aircraft, but, as mentioned previously, not a qualitative advantage. However, the 1.4:1 advantage in 1941 declined to 1.2:1 in June 1942. The aircraft advantage temporarily shifted from the Soviet Union to Germany in November 1942, during the Battle of Stalingrad, but the German advantage did not last. By June 1943, the USSR had achieved an advantage of almost

3:1 in combat aircraft and retained that advantage for the rest of the war. This dramatic shift is as much a factor of the heavy German losses at Stalingrad as it is the increased German requirements for the western front. With the increase in quantities of aircraft came corresponding quality increases. The Soviet Air Forces experienced upgrades similiar to the tank force. By 1942, seventy-two percent of the Soviet aircraft in the field were new generation technology.²

Summary

In the comparison of this factor, the Soviet Union initially gained the advantage between December 1941 and June 1942 and was able to retain an overall advantage for each subsequent major encounter. Even though there were significant increases and decreases between major encounters, by 1942 the Soviets were able to mass greater forces for the decisive battles. As indicated by the charts, after the Battle of Stalingrad, the Soviet Union gained a significant military advantage and retained that advantage for the remainder of the war. As German requirements increased in other theaters, after November 1942, their ability to sustain sufficient forces on the Soviet-German front became severely degraded. In terms of relative military power,

the winter of 1942-43 was the turning point of the war on the Soviet-German Front.

ENDNOTES

¹Nikolai A. Voznesensky, The Economy of the USSR During World War II (1948): 24.

²Gordon Wright, The Ordeal of Total War, 1939-1945 (1968): 59.

³B.H. Liddell Hart, The Red Army (1956): 141.

⁴S.A. Tyushkevich, The Soviet Armed Forces: A History of their Organizational Development (1978): 270, 312.

⁵History of the Great Patriotic War of the Soviet Union, 1941-1945, Volume Six, "Results of the Great Patriotic War" (1965): 171.

⁶Henri Michel, The Second World War (1975): 477.

⁷John Erickson, The Road to Berlin (1983): 80.

⁸Tyushkevich: 271.

CHAPTER 7

CONCLUSION

The preceding chapters have examined the relative military and economic power of Germany and the Soviet Union in an effort to identify the turning point of the war on the Soviet-German front. This chapter takes the results of the comparison of factors and draws conclusions based on the data.

In terms of industrial labor, the economic turning point was in 1942, before the Battle of Stalingrad. Even though the Soviet Union began the war with a great advantage in available labor, significant personnel losses during the first year of the war reduced that advantage by half. However, the Soviet Union's total population advantage proved to be the key to overcoming those losses, preventing a labor crisis. By the end of 1942, the Soviet Union had passed its labor decline and in 1943 the number of industrial workers surpassed 1941 levels. Germany, on the other hand, faced a labor crisis almost immediately after the Battle of Moscow. The Soviet refusal to collapse in the face of Hitler's *blitzkrieg* and the subsequent mobilization of German resources, created a demand for

manpower that her population could not supply. Even the use of foreign labor proved to be insufficient to end the crisis. When, in 1942, the Soviet Union was able to retain the industrial labor advantage, the turning point was passed.

In terms of armament production, the economic turning point again occurred in 1942, before Stalingrad. Soviet armaments production fell behind Germany's in 1941, as a result of the invasion and subsequent relocation efforts. But, by 1942, the USSR surpassed German armaments production in all three major weapons systems and Soviet industry retained that advantage for the remainder of the war. In tank and aircraft production, the shift was so dramatic that the Germans could not hope to catch up. The Soviet Union proved by Stalingrad that it had the industrial capacity to not only replace the losses incurred during the summer of 1942, but also to supply additional equipment for a mobilizing army. The German defeat at Stalingrad also marked the beginning of the Soviets' return to the industrial and agricultural areas in the west, enhancing the Soviet advantage. Additionally, since the majority of the Lend-Lease aid came to the Soviet Union in 1943 and after, the economic advantage of the USSR continued to be reinforced for the rest of the war.

