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THE BATTLE FOR KURSK

1943

The Soviet General Staff Study

Translated and edited by

DAVID M. GLANTZ
and
HAROLD S. ORENSTEIN

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Editor's Foreword

During seven hot, summer days in July 1943, the Soviet Red Army and the German *Wehrmacht* struggled for supremacy on the vast plains of central Russia. For over two years the Red Army had fought desperately against Europe's most formidable armed force. It had stemmed the seemingly inexorable German advance into Russia in December 1941 at the gates of Moscow, and it had done so in 1942 at Stalingrad on the banks of the Volga and the very threshold of Asia. On both occasions, however, the Red Army and the Soviet people had paid a tragically high cost for victory, and, on both occasions, victory was a close thing. For, as summer 1943 approached, the reality seemed to be that the Germans owned the summer and the Red Army the winter.

In summer 1943 the *Wehrmacht* prepared and conducted one last grand offensive to break the back of the Red Army and achieve the strategic victory which had eluded them for two long years. It was an ambitious affair, the culmination of *Blitzkrieg*, when the power of massed machines and unsurpassed German technological prowess was put to its final test. On the eve of the battle few could imagine that the magnificent German military machine would falter, at least in the initial stages of its new campaign. Yet falter it did, and the German defeat has since been recognized as the turning point in the most vicious war mankind has ever experienced. Quite naturally, the battle has also become the subject of considerable myth and legend.

Those myths and legends tell us that the *Wehrmacht* was predestined to defeat in an armored struggle which reached unprecedented proportions. The Battle of Kursk as a whole has come to be personified by the fabled tank battle at Prokhorovka, an armored clash where history has recorded that over 1,200 German and Soviet tanks were locked in deadly embrace, and, where in barely over 24 hours of tank-to-tank struggle over half of the tanks were destroyed in a bloodletting which tore the heart and soul out of the *Wehrmacht* and its hitherto-victorious concept of *Blitzkrieg* warfare.

Myth and legend have prevailed largely because the victor's claims could scarcely be refuted, and the vanquished had no choice but to admit the stark reality of defeat. In so doing they had little reason to challenge the details of

that defeat. Surprisingly enough, most accounts of the Battle of Kursk, Western, as well as Soviet ones, have failed to avail themselves of German archival materials to correct the historical record. Even if they had a yawning gap existed because of the shortage of Soviet source materials and the total unavailability of Soviet archival records.

Today that situation has dramatically changed. More scholars are finding German archival materials and skillfully exploiting them to reconstruct what really occured during those seven fateful days at Kursk. Even more important, extensive Soviet documentation is now available which, while providing context for the Western research, places a face on the immense Soviet force which fought at Kursk and explains what it attempted to do, how well it succeeded, why, and at what cost.

This volume is the most important of those new materials. Prepared by the Red Army General Staff in 1944,[1] it is a classified staff study of the battle, compiled on the bases of combat reports and other secret and top-secret archival materials. It is an eminently practical document, written to educate the Red Army in the intricacies of modern mobile warfare. Its didactic purpose underlies its often shocking candor and honesty.

It is a treasure trove of fresh information relating to many of the issues associated with the battle which have puzzled observers since 1943. It reveals the details of Soviet military planning ranging from overall strategic intent through the employment of large-scale armored and air forces to the more mundane aspects of artillery fire planning, engineer preparation of the battlefield, and the oft-neglected question of logistical support. Juxtaposed against the vivid details of the struggle leading up to the combat crescendo at Ponyri and Prokhorovka are such unusual matters as the employment in combat of remotely-controlled mines, electrified barbed wire, and antitank dogs.

In short, this volume opens new horizons on the operations of the Red Army at Kursk, the nature of warfare on the German Eastern Front, and, in general, the new range of horrors which has characterized twentieth-century warfare.

The volume, however, is not without fault or error. Either intentionally or coincidentally, while opening new horizons on the famous battle the work also perpetuates myths. It does so by over-glorifying the scale of the Red Army's victory and by magnifying the grandeur of its accomplishments at Kursk. For example, long before the postwar histories did so, it overstates the scope and impact of the tank battle at Prokhorovka. In particular, as in other classified studies and postwar works, it overestimates the strength of the Germans and understates or simply neglects the ultimate terrible cost of the victory. Therefore, while of immense value, the work must be weighed accordingly.

This is a direct translation of the Kursk General Staff study, Volume 11

in a long series of operational studies. The final chapter on the maneuver of antitank reserves has been added from Volume 10 in the same series. The original maps are included for illustrative purposes, and, where possible, the editor has translated key terms on them. The appendices contain a list of abbreviations for use in understanding the maps. In the text of the volume itself the nomenclature for German formations and units has been altered from the Russian into more common and understandable Western usages (for example, 'panzer' for tank, 'panzer grenadier' for motorized, and 'XXX Army Corps' for 30th Army Corps).

The editor has also added comments throughout to correct obvious errors of fact and added several appendices to the work, which do not appear in the original, to expand the scope of the volume. These appendices are designed to complement the detailed Russian maps and to provide other critical information absent from the General Staff study.

The editor offers special thanks to Harold Orenstein, whose superb translation work made publication of this work possible, and to his wife Mary Ann, whose tireless editorial efforts made the Russian more comprehensible to the Western reader. I alone am responsible for any errors or shortcomings which may exist.

The editor's appendices are as follows:

1. List of Abbreviations.
2. Key Soviet and German Command Personnel.
3. Maps.

DAVID M. GLANTZ

NOTE

1. The work was originally entitled 'Collection of Materials for the Study of War Experience', No. 11, and was published by the Military Publishing House of the People's Commissariat of Defense, Moscow, 1944.

Foreword

The materials contained in this *Collection* relate to the greatest defensive battle of the Great Patriotic War - the battle for the Kursk bridgehead. In July 1943 forces of the Voronezh and the Central Front, led by the Red Army's Supreme High Command, brilliantly won the Battle for Kursk.

This battle will be one of the brightest pages in the history of the Great Patriotic War and of military art. In the Battle of Kursk the German-Fascist command's final attempt to achieve large-scale strategic successes on the Eastern Front failed. 'If the Battle of Stalingrad signaled the twilight of the German-Fascist Army, then the Battle of Kursk confronted it with catastrophe."

The enormous strategic results of the great Battle of Kursk significantly influenced all subsequent Red Army offensive operations. The Voronezh and the Central Front's defensive battle, conducted within the framework of the Supreme High Command's unified concept, has its own specific features which must be considered when studying materials published in the *Collection of Materials.*

To orient the *Collection* reader more precisely, it is necessary to point out only one principal feature of the examined battle. *Our defenses in the Kursk bridgehead had the aim of exhausting and bleeding dry the enemy's enormous advancing forces so as to shift subsequently to a decisive offensive by introducing fresh reserves.*

This concept defined the overall structure of the defense, the operational-combat formation of forces, the quantity of combat equipment, the maneuver of strategic and operational reserves, the employment of combat arms (in the first place tanks), as well as the methods of conducting the defensive operation in each of the *fronts.*

The aim of this *Collection* is to acquaint an extensive circle of readership among generals and officer cadres with some materials and preliminary conclusions regarding this most important and highly instructive operation.

Materials from the General Staff, the Voronezh and the Central Front headquarters, and Red Army combat arms' headquarters were used in the preparation of *Collection No. 11* for publication.

The following participated in preparing materials for *Collection No. 11:*

Lieutenant-General of Aviation N. A. Zhuravlev and Lieutenant-General of Artillery F. A. Samsonov; Major-Generals la. A. Kutsev, P. N. Kalinovsky, M. K. Nozdrunov, L. V. Onianov, and D. I. Rybin; Colonels A. P. Alekseev, P. S. Boldyrev, S. A. Vladimirov, F. D. Vorob'ev, A. F. Goncharov, N. M. Zamiatin, V. L. Kirillov, M. N. Kostin, G. G. Klein, M. R. Mazalov, S. S. Pokrovsky, I. M. Petushkov, M. V. Savin, M. F. Sochilov, and M. I. Shustitsky; Captain 1st Rank V. I. Sumin; Lieutenant-Colonels G. A. Kolomiets, N. G. Pavlenko, I. V. Parot'kin, I. P. Marievsky, and D. F. Chikin; Lieutenant-Colonel of Engineers V. S. Antonov; Major I. D. Krylovsky; and Captain A. V. Ponomarev.