The German Army had already experienced major equipment shortages by early 1942 and, even with Speer's remarkable record, had fallen behind the Red Army by the beginning of 1943. With their defeat at Stalingrad, Germany was denied the additional labor, industry and oil Hitler needed to continue to wage war against the USSR. Compounding the German economic problems in 1942-43 were the Allied landings in North Africa. Germany's bid to fight the war on only one front was over. By early 1943, Hitler faced overwhelming economic powers on both fronts and would not again regain an economic advantage. While one can speculate on the results of a German victory at Stalingrad, it appears from the data that the Soviet economy would have retained the advantage regardless of the outcome.

In looking at the relative military power of the two nations, the turning point of the war occurred at the time of the Battle of Stalingrad and German losses sustained there were a major contributing factor. By November 1942, the Soviet Union had reached parity with the Germans in terms of forces and equipment. Stalingrad was the battle that marked the decline of the German forces on the Soviet-German front. After the winter of 1942-43, Germany's ability to gain an advantage in either forces or equipment was lost. In

early 1943, as the intensity of Allied operations increased on its western front, Germany was forced to dedicate more resources to fighting in other theaters. The German decline is obvious when looking at the quantities of equipment available at the Battle of Kursk.

Did the Soviet Union seized the initiative as a result of Stalingrad? Based on some of the critical factors examined in this study, they did. After the Battle of Stalingrad the Red Army gained the personnel and equipment advantage they needed to fight the war on their own terms. The Soviet advantage in manpower and equipment was obvious by the Battle of Kursk and it allowed the Soviet leadership the flexibility to execute large-scale operations to achieve strategic objectives. Stalingrad was also the turning point for the Red Army leadership. Stalin now recognized the practicality of using his experienced commanders to prosecute the war. While he did not relinquish ultimate power, he did allow the generals to fight the war.

In looking at German capabilities, after the Battle of Moscow, the *Wehrmacht* still had more than enough forces and equipment to conduct a decisive battle in the Soviet Union. The summer campaign of 1942 may

have been successful had it not been for the interference by Hitler with his by now clearly irrational decisions. At this time, the Germans were still only involved on one front in Europe and the German production of armaments was sufficient to support that campaign.

However, as the Germans became more and more pressed on their Eastern front, Hitler took more control of the tactical operations in the field. His indecisiveness compounded the problem of fighting outnumbered, a problem that his professional officers could have assisted him in solving. After the surrender of the German Sixth Army at Stalingrad, Hitler lost confidence in all but a few generals and the German operational commanders lost control of the war. In retrospect, Stalingrad was one of Hitler's last opportunities to defeat the Red Army. As the Allies expanded the war in western Europe, he was forced to divide his forces and forfeited the chance to win a decisive victory on either front.

This study has attempted to determine a turning point by focusing on just four criteria and by using only four major events for graphing the data. The conclusions are therefore based strictly on that limited

data. Further study, in more detail, using different criteria may more precisely determine when the turning point or points of the Soviet-German War occurred. By using a greater number of data points, the precision of the results may also be improved.

This study has also shown a method to quantify factors of national power and use them in a historical context to study past wars. It has shown that by compiling and graphing specific data, a distinct shift in advantage between two countries can be determined. This can provide historians with another tool to gain a better understanding of the factors that led to various turning points throughout history. However, application of this method is limited by the amount of quantifiable data available for any given conflict.

Finally, an analysis of elements of national power and their relationship to turning points cannot be complete without a study of the political, geographic and psychological elements. While these three elements do not readily lend themselves to quantifiable analysis, their impact on the turning point of a war may be even greater than the military or the economic elements.

There is little debate that the Battle of Stalingrad had some impact on the outcome of Germany's war with the Soviet Union. What this study has attempted to show conclusively, by quantifying two elements of national power, is that the Battle of Stalingrad was the military turning point, but not the economic turning point of the Soviet-German war.

APPENDIX A

APPENDIX A

The following model is provided to students at the US Army Command and General Staff College during the Joint and Combined Environments class. It is discussed as a general approach to the analysis of a strategic problem from the viewpoint of usable national power. The following summary of the model is taken from the Student Text for the course and found in that reference on page i.

CGSC Strategic Analysis Model

STEP 1: State the Problems and State Assumptions.

STEP 2: Identify Relevant Actors and Interests.