CHIEF EDITOR, MAJOR-GENERAL P. P. VECHNYI

NOTE

1. I. V. Stalin on the 26th Anniversary of the Great October Socialist Revolution.

1

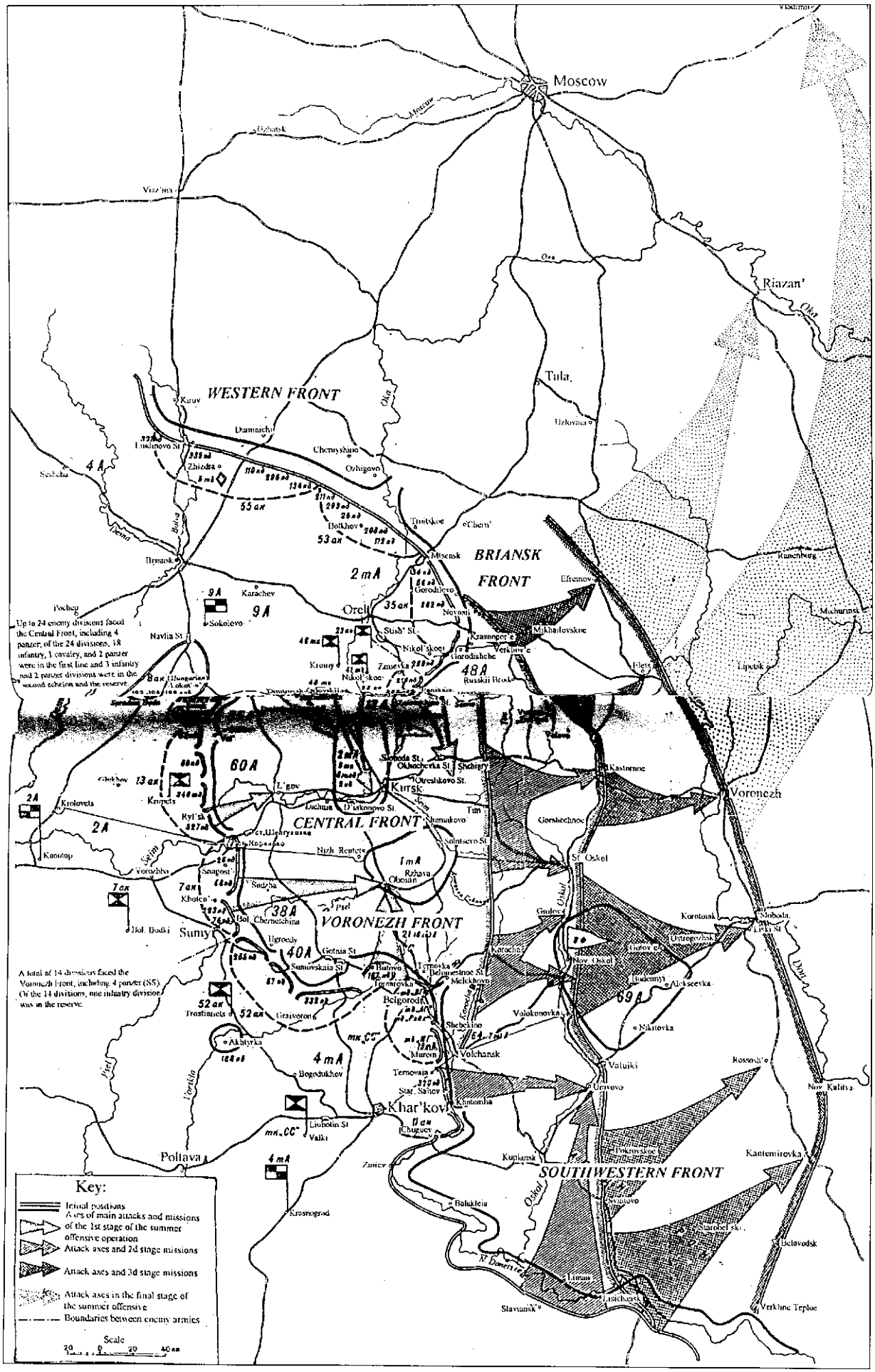
The Fundamentals of the Organization of the Kursk Bridgehead Defense

THE OVERALL SITUATION

As a result of the successful offensive by the forces of the Briansk and the Voronezh Front in January-February 1943, the enemy's large force grouping was defeated in the Kursk and Voronezh region. Pursuing the withdrawing enemy, by the end of the winter operations, our forces reached the following lines: the Western Front's left wing - Kirov, Duminichi, and Ozhigovo; the Briansk Front - (excluding) Ozhigovo, Porodilovo, and Krasnogor'e; the Central Front - (excluding) Krasnogor'e, Maloarkhangel'sk Station, Asmon', and Korenevo Station; and the Voronezh Front consolidated along the line (excluding) Korenevo Station, Ugroedy, Gotnia Station, Belomestnaia Station, Volchansk, and Khotomlia.[1] Southwestern Front forces shifted to the defense further to the south and southeast, along the Northern Donets River.

Thanks to the fact that the Kursk bulge, which was deeply wedged into the enemy's disposition, was in our hands, favorable conditions were created for both powerful attacks against the flanks and the rear of the principal German groupings concentrated in the Orel region and the Belgorod-Khar'kov region and for subsequent development of the offensive to the west.

The fact that our forces occupied the Kursk strategic bridgehead considerably worried the German command; the Germans viewed it as a 'prepared starting point and gateway for an invasion of the Ukraine'. In view of this the German command attempted to liquidate the Kursk bulge in any way possible, counting on this not only to make its flanks and rear safe against blows from our forces but also to shorten the front by 250 kilometers, thereby freeing 18 to 20 divisions for subsequent offensive operations.



Map 1: **The overall situation at the end of March and the beginning of April 1943 and an assessment of probable enemy attacks**

Characteristics of the region of combat actions (see Map 1)

The region located west and east of the line Orel, Kursk, Belgorod, and Khar'kov consisted of open and slightly hilly terrain. The terrain south of the Seim River to the Poltava and Zmiev line was 10-15 percent covered with forests and shrubbery and, in the Orel, Maloarkhangel'sk, and Fatezh region, it was sharply cut by a large number of ravines extending in several directions. Individual elevations reached a height of 280-290 meters above sea level, and the depth of the ravines reached 40-70 meters. There were enormous forest tracts in the Liubotin, Khar'kov, Chuguev, Volchansk, Shebekino, Sumy, and Poltava regions.

Rivers, ravines, elevations, and forest tracts were very favorable for defense. Open terrain, especially in the eastern and the southern region sectors, was favorable for both sides to employ large tank and mechanized forces.

A large number of rivers and streams, flowing in several directions, intersected this region. The most significant rivers were the Desna, Seim, Northern Donets, Vorskla, and Psel. The majority of the rivers were comparatively narrow - 80-130 meters; their depths were to 0.7-3 meters, and their rates of flow 0.2-0.7 meters per second. Only the upper reaches of the Northern Donets River was part of the Voronezh Front's sector of combat operations. Its width there did not exceed 20-25 meters, its depth was 1-3 meters, and its rate of flow were 0.2-0.5 meters per second. Its banks were very boggy. The great operational significance of this river was that it protected Khar'kov and the strong enemy grouping located there [against attack] from the east.

The eastern bank of the Northern Donets River from Belgorod and further south served as an advantageous line to create the forward edge of the Voronezh and the Southwestern Front's main defensive belt. The Tim and Oskol Rivers, flowing in a meridional [north-south] direction, were favorable for creating rear defensive belts to cover the axis to Elets and Voronezh. The Sosna River, flowing northeast, was an advantageous line to create cut-off positions. The Don, along which the state's defensive line ran, was the most advantageous natural rear line.

Large populated areas were favorable for creating strongly fortified regions to cover our important rear rail lines and the Moscow strategic axis. The majority of the region's populated areas were located in lowlands along rivers and ravines. Only in the northwestern forested and swampy section were populated areas located on elevations. The enemy strongly fortified the cities of Orel, Belgorod, Khar'kov, Briansk, Sumy, and Poltava, which were located in naturally advantageous positions. The enemy had large airfield centers in the Briansk, Orel, Khar'kov, and Poltava regions.

By the beginning of combat operations, our forces had one dual-rail

lateral rail line, Tula-Elets-Kastornoe-Staryi Oskol-Valuiki, with a capacity of 40 to 45 pairs of trains per day. Several rail lines branched out from the lateral line to the front, including the Kastornoe-Kursk-L'gov, with a capacity of no more than 12 to 18 pairs. A dual-rail line ran from Liski Station, across Ostrogozhsk and Alekseevka to Valuiki and Kupiansk, which, because of major destruction, had a limited capacity.

The following dirt roads had great significance for the Voronezh and the Steppe Fronts: Staryi Oskol-Tim-Kursk; Staryi Oskol-Korocha-Volchansk; Novyi Oskol-Belgorod; and Novyi Oskol-Volchansk. The Efremov-Elets-Voronezh; Kursk-Fatezh; Kursk-L'gov; and Kursk-Ternovka surfaced roads were also significant. The main cargo flow for the forces traveled along these roads.

The Germans had at their disposal a more developed system of railroads, highways, and dirt roads. The rail and highway junctions of Orel, Briansk, Vorozhba, Poltava, and Khar'kov had great significance for the enemy in both the frontal belt and in the depth. The railroads and highways which ran from these junctions fully ensured the operational transport of enemy forces and cargoes from the rear and their maneuver along the front.