- a. Identify actors.
- b. Identify interests.
- c. Determine significance of interests.
- d. Recognize conflicting and complementary interests.

STEP 3: Assess Each Actors Power to Pursue Interests.

- a. Assess the five elements of power for each principal actor. (See chart following this one)
- b. Identify areas of strength and weakness/vulnerability.
- c. Relate strength and weaknesses or vulnerabilities to national interests.
- d. Determine likely objectives and policies of each actor.

STEP 4: Develop Policy Options.

- a. Identify possible options based on national power and interests.
- b. Predict responses to each option (most probable scenario).
- c. Evaluate options based on responses.
- d. Modify and/or combine options.

STEP 5: Reach Conclusions and Make Recommendations.

ELEMENTS OF NATIONAL POWER

Geographic:

- Size and Shape
- Configuration
- Location
- Climate
- Vegetation and Soil
- Mineral and energy resources
- Population
- Population characteristics

National Will:

- National integration
- Leadership
- Courage

Political:

- Political culture
- Organization
- Stability
- International alignments

Military:

- Size
- Organization
- Equipment
- Mobilization
- Deployment
- Employment philosophy
- Alliances

Economic

- Decision structure
- Mobilization
- Capital infrastructure
- National resources
- General conditions
- International trade
- Multinational enterprises
- International financial position
- Finances

Source: CGSC P511, Joint and Combined Environments
Course Syllabus.

BIBLIOGRAPHY

BIBLIOGRAPHY

Books

- Anders, W. (1953). Hitler's Defeat in Russia. Chicago: Henry Regnery Company.
- Bialer, S. (Ed.) (1984). Stalin and His Generals. Boulder, Colorado: Westview Press, Inc.
- Carell, P. (1964). Hitler Moves East, 1941-1943. Boston: Little, Brown and Company.
- Carell, P. (1966). Scorched Earth, The Russian-German War, 1943-1944. New York: Ballantine.
- Chuikov, V. I. (1964). The Battle for Stalingrad. New York: Rinehart and Winston.
- Clark, A. (1965). Barbarossa: The Russian-German Conflict, 1941-1945. New York: Morrow.
- Craig, W. (1974). Enemy at the Gates: The Battle for Stalingrad. New York: Ballantine.
- Erickson, J. (1975). The Road to Stalingrad. New York: Harper and Row.
- Erickson, J. (1983). The Road to Berlin. Boulder, Colorado: Westview Press.
- Garder, M. (1966). A History of the Soviet Army. New York: Praeger, Inc.
- Galbraith, J. (1983). The Anatomy of Power. Boston: Houghton Mifflin Company.
- Glantz, D. (1987). The Great Patriotic War and the Maturation of Soviet Operational Art: 1941-1945. Fort Leavenworth, KS: Soviet Army Studies Office.
- Gorlitz, W. (1964). Paulus and Stalingrad; a life of Field Marshal Friedrich Paulus, with notes correspondence, and documents from his papers. New York: Citadel.
- Jukes, G. (1968). Stalingrad: The Turning Point. New York: Ballantine.

- Jukes, G. (1985). Hitler's Stalingrad Decisions.
Berkley: U of California Press.
- Kerr, W. B. (1978). The Secret of Stalingrad.
Garden City, N.Y.: Doubleday.
- Liddell Hart, B., ed. (1956). The Red Army.
New York: Harcourt, Brace and Company.
- Macdonald, J. (1985). Great Battles of World War II.
New York: Macmillan Publishing Company.
- Mackintosh, M. (1967) Juggernaut: A history of the Soviet Armed Forces. New York: The MacMillian Company.
- Manstein, E. (1955). Lost Victories. Bonn:
Athenaum-Verlag.
- Michel, H. (1975). The Second World War. New York:
Praeger.
- Miller, F. (1945). History of World War II. Iowa
Falls, Iowa: Riverside Book and Bible House.
- Milward, A. (1965). The German Economy at War.
London: The Athlone Press.
- Plotnikov, Y. (1972). The Battle of Stalingrad.
Moscow: Novosti Press Agency.
- Schroter, H. (1958). Stalingrad. New York:
E. P. Dutton & Company, Inc.
- Seaton, A. (1970). The Russo-German War, 1941-1945.
New York: Praeger, Inc.
- Seaton, A. (1975). Stalin as Military Commander.
New York: Praeger, Inc.
- Seaton, A. (1982). The German Army 1933-1945.
New York: St. Martin's Press.
- Seaton, A. & Seaton, J. (1986). The Soviet Army 1918 to the Present. New York: New American Library.
- Seth, R. (1959). Stalingrad: Point of Return.
New York: Coward - McCann.
- Sevruk, V. (Ed.) (1974). Moscow 1941/1942 Stalingrad. Moscow: Progress Publishers.