The enemy usually set up large bases along railroads and highways and these supplied his Orel and Belgorod-Khar'kov groupings. Large German airfields were also situated along these roads.

Thus the terrain extending west and east from the line Orel, Kursk, Belgorod, and Khar'kov, with its road network, made it possible to deploy large forces of all combat arms for battle from both directions.

The situation of both sides by the end ofMarch 1943 (see Map 1)

The *Central Front*, consisting of 32 rifle divisions, 4 rifle brigades, and reinforcements (the 48th, 13th, 70th, 65th, and 60th Armies), assumed the defense along a 308-kilometer front from Gorodishche to Sheptukhovka Station. The Central Front's armies occupied the following defense lines: the 48th Army - Gorodishche and Panskaia; the 13th Army - (excluding) Panskaia and (excluding) Gremiach'e; the 70th Army - Gremiach'e, and (excluding) Asmon'; the 65th Army - Asmon' and Selino; and the 60th Army - (excluding) Selino and Sheptukhovka Station. The 2d Tank Army, the 9th Tank Corps, the 6th Guards Rifle Division, the 2d Destroyer Division, one mortar regiment, and two guards mortar regiments were located in the *front* commander's reserve in the Fatezh and Kursk region. Th*g front* headquarters were located in the Svoboda Station region (north of Kursk).

The forces of the German Ninth Army and the Second Army's XIII Army Corps were operating in front of the Central Front. The Ninth Army, consisting of the XXIII and XX Army Corps, the XXXXVI Panzer Corps,

the VIII Hungarian Corps, and Group Manteufel, occupied defenses along the Zmievka and Lipnitsa front. The XXIII Army Corps was defending along the Zmievka and (excluding) Tagino front; the XXXXVI Panzer Corps with Group Manteufel group (four jaeger battalions) along the Tagino and Ploskoe front, and the XX Army Corps along the (excluding) Ploskoe and Lipnitsa front. The XIII Army Corps of the Second German Army was defending in front of the Central Front's left wing along the Lipnitsa and Korenevo Station line. The VIII Hungarian Army Corps was operating against partisans in the forests in the Navlia Station, Lokot', and Seredina Buda regions.

Thus a German grouping consisting of 19-20 infantry divisions, 4—5 panzer divisions, and 1 cavalry division was operating in front of the Central Front. The total numerical strength of enemy forces amounted to 125,000 men, 290 tanks, 1,600 guns of several calibers, and 1,500 mortars. By this time the correlation of forces favored the Central Front in men and tanks by more than twice, in guns by more than one and a half times, and in mortars of all calibers by more than three times.

The *Voronezh Front*, consisting of 29 rifle divisions and 1 rifle brigade (the 38th, 40th, 21st, 64th, and 69th Armies), assumed the defense along a 264-kilometer front from Korenevo Station to Khotomlia. The Voronezh Front's armies occupied the following defense lines: the 38th Army - Korenevo Station and Ugroedy; the 40th Army - (excluding) Ugroedy and Sumovskaia Station; the 21st (subsequently the 6th Guards) Army - (excluding) Sumovskaia Station and Melekhovo; and the 64th (subsequently the 7th Guards) Army — (excluding) Melekhovo and Khotomlia. The 69th Army, constituting the *front* reserve, was deployed in the Novyi Oskol, Nikitovka, and Gotov'e region. The 1st Tank Army, which was in the strategic reserve, was concentrated in the Oboian' region. The *front* headquarters were located in the Novyi Oskol region.

The forces of the German Second Army's VII Army Corps and the Fourth Panzer Army were operating in front of the Voronezh Front. The VII Army Corps was defending along the Snagost' and Bol'shaia Chernetchina front. The Fourth Panzer Army, consisting of the LII Army Corps, the SS Panzer Corps, and the 320th Infantry Division (of the XI Army Corps), assumed the defense along the (excluding) Bol'shaia Chernetchina and Staryi Saltov front, the LII Army Corps was defending with four divisions along the (excluding) Bol'shaia Chernetchina and Tomarovka front, while one division was in army reserve in the Akhtyrka region. The SS Panzer Corps was defending along the (excluding) Tomarovka and Murom front. The XI Army Corps' 320th Infantry Division was defending along the Ternovaia and Staryi Saltov front.

A German grouping consisting of 10 infantry and 4 panzer divisions, with a total numerical strength of 76,000 men, 375 tanks, 500 guns of several

calibers, and 500 mortars, was operating in front of the Voronezh Front. The correlation of forces favored the Voronezh Front in personnel and tanks by almost 2.5 times, in guns of all calibers by almost three times, and in mortars of all calibers by almost four times.[2]

It should be noted that German forces operating in front of the Central and the Voronezh Front had suffered heavy personnel and equipment losses in previous fierce battles. Consequently, around 35 percent of all infantry divisions were either not combat-capable or of limited combat capability, since their numerical size did not exceed 2,500-5,000 men. All panzer divisions had limited combat capability since there were 50-80 tanks in each.

PLANNING THE DEFENSIVE OPERATION

The assessment of the situation by the Stavka *of the Supreme High Commandite.* Map 1)

The general prognosis by the *Stavka* of the Supreme High Command with respect to expected German actions in the summer of 1943 proceeded from Comrade Stalin's indications that 'they are still strong enough to organize a serious offensive along any one axis'.[3]

A series of measures which were carried out by the German command during spring 1943 and, first and foremost, the force grouping created by the enemy justified the assumption that the Germans would hardly attempt to execute an offensive simultaneously along several strategic axes, since the German command did not have at its disposal the necessary forces for the simultaneous development of several operations.

The German Supreme Command established a relatively limited aim for the first stage of the 1943 summer campaign, namely to defeat our forces defending the Kursk bulge and liquidate the latter by employing powerful blows along the Orel-Kursk and Belgorod-Kursk axes. In the German command's opinion, the successful execution of these operations could create favorable prerequisites for further development of the offensive into the depth of our country to capture Moscow, the capital of the Soviet Union.

Marshal of the Soviet Union Comrade Zhukov, representing the *Stavka* of the Supreme High Command, gave a similar assessment of the enemy grouping and his probable intentions in a series of reports to Comrade Stalin. These reports, dating from the end of March and beginning of April, pointed out the presence of a German grouping comprising 59 divisions in front of the Central, the Voronezh, and the Southwestern Front.

Up to 23-26 divisions, including 15-17 infantry, 6-7 panzer, 1 cavalry, and 1 panzer grenadier division were noted opposite the Central Front; up to 16-17 divisions, including 12-13 infantry and 4 panzer (SS corps) divisions, were opposite the Voronezh Front; and up to 18 divisions, including 9 infantry and up to 9 panzer divisions, were opposite the Southwestern Front.

A characteristic feature of the German grouping against the Kursk bulge was the presence of a large number of panzer divisions, 20 out of a total number of 59 divisions, which constituted 30 percent of all divisions concentrated by the Germans against the Central, the Voronezh, and the Southwestern Fronts. In addition, reinforcement of combat aviation and the presence of a considerable quantity of self-propelled artillery were observed in this front sector. This circumstance as well as the enemy's lack of significant strategic reserves made it possible to assume that the operation's outcome would depend on the enemy's mass employment of tanks and aviation and extensive use of maneuver by his forces.

From an analysis of the existing situation, it was concluded that the forthcoming German offensive operation could consist of the following successive stages (see Map 1):

First stage - The defeat of the Central and the Voronezh Front forces, liquidation of the Kursk bulge, and arrival at the Droskovo, Tim, Korocha, and Volchansk line. It was assumed that the German Orel grouping would deliver a main attack in the direction of Maloarkhangel'sk and Shchigry to envelop Kursk from the east while supporting this attack with an advance by units to the Droskovo and Tim line. Nor was the possibility excluded that the enemy would deliver secondary attacks along the Fatezh, Kursk and Dmitrovsk-Orlovskii, Mikhailovka, and Fatezh axes and along the Ryl'sk axis against L'gov at the juncture between the Central and the Voronezh Front. As for the German Belgorod grouping, it was assumed that it would deliver a main attack immediately north along the Belgorod-Oboian' highway, with an advance by supporting units to the line of the Korocha and Donetskaia Seimitsa Rivers. The enemy could deliver a secondary attack along the northern bank of the Psel River on the Sudzha-Oboian' axis.

Second stage - The defeat of our operational reserves west of the Livny, Kastornoe, Staryi Oskol, and Novyi Oskol line and also the defeat of Southwestern Front forces west and south of Kupiansk to reach the Novosil', Livny, Kastornoe, Staryi Oskol, Novyi Oskol, Valuiki, Svatovo, and Lisichansk line. The probable attack axes during this stage were assessed as follows: from the Maloarkhangel'sk region to Livny; from the Shchigry and Tim region to Kastornoe and Staryi Oskol; from the Korocha region to Gniloe and along the Korocha, Budennyi road; from the

Volchansk and Staryi Saltov region to Urazovo; and from the Slaviansk region to Urazovo.

Third stage — The capture of the Efremov, Elets, Voronezh, Liski Station, and the Don River line in the sector from Liski to Novaia Kalitva, Kantemirovka, Belovodsk, and Verkhne-Teploe. After capturing this line, the enemy would be able to assume the defense along the front from Voronezh to Taganrog, regroup his main forces in the Efremov, Livny, Kastornoe, Voronezh, and Elets region, and attack from the southeast in the general direction of Riazan' and Vladimir to envelop Moscow. The probable attack axes during this stage were assessed as follows: from the NovosiP and Verkhov'e region to Efremov; from the Livny and Volovo region to Elets; from the Kastornoe and Gorshechnoe region to Voronezh; from the Staryi Oskol and Volokonovka regions to Korotoiak and Liski; from the Pokrovskoe and Svatovo region to Rossosh'; and from the Lisichansk region to Starobel'sk and Kantemirovka.

The decision concerning the defense of the Kursk bridgehead

During the second half of March 1943 the *Stavka* of the Supreme High Command made basic decisions which determined the Central and the Voronezh Front activities for the spring and the early summer months. The *Stavka* recognized the necessity of abandoning the continuation of offensive operations in order to thwart the offensive being prepared by the enemy. The decision was made to shift the Central and the Voronezh Front to a firm and stubborn defense to exhaust and bleed the enemy dry if he launched an offensive. Then, after committing fresh reserves, the main forces of these two *fronts* as well as those of the Western and the Briansk Front, having launched a general offensive, would decisively defeat the main German grouping.

To create the most stable, deeply echeloned defense, it was decided to prepare a series of defensive lines along the entire terrain belt from the front line to the Don River, with an overall depth of around 300 kilometers. Times were established for completing work on the constructing of the lines, based on the probable times at which the Germans would begin the offensive. It was estimated that the initial work would be completed by 15 April 1943. Both *fronts* were to begin preparing all defensive lines simultaneously while extensively enlisting the local population for work on the rear defensive lines.

It was also decided to bring the Central and the Voronezh Front up to establishment [TO&E] strength in the shortest possible time, furnishing them with all types of weapons which were lacking, especially antitank, and also with necessary engineer materials.

The *Stavka* of the Supreme High Command decided to carry out a measure having enormous strategic significance - the concentration of large reserves in the rear of the Kursk bridgehead. For this purpose a reserve (subsequently the Steppe) *front* was created, consisting of the 2d Reserve, 24th, 66th, 46th, 47th, and 53d Armies, and the 5th Guards Tank Army. The 1st Guards Don Tank, the 3d Guards Kotel'nikovo Tank, the 4th Guards Kantimirovka Tank, the 10th Tank, and the 1st and 5th Mechanized Corps were also in the newly formed *front.* Voronezh was the center of deployment for the reserve *front.*

In the event that the Germans penetrated our front in the Kursk bulge, the reserve *front* was to occupy a defensive line along the Kshen' and Oskol Rivers from Livny to Novyi Oskol. The 1st Tank Army, which by this time was concentrated in the Oboian' region, was in the *Stavka* reserve as a powerful, mobile, shock force. From 28 April this army was included in the Voronezh Front.

The Western and the Briansk Front commanders were assigned the mission of preparing forces for an attack from the north and east against the enemy's Orel grouping. At the same time the *front* commanders were instructed that, except for careful troop combat training to improve the organization and conduct of defensive combat against massed tank attacks supported by artillery and aviation, they were to continue the preparation of their forces for decisive offensive operations.

To create the most stable defense capable of countering massed attacks by large tank groupings, *front* commanders were ordered to create no fewer than five or six defensive lines along the most important axes. In addition, the eastern bank of the Don (the so-called 'state defensive line') was prepared for defense and, subsequently, Steppe Military District forces constructed a line along the eastern banks of the Kshen' and Oskol Rivers in the sector from Livny to Novyi Oskol.

Operations by forces defending the Kursk bridgehead were to be supported from the air by the 16th Air Army, which was part of the Central Front, and by the 2d Air Army, which was part of the Voronezh Front. In addition, the Southwestern Front's 17th Air Army and long-range aviation formations from the *Stavka* of the Supreme High Command reserve were employed.

The Central Front commander's decision (see Map 2)

The principal mission of the Central Front was defense of the northern, northwestern, and western parts of the Kursk bridgehead in the sector between the following demarcation lines: on the right (with the Briansk Front's 3d Army) — Efremov, Mikhailovskoe, Verkhov'e, (excluding) Nikol'skoe, and (excluding) Stish' Station; and with the Voronezh Front's

38th Army - Staryi Oskol, Dezhevka, Verkhnii Reutets, Lokinskaia Station, Koronevo, and Krolevets.

While reaching his decision on the defense, the *front* commander estimated that the probable enemy attack axes could be Alekseevka, Droskovo, and Livny; Ponyri, Zolotukhino, and Kursk; and Nikol'skoe, Fatezh, and Kursk. Therefore the most critical defense sector was the *front's* right wing, where the main forces and weaponry had been concentrated by the beginning of July. Table 1 shows the Central Front's composition by this time.

TABLE 1: COMPOSITION OF THE CENTRAL FRONT, JULY 1943

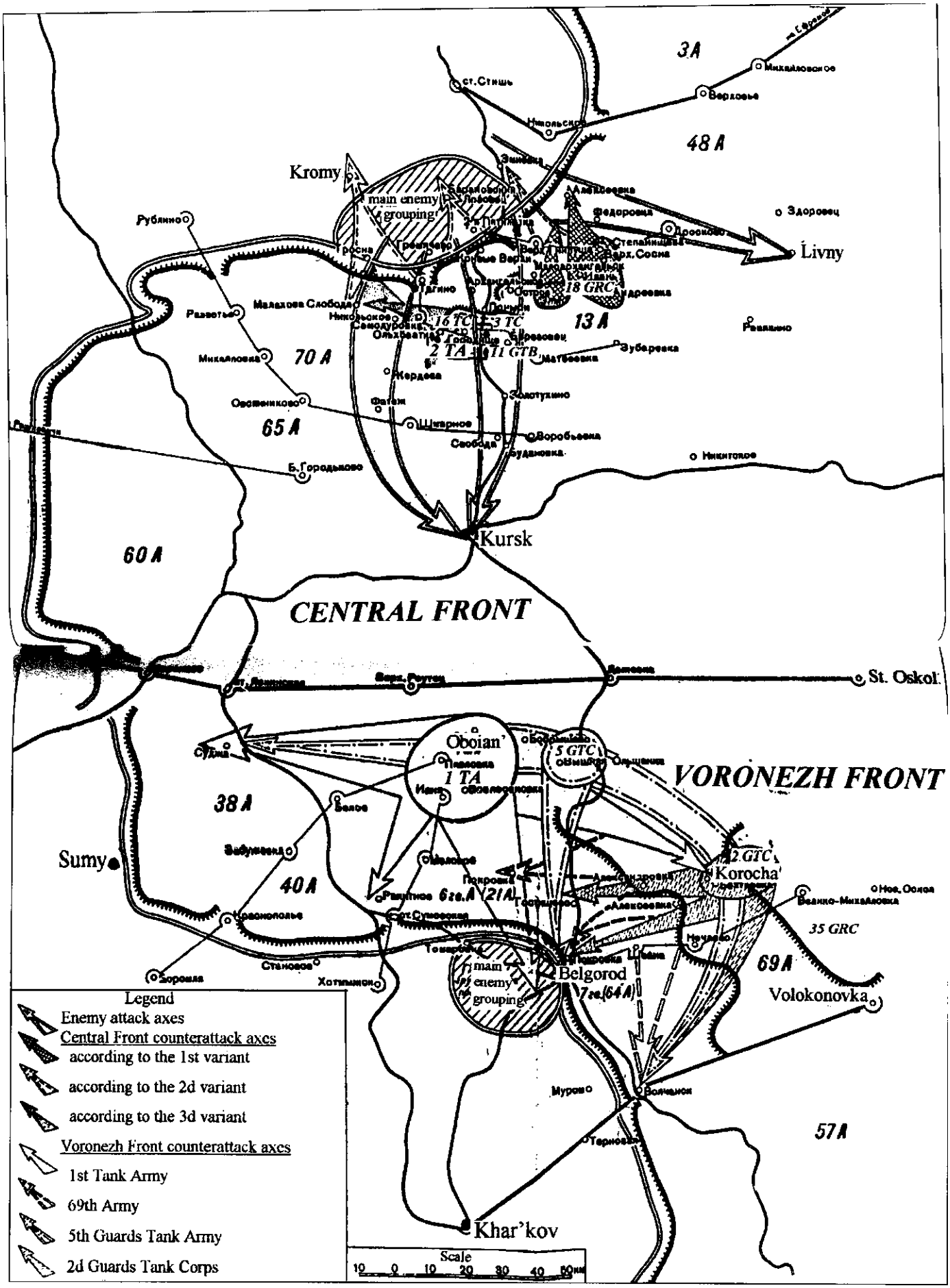
Front First-Echelon Formation and Units	*Number*	*Front Reserve*
Rifle divisions	**41**	.
Rifle brigades	**4**	.
Motorized rifle brigades	.	**2**
Tank brigades	**2**	**13**
Separate tank regiments	**15**	.
RGK [Stavka **reserve] field artillery regiments**	**27**	.
Self-propelled artillery regiments	**6**	.
High-powered artillery brigades	**2**	**2**
Gun artillery brigades	.	**1**
Antitank [tank-destroyer] artillery brigades	**3**	**3**
Separate antitank artillery regiments	**6**	**4**
Mortar brigades	.	**1**
Guards mortar brigades	**3**	.
Guards mortar regiments	**9**	.
Separate guards mortar battalions	**1**	.
Army mortar regiments	**16**	**6**
Antitank rifle battalions	**5**	.