- Smith, E. (1977). "Stalingrad: The Frozen Hell." In A. Preston, ed., Decisive Battles of Hitler's War (pp. 130-157). London: Quarto Publishing Limited.
- Tamanov, I. (1976). "Battle of Stalingrad, 1942-1943." In J. Wieczynski. ed., The Modern Encyclopedia of Russian and Soviet History (pp. 72-81). Gulf Breeze, Florida: Academic International Press.
- Tyushkevich, S. (1978). The Soviet Armed Forces: A History of their Organizational Development. Washington, D.C.: US Air Force.
- Vasilevsky, A. (1981). "The Battle of Stalingrad." In I. Vitukhin, ed., Soviet General Recall World War II (pp. 135-192). New York: Sphinx Press, Inc.
- Von Mellenthin, F. (1971). Panzer Battles. New York: Ballantine Books.
- Voznesensky, N. (1948). The Economy of the USSR during World War II. Washington, D.C.: Public Affairs Press.
- Werth, A. (1947). The Year of Stalingrad, a historical record and a study of Russian mentality, methods and policies. New York: A. A. Knopf.
- Werth, A. (1964). Russia at War, 1941-1945. New York: E. P. Dutton & Company, Inc.
- Whiting, K. (1977). The Development of the Soviet Armed Forces, 1917-1977. Maxwell AFB, Alabama: Air University.
- Wray, T. (1986). Standing Fast: German Defense Doctrine on the Russian Front During World War II (CSI Research Survey NO. 5). Fort Leavenworth, KS: U.S. CGSC
- Wright, G. (1968). The Ordeal of Total War, 1939-1945. New York: Harper & Row.
- Zhukov, G. (1969). Marshal Zhukov's Greatest Battles. New York: Harper and Row.
- Zhukov, G. (1969). The Memoirs of Marshal Zhukov. Moscow: Novosty Press Agency.

- Ziemke, E. (1984). Stalingrad to Berlin: The German Defeat in the East. Washington, D.C.: CMH, US Army.
- Ziemke, E. (1987). Moscow to Stalingrad: Decision in the East. Washington, D.C.: CMH, US Army.
- Brassey's Defence Publishers (1987). Main Front: Soviet leaders look back on World War II. London: A. Wheaton & Co. LTD., Exter.
- General Staff of the Third Army (1943). Collection of materials for the study of the war experience (Vol. 6). Moscow: Military Publishing House of the People's Commissariat of Defense.
- History of the Great Patriotic War of the Soviet Union, 1941-1945, Volume Six, Results of the Great Patriotic War. (1965). Moscow: Publishing "Voennoye".
- Two Hundred Days of Fire: Accounts by Participants and Witnesses of the Battle of Salinograd. (1970). Moscow: Progress Publishers.

Government Documents

- Department of the Army Pamphlet NO. 20-230 (1950). Russian Combat Methods in World War II. Washington, D.C.: CMH, U.S. Army.
- National Strategic Concepts (1988). In CGSC P511, Joint and Combined Environments (pp. 9-43). Fort Leavenworth, KS: U.S. Army Command and General Staff College.

Periodicals and Articles

- Rotondo, L. (1987). The Road to Stalingrad. Journal of the Royal United Services Institute for Defence Studies, 132(2), 57-65.

Doctoral Dissertations

- van Tuyll, P. (1986). Lend-Lease and the Great Patriotic War, 1941-1945. (Doctoral Dissertation, Texas A&M University, 1986). University Microfilms International, 870702.

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