Note: **Front Reserve comprised 2d Tank Army, 9th, 19th Tank Corps.**

Front operations were to be supported from the air by the 16th Air Army, consisting of the 6th Fighter, 6th Mixed, and 3d Bomber Corps, three fighter divisions, two assault divisions, and one night bomber division. By the beginning of combat operations this air army numbered 455 fighters, 241 assault [ground attack] aircraft, 260 day bombers and 74 night bombers, that is, more than 1,000 operational aircraft.

In accordance with the Central Front commander's decision, the distribution of reinforcing forces and weaponry to defensive echelons was shown by Table 2.

Front reserves were deployed partly behind the 13th Army's right flank in the Verkhniaia Sosna and Pokrovka region (the 13th Antitank and 68th Gun Artillery Brigades), while the principal mass was north of Kursk (see Map 3). The 2d Tank Army (the 3d and 16th Tank Corps), the 11th Guards Tank Brigade, two tank-destroyer regiments, two mortar regiments, and a



Map 2: **The axes of counterstrokes according to the Central and Voronezh Front commanders' decisions**

TABLE 2: DISTRIBUTION OF REINFORCING FORCES AND WEAPONRY TO DEFENSIVE ECHELONS

Component *Armies*

48th Army
Front width: 40 kilometers
First echelon: 3 rifle divisions
Second echelon: 4 rifle divisions, 3 tank regiments, and 1 antitank brigade
Third echelon: none
Total: 7 rifle divisions, 3 tank regiments, and 1 antitank brigade

13th Army
Front width: 32 kilometers
First echelon: 4 rifle divisions and 1 artillery penetration corps (2 artillery and 1 guards mortar division)
Second echelon: 3 rifle divisions and 3 tank regiments
Third echelon: 5 rifle divisions, 1 tank brigade, and 2 tank regiments
Total: 12 rifle divisions, 1 tank brigade, 5 tank regiments, and 1 artillery penetration corps

70th Army
Front width: 62 kilometers
First echelon: 4 rifle divisions and 1 artillery division
Second echelon: 4 rifle divisions, 3 tank regiments, and 1 antitank brigade
Third echelon: none
Total: 8 rifle divisions, 3 tank regiments, 1 artillery division, and 1 antitank brigade

65th Army
Front width: 82 kilometers
First echelon: 6 rifle divisions and 1 rifle brigade
Second echelon: 3 rifle divisions and 4 tank regiments
Third echelon: none
Total: 9 rifle divisions, 1 rifle brigade, and 4 tank regiments

60th Army
Front width: 92 kilometers
First echelon: 3 rifle divisions and 2 rifle brigades
Second echelon: 2 rifle divisions, 1 rifle brigade, 1 tank brigade, and I antitank brigade
Third echelon: none
Total: 5 rifle divisions, 3 rifle brigades, 1 tank brigade, and 1 antitank brigade

Front *Total*
Front width: 308 kilometers
First echelon: 20 rifle divisions, 3 rifle brigades, 1 artillery penetration corps, and 1 artillery division
Second echelon: 16 rifle divisions, 1 rifle brigade, 1 tank brigade, 13 tank regiments, and 3 antitank brigades
Third echelon: 5 rifle divisions, 1 tank brigade, and 2 tank regiments
Total: 41 rifle divisions, 4 rifle brigades, 2 tank brigades, 15 tank regiments, 3 antitank brigades, 1 artillery penetration corps, and 1 artillery division

PVO [antiaircraft] artillery regiment were concentrated in the Vereitinovo, Banino, and Koneva region. The 19th Tank Corps was deployed in the Liubazh and Staryi Buzets region. The 9th Tank Corps was deployed in the Tsvetovo region (south of Kursk). The 2d Destroyer [Antitank] Division's 4th Brigade was concentrated in the Kursk region, and the 1st Destroyer Brigade was in Vereitinovo. The headquarters of the Central Front were located in the Svoboda Station region.

As is evident from the decision by the Central Front's commander, the *front's* main forces and weapons were concentrated on the axis of the assumed enemy main attack, that is, in the 13th Army's sector. Of the 41 rifle divisions located in the *front's* first echelon, 29 were in 13th Army. Whereas along a front an average of 7.5 kilometers were allocated per division, in the 13th Army only 2.7 kilometers were so allocated. Of the 68 artillery regiments strengthening the *front,* 25 regiments (or 37 percent) were located in the 13 th Army's defensive sector. Of the 2 tank brigades and 15 tank regiments, 1 brigade and 5 regiments reinforced the 13th Army. Of the 22 mortar regiments, 8 (or 37 percent) were part of the 13th Army. Of the 9 guards mortar regiments, 5, and all heavy mortar brigades were assigned to the 13th Army. The *front* command created a maximum depth of occupied defenses, which reached 30 kilometers in the 13th Army's sector.

The main forces and weapons which constituted the *front* reserve (tank formations and units and destroyer brigades) were concentrated mainly in the Verkhniaia Sosna, Berezovets, and Pokrovka and the Nikol'skoe, Liubazh, and Banino regions. During the enemy offensive along the Ponyri, Zolotukhino, and Kursk axis, such reserve dispositions made it possible to deliver blows against both his flanks without conducting complex maneuvers.

In the event of an enemy offensive, the Central Front headquarters worked out an operational plan for *front* forces, which envisioned three variants (see Map 2).

Variant I: The enemy delivers a main attack along the Alekseevka, Droskovo, and Livny axis. In this instance, during the enemy penetration of the main defensive belt, the 48th Army would use all its forces to hold firmly on to the army rear belt. On the morning of the second or third day of the operation, the 13th Army would use the forces of the 18th Guards Rifle Corps with the 2d Tank Army's 3d Tank Corps to deliver a counterstroke from the Verkhniaia Sosna, Ivan', and Andreevka region along the Alekseevka axis, with the mission of cooperating with the 48th Army and the 16th Air Army to defeat the advancing enemy grouping and re-establish the position. The 13th Antitank [Destroyer] Brigade would move into the 48th Army's rear defensive belt to strengthen antitank defenses in the

Fedorovka region. Employing bomber and assault aviation actions, the 16th Air Army would deliver a massed strike against the Germans' main offensive grouping. From 0500 to 2000 hours on the second day of the operation, fighter aviation would provide cover for the 18th Guards Rifle and 3d Tank Corps in the staging area and support these corps' counter strokes.

Variant II: The enemy delivers a main attack along the Ponyri, Zolotukhino, and Kursk axis. In this instance, during the enemy's penetration of the main defensive belt, the 13th Army would firmly hold on to the second defensive belt. On the morning of the second or third day of the operation, having occupied the Maloarkhangel'sk, Ostrov, and Ponyri line with two rifle divisions, the 13th Army would use its main forces to launch a decisive counteroffensive in the general direction of Krivye Verkhi and Baranovskii Lozovets. At the same time, using its left-flank divisions, the 48th Army would launch an offensive in the general direction of Zmievka. Also simultaneously with the 13th Army, using its right-flank divisions, the 70th Army would launch an offensive in the general direction of Kromy.

At night on the second day of the operation, the 2d Tank Army would reach the following regions: the 3d Tank Corps, the Berezovets and Gorodishche region; the 16th Tank Corps, the Ol'khovatka region; and the 11th Guards Tank Brigade, the Vozy region. On the morning of the second day the army would launch a decisive offensive in the general direction of Krivye Verkhi and Baranovskii Lozovets with the mission of cooperating with the 13th Army and the 16th Air Army to defeat the attacking enemy grouping in the Ponyri and Arkhangel'skoe region.

Before the beginning of the counteroffensive, the 16th Air Army would disrupt the enemy's control system by means of a night-bomber strike against headquarters and centers of communications; would support the 16th and 3d Tank Corps' counterstroke by means of bomber and assault aviation operations; prevent the approach of enemy reserves by means of bomber and assault strikes; and, from 0500 to 2000 on the second (or third) day of the operation, cover the 13th and 2d Tank Armies' main grouping by means of fighter aviation.

Variant III: The enemy delivers the main attack along the Fatezh and Kursk axis. During operations according to this variant, in the event of a penetration of the main defensive belt, the 70th Army would hold firmly on to the second defensive belt. On the morning of the second or third day, the army would shift to the offensive in the general direction of Trosna. On the morning of the second or third day of the operation, the 13th Army, with the 7th Guards Rifle Corps, and the 2d Tank Army, with the 16th Tank

Corps, would deliver a counterstroke from the Gorodishche region in the general direction of Samodurovka and Malakhova Svoboda with the mission of cooperating with the 70th Army to defeat the advancing German grouping and re-establish the situation on the 70th Army's front.

After the 17th Guards Rifle Corps and 16th Tank Corps had launched the attack, using bomber and ground attack aviation, the 16th Air Army would deliver a strike against the principal attacking enemy tank grouping, and, from 0500 to 2000 hours on the second (or third) day of the operation, fighter aviation would cover the 17th Guards Rifle Corps and 16th Tank Corps in their staging area and during their counteroffensive.

The Voronezh Front commander's decision (see Maps 2 and 3)

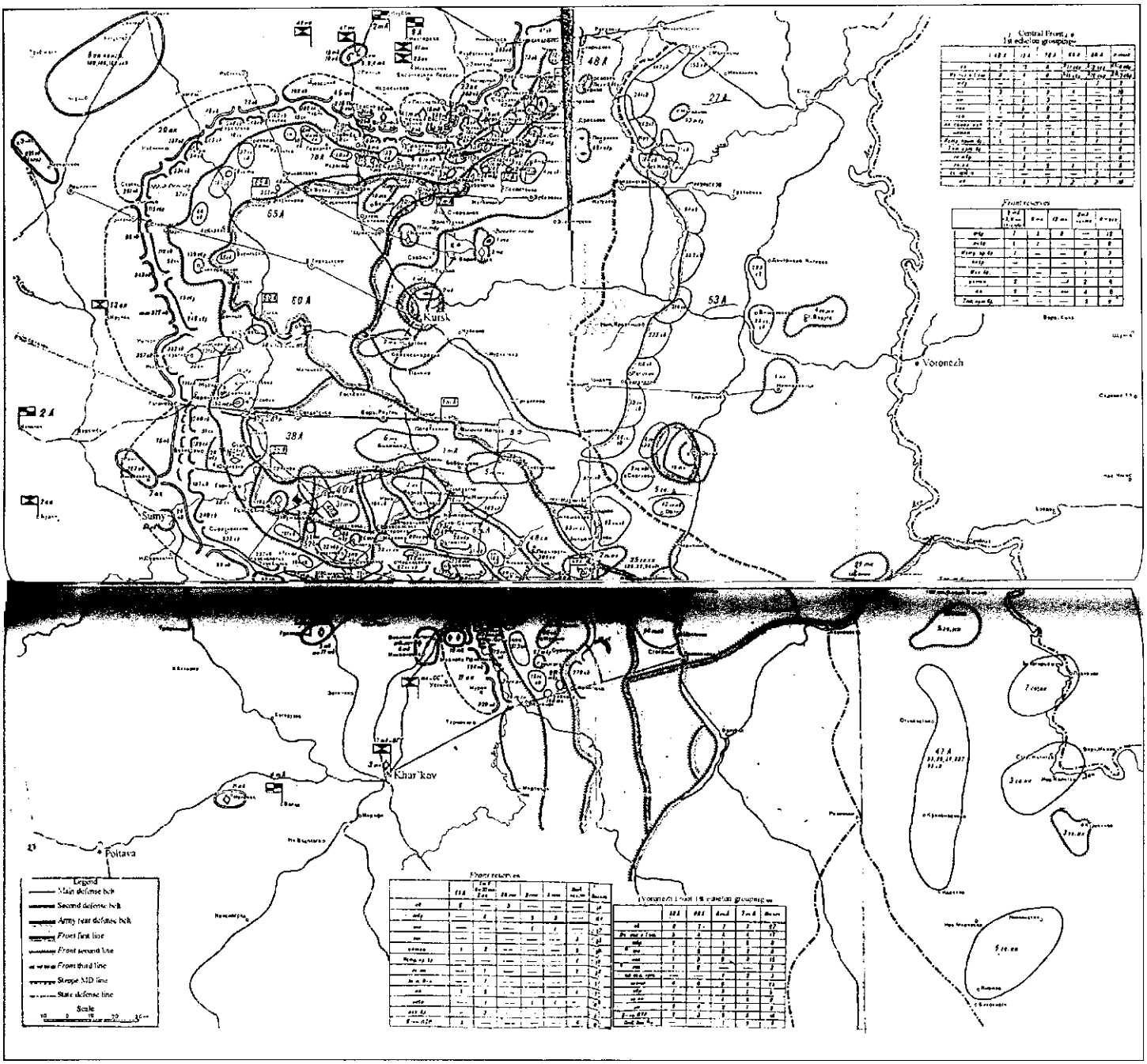
The Voronezh Front's principal mission was the defense of the southwestern, southern, and southeastern portions of the Kursk bridgehead (a total length of 245 kilometers) in the sector delineated as follows: on the right (with the Central Front's 60th Army) - Staryi Oskol, Dezhevka, Verkhnii Reutets, Lokinskaia Station, Korenevo, and Krolevets (all for the Voronezh Front exclusively); and on the left (with the Southwestern Front's 57th Army) - Volokonovka, Volchansk, and Khar'kov.

Table 3 shows the forces at the disposal of the Voronezh Front commander to fulfill the assigned mission.

Front operations were to be supported from the air by the 2d Air Army. By the beginning of combat operations this army consisted of 389 fighters, 276 assault aircraft, 172 day bombers, 34 night bombers, and 10 reconnaissance aircraft, totaling 881 operational aircraft.

When reaching the decision on the defense, the *front* commander estimated that the most probable enemy main attack axes would be Belgorod and Oboian', Belgorod and Korocha, and Volchansk and Novyi Oskol. Therefore the Voronezh Front concentrated its main force grouping on its left wing.

Front reserves were distributed as follows: all five of the 69th Army's divisions occupied the army rear belt in the Ol'khovatka and Efremovka sector. The army's command post was located in Korocha. The three divisions of the 35th Guards Rifle Corps occupied a *front* defense line in the Krivosheevka and Stolbishche sector. The 1st Tank Army, consisting of the 6th and the 31st Tank Corps and the 3d Mechanized Corps with reinforcements, was concentrated in the Beloe, Kurasovka, and Bykonovo region, behind the Voronezh Front's center. The army headquarters was located in the forest 2 kilometers northeast of Potopakhino. In addition there were three artillery regiments, five separate antitank regiments, two guards mortar regiments, four mortar regiments, and eight separate antitank rifle battalions in *front* reserve. The 31st Antitank [Destroyer] Artillery Brigade,



Map 3: **The grouping of Central and Voronezh Front and enemy forces, 4 July 1943**

TABLE 3: FORCES AT DISPOSAL OF VORONEZH FRONT COMMANDER

Front First-Echelon Formations and Units	*Number*	*Front Reserve*
Rifle divisions	**27**	**8**
Tank brigades	**6**	**14**
Separate tank regiments	**8**	**2**
Motorized rifle brigades	-	**3**
Mechanized brigades	-	**3**
RGK **artillery regiment**	**15**	**3**
Self-propelled artillery regiments	**3**	-
Antitank artillery brigades	**5**	**1**
Separate antitank artillery regiments	**22**	**9**
Guards mortar regiments	**8**	**3**
Army mortar regiments	**9**	**7**
Antitank rifle battalions	**16**	**11**
Separate armored train battalions	**3**	-
Guards mortar battalions	-	**1**

Note: **Front Reserve comprised 69th Army, 1st Tank Army, 35th Guards Rifle Corps, and 2d and 5th Guards Tank Corps.**

which was part of the *front* reserve, was deployed in the Korocha region; the 5th Guards Tank Corps was concentrated in the Mar'ino region; and the 2d Guards Tank Corps was in the Korocha region.

The distribution of the Voronezh Front's forces and weapons with respect to armies and echelons is shown in Table 4.

Thus the Voronezh Front force grouping differed somewhat from that of the Central Front. While the Central Front created defensive depth on the presumed enemy main attack axis at the expense of the 13th Army's forces and weaponry, the Voronezh Front created defensive depth using *front* assets (the 69th Army and 35th Guards Rifle Corps), which occupied defensive lines along the probable enemy attack axis. Therefore when determining the operational density of forces in the Voronezh Front's defense it is necessary to take into account the 69th Army's and 35th Guards Rifle Corps' forces and weaponry.

In addition, the frontage of the probable enemy offensive against the Voronezh Front was considerably wider than that against the Central Front, where it was limited to the 13th Army's sector. In the Voronezh Front it encompassed the 6th and the 7th Guards Army's defensive sectors; that is, it amounted to almost 100 kilometers or 46 percent of the entire length of the Voronezh Front.

Of the 35 divisions constituting the *front*, 22 occupied defenses along the probable enemy attack axes. While on average one division was responsible for 10 kilometers of frontage, on main attack axes one division was responsible for 5.2 kilometers. Of the 70 reinforcing artillery regiments in the *front* 44 (63 percent) were employed in the 6th and the 7th Guards Army's

TABLE 4: VORONEZH FRONT FORCES AND WEAPONS

Component Armies

38th Army

Front width: 80 kilometers
First echelon: 5 rifle divisions
Second echelon: 1 rifle division, 2 tank brigades, and 1 antitank brigade
Total: 6 rifle divisions, 2 tank brigades, and 1 antitank brigade

40th Army

Front width: 50 kilometers
First echelon: 4 rifle divisions
Second echelon: 3 rifle divisions, 2 tank regiments, 1 tank brigade, and 1 antitank brigade
Total: 7 rifle divisions, 2 tank regiments, 1 tank brigade, and 1 antitank brigade

6th Guards Army

Front width: 60 kilometers
First echelon: 4 rifle divisions, 1 tank brigade, and 2 tank regiments
Second echelon: 3 rifle divisions, 1 tank brigade, and 2 antitank brigades
Total: 7 rifle divisions, 2 tank regiments, 2 tank brigades, and 2 antitank brigades

7th Guards Army

Front width: 55 kilometers
First echelon: 4 rifle divisions and 1 tank regiment
Second echelon: 3 rifle divisions, 2 tank brigades, 2 tank regiments, and 1 antitank brigade
Total: 7 rifle divisions, 3 tank regiments, 2 tank brigades, and 1 antitank brigade

Front Total

Front width: 245 kilometers
First echelon: 17 rifle divisions, 1 tank brigade, and 3 tank regiments
Second echelon: 10 rifle divisions, 6 tank brigades, 4 tank regiments, and 5 antitank brigades
Total: 27 rifle divisions, 7 tank brigades, 7 tank regiments, and 5 antitank brigades

sectors, that is, on the probable enemy main attack axes. Of the six tank brigades and ten reinforcing tank regiments, half were in the 6th and the 7th Guards Army. Of the 11 guards mortar regiments 7 (73 percent) were also designated for operations in the sectors of these two armies.

Forces of the *front* first echelon and *front* reserves (the 69th Army and the 35th Guards Rifle Corps) occupied four defensive lines along the threatened axis; thus the defensive depth occupied by forces reached 60 kilometers.

The *front's* principal mobile shock means - the 1st Tank Army, the 5th and 2d Guards Tank Corps, and other formations and units, including 14 tank brigades, 3 mechanized brigades, 3 motorized rifle brigades, 9 antitank regiments, 11 antitank rifle battalions, 7 army mortar regiments, and 3 guards mortar regiments, were concentrated in the *front* depth along probable enemy attack axes.

The sequence for employing the Voronezh Front's reserves was planned

by taking into account the three main axes for the expected enemy attack (see Map 2):

1. Counterstrokes were to be delivered against the enemy grouping which had penetrated the main defensive belt from the Tomarovka and Belgorod region in the general direction of Oboian' as follows: the 1st Tank Army from the Oboian' region in the general direction of Voznesenovka and Belgorod; the 5th Guards Tank Corps from the Vyshniaia Ol'shanka region in the general direction of Belgorod; the 2d Guards Tank Corps from the Bekhteevka region in the general direction of Gostishchevo; and formations of the 69th Army from the Aleksandrovka region in the general direction of Pokrovka.
2. In the event of an enemy attack from the Belgorod region in the general direction of Korocha, his grouping would be subjected to the following counterstrokes: the 1st Tank Army from the Oboian' region in the general direction of Korocha; the 5th Guards Tank Corps from the Vyshniaia Ol'shanka region to Korocha; the 2d Guards Tank Corps from the Bekhteevka region to Belgorod; and the 69th Army's formations from the Alekseevka region to Belgorod.
3. In the instance of an enemy attack from the Murom and Ternovaia region in the general direction of Volchansk and Volokonovka against the junction of the Voronezh and Southwestern Fronts, his grouping would be counterattacked as follows: the 5th Guards Tank Corps from the Vyshniaia Ol'shanka region in the general direction of Korocha and Volchansk; the 2d Guards Tank Corps from the Bekhteevka region to Volchansk; and the 69th Army's formations from the Alekseevka region to Volchansk.

In addition to attacks along these main axes, enemy attacks were also considered possible from the Sumy region in the general direction of Sudzha and Kursk and from the Stanovoe region in the general direction of Rakitnoe and Oboian' against the junction between the 40th and the 6th Guards Army. In the first instance the 1st Tank Army and 5th Guards Tank Corps were to counterattack *from the* Oboian' region in the general direction of Sudzha, and in the second, the 1st Tank Army's forces were to attack from the Oboian' region to Rakitnoe.

Manning and reinforcing the fronts

From April through June 1943 the Central and Voronezh Fronts were reinforced with new formations and units to the maximum.

It should be noted that the bringing of the *fronts* up to strength with personnel was carried out not so much by march replacements [routine replacements from the rear] as by means of the *fronts'* internal resources.

Thus 27 percent of the Voronezh Front's total requirement for replacements was satisfied by mobilization of those eligible for military service in liberated territory, 9 percent by return to duty of those who had recovered and were released from army and *front* hospitals, 33 percent by taking those fit for duty in rear units and installations; and 31 percent by march replacements.

To employ guards formations more effectively and to increase the quality of troop control, in accordance with a decision of the *Stavka* of the Supreme High Command, all guards formations in the Voronezh Front were combined into two guards armies by 1 May: the 6th (formerly the 21st) and the 7th (formerly the 64th), and a large portion of the rifle divisions which were part of the *front* were combined into rifle corps. By the beginning of 11 June corps headquarters had been formed in the Central Front and 10 in the Voronezh Front.

The 4th Artillery Corps, which consisted of two artillery divisions and one separate guards mortar division, was included in the Central Front along the probable enemy attack axis in the 13th Army's sector and in the 70th Army's right-flank sector.

After receiving information on German intentions to use a large quantity of new T-VI heavy tanks ('Tigers') to penetrate our defense, our command took measures to reinforce the antitank defense. Guns with high muzzle velocity, in particular 85mm antiaircraft guns, were included in antitank [tank destroyer] artillery units, and sub-caliber shells and hollow-charge shells were extensively employed.

The grouping and missions of strategic reserves (see Map 3)

By the end of April the formation of the Reserve Front was essentially complete (on 13 April it was renamed the Steppe Military District). For the greater strengthening of the Kursk bulge defense and reliable cover of the Kursk and Voronezh axes, the Supreme High Command ordered that by mid-May the Steppe Military District's forces should occupy a defensive line along the Kshen' River from Rossoshnoe to Belyi Kolodez' (a distance of around 250 kilometers) using forces of the 27th, 53d, and 5th Guards (formerly the 66th) Armies.

At the same time, the Steppe Military District's forces were assigned the mission of preparing counterstrokes in the general directions of Maloarkhangel'sk, Kursk, and Oboian'.

Soon after they reached the line of the Kshen' River, district forces began to fill out the field defensive belt.

By the beginning of the German offensive on 4 July the Steppe Military District's grouping and composition were the following: three district armies occupied the defensive line; the 27th Army from Rossoshnoe to

Nikol'skoe; the 53d Army from (excluding) Nikol'skoe to Bezlepkino; and the 5th Guards Army from (excluding) Bezlepkino to Belyi Kolodez'. The 47th Army was concentrated in the Ol'khovatka, Krivonosovka, and Kamenka region. The 4th Guards Kantemirovka Tank Corps was located in the Beduga Station region and the 10th Tank Corps was in the Staryi Oskol region.

The 5th Guards Tank Army concentrated with the 29th Tank Corps in the forests west of Ostrogozhsk, the 5th Guards Zimovniki Mechanized Corps in the Kamenka region, and the 3d Guards Stalingrad Mechanized Corps in the Kuzmenkov region.

District cavalry formations were concentrated with the 7th Guards Cavalry Corps in the Belogor'e and Pavlovsk region, the 3d Guards Cavalry Corps in the Staraia and Novaia Kalitva region; and the 5th Guards Cavalry Corps in the Novo-Markovka, Kirovo, and Nikol'skoe region.

In the event that district forces were committed to battle, they were to be supported by the 5th Air Army.

CORRELATION OF FORCES BEFORE THE GERMAN OFFENSIVE

Changes in the overall enemy grouping during the period April—June 1943

After the conclusion of the 1942-43 winter operations and the stabilization of the front, the German command quickly began to prepare a new offensive operation. For this purpose, the Germans began to bring up a number of formations and units to the Kursk bulge from other sectors of the front at the end of March, as well as from the operational depth.[4]

Changes in the composition of enemy force opposite the *fronts* from 27 March through 4 July 1943 are shown in Table 5.

The German command's second mission was to bring its forces, which had been seriously battered in previous battles, up to strength. Using resources obtained as a result of total mobilization, the Germans succeeded in bringing the numerical strength of the majority of divisions up to 8,000 to 12,000 men.

The German command counted on the stunning effect of the surprise employment of a large quantity of new combat weapons - superheavy T-VI tanks ('Tigers') and heavy self-propelled guns ('Ferdinands'). To this end, the enemy included units consisting of these tanks and self-propelled guns in the composition of their Orel and Belgorod-Khar'kov groupings.

Table 6 provides changes in the combat and numerical composition of enemy forces operating against the Kursk bulge from 27 March through 4 July 1943.

TABLE 5: REINFORCEMENT OF ENEMY FORCES

	No. of Formations on 27.3.43	No. of Formations on 4.7.43	Total Change	% Change
Opposite the Central Front				
Total divisions	**24**	**33**	**+9**	**37**
of which: IDs	**19**	**24***	**+5**	**26**
PzDs	**4**	**6**	**+2**	**50**
CDs	**1**	**1***	-	-
PzGrDs	-	**2**	**+2**	-
Opposite the Voronezh Front				
Total divisions	**14**	**21**	**+7**	**50**
of which: IDs	**10**	**12**	**+2**	**20**
PzDs	**4**	**9**	**+5**	**125**
Along both Fronts				
Total divisions	**38**	**54**	**+ 16**	**42**
of which: IDs	**29**	**36**	**+7**	**24**
PzDs	**8**	**15**	**+7**	**88**
CDs	**1**	**1**	-	-
PzGrDs	-	**2**	**+2**	-

Notes: **The former Third Panzer Army on the approach to the Kursk bulge was also taken into account in this table.**

*** Four infantry and one cavalry division were conducting a struggle with partisans [in the Briansk forest].**

TABLE 6: REINFORCEMENT OF ENEMY COMBAT STRENGTH

	No. of Formations on 27.3.43	No. of Formations on 4.7.43	Total Change	% Change
Opposite the Central Front				
Personnel	**125,000**	**267,000**	**142,000**	**114**
Tanks and assault guns	**290**	**1,450**	**1,160**	**400**
Guns (all calibers)	**1,600**	**4,260**	**2,660**	**166**
Mortars (all calibers)	**1,520**	**2,100**	**580**	**38**
Opposite the Voronezh Front				
Personnel	**76,000**	**168,000**	**92,000**	**116**
Tanks and assault guns	**375**	**1,700**	**1,325**	**353**
Guns (all calibers)	**500**	**2,500**	**2,000**	**400**
Mortars (all calibers)	**500**	**1,100**	**600**	**120**
Along both Fronts				
Personnel	**201,000**	**435,000**	**234,000**	**116**
Tanks and assault guns	**665**	**3,150**	**2,485**	**374**
Guns (all calibers)	**2,100**	**6,760**	**4,660**	**222**
Mortars (all calibers)	**2,020**	**3,200**	**1,180**	**58**

The correlation of forces in the Central Front. The main enemy grouping was created opposite the front of the 13 th Army and the 70th Army's left flank in the Glazunovka and Trosna sector, a distance of around 45 to 50 kilometers.

The German command concentrated eight infantry, six panzer, and two panzer grenadier divisions and a large part of the reinforcing artillery and panzer battalions of the Reserve of the High Command along this axis. Among the reinforcing weaponry were 3 T-VI panzer battalions, with 50 tanks per battalion, and 1 regiment of self-propelled 'Ferdinand' guns, consisting of 90 guns. Twenty infantry divisions were operating along the remaining 245 kilometers of front.

The main attack was delivered against the 13th Army's front. Table 7 shows the density of the enemy grouping per kilometer of frontage opposite the entire Central Front and in the sector of the main attack.[5]

TABLE 7: DENSITY OF ENEMY FORCES ON THE CENTRAL FRONT

	Density per lkm		*Correlation of Forces*	
	Entire Front	*Main Attack Sector*	*Entire Front*	*Main Attack Sector*
Personnel	**870**	**4,500**	**1:2.6 in our favor**	**1:1.1 in our favor**
Tanks	**4.7**	**45**	**1:1.2 in our favor**	**1:1.1 in our favor**
Guns	**13**	**70.3**	**1:1.0 in our favor**	**1:1.4 in enemy's favor**
Mortars	**6.8**	**34**	**1:1.8 in our favor**	**1:1.4 in our favor**

The correlation of forces in the Voronezh Front. The main enemy grouping was created opposite the 6th and the 7th Guards Army's fronts in the Tomarovka and Maslova Pristan' sector, with a total distance of 50 kilometers (see Map 3). The German command concentrated 3 infantry and 9 panzer divisions in this sector, as well as a large part of its reinforcing weaponry, including two T-VI panzer battalions with 50 tanks in each.

Nine infantry divisions were operating along the remaining 194 kilometers of front.

Table 8 shows the density of the enemy grouping opposite the entire Voronezh Front and the resulting correlation of forces.

TABLE 8: DENSITY OF ENEMY FORCES ON THE VORONEZH FRONT

	Density per lkm			*Correlation of Forces*	
	Entire Front	*Main Enemy Force*	*Main Attack Sector*	*Entire Front*	*Main Attack Sector*
Personnel	**730**	**2,000**	**2,500**	**1:2.5 in our favor**	**1:1.5 in our favor**
Tanks	**7.4**	**34**	**42**	**1:1.1 in enemy's favor**	**1:1.6 in enemy's favor**
Guns	**10**	**32**	**40**	**1:1.5 in our favor**	**1:1.5 in enemy's favor**
Mortars	**4.5**	**15.4**	**19**	**1:3.9 in our favor**	**1:3.8 in our favor**

When examining this table it should be kept in mind that the determination of the correlation of forces takes into account the forces of the 6th Guards Army, the 7th Guards Army's two right-flank divisions, the 69th Army's two right-flank divisions, the 1st Tank Army, and the 5th and 2d Guards Tank Corps.

The composition of enemy aviation. The final regrouping of enemy air forces was completed only two to three days before the beginning of the offensive. During this period, up to 50 percent of all aviation participating in the July offensive was brought up to the front. In all, more than 2,000 aircraft were employed against the Central and the Voronezh Front.

The determination of the moment of the German transition to the offensive. Our commands and staffs continuously and attentively followed all changes in the enemy grouping. A number of documents attest to the fact that *front* headquarters and the *Stavka* of the Supreme High Command were timely in their detection of these the changes. Thus, as far back as 10 April, the Central Front's chief of staff reported on the presence of up to 15 infantry and 3 panzer divisions in the first line opposite the *front* and cited data on the enemy's concentration of new divisions along the front. At this time the *front* headquarters considered Orel-Kursk as the most probable axis of the German offensive. In his report dated 12 April, the Voronezh Front commander pointed out that the main enemy grouping, consisting of up to 6 infantry and 10 panzer divisions with a total tank strength of up to 1,500 vehicles, was being formed in the Borisovka, Belgorod, and Murom region. The report determined the probable enemy main attack axes as being from the Belgorod region toward Staryi Oskol and toward Oboian' and Kursk and expected that the enemy would deliver secondary attacks along the Volchansk, Novyi Oskol and Sudzha, Oboian' axes.

In his report to the Supreme High Commander dated 11 May, General Vatutin pointed out the continuing concentration of an enemy shock group, while determining by this time the presence of no fewer than 7 panzer divisions in the Graivoron, Tomarovka, Belgorod, and Mikoianovka region, and a total of up to 13 infantry divisions in the first echelon opposite the entire *front.* The Voronezh Front commander expected the main enemy attack along the Oboian' and Kursk axis.

In a report to Comrade Stalin of 16 May Deputy Supreme High Commander and Marshal of the Soviet Union Zhukov noted the presence of up to 13 to 14 infantry divisions opposite the Voronezh Front and up to 900 tanks in the immediate rear. This report characterized the enemy grouping as then still not prepared for the offensive

In June a series of reports from the Central Front headquarters emphasized that all captured prisoners indicated the concentration of the main

German grouping in the Glazunovka and Tagino sector, and, apparently, that the main German attack was to be expected against the 13th Army's front.

Our command took active measures to counter the ongoing enemy force grouping. Thus on 4 May the *Stavka* of the Supreme High Command issued a directive to the Red Army Air Force commander concerning the destruction of enemy aircraft at airfields and in the air in the Belopol'e, Romny, Poltava, and Merefa regions, on the disruption of enemy railroad transport in the Poltava and Khar'kov sectors, and on disorganizing motor vehicle traffic on roads in the Belopol'e, Akhtyrka, and Novaia Vodolaga region.

Finally, the moment that enemy forces launched the offensive did not come as a surprise for our forces.

As early as 2 July Comrade Stalin had already warned the Central and Voronezh Front commanders in a short directive, on the enemy's preparation for launching the offensive:

> According to available data, the Germans may launch an offensive on our front during the period from 3-6 July 1943.
>
> The *Stavka* of the Supreme High Command orders:
>
> 1. Strengthen reconnaissance and surveillance of the enemy to reveal his intentions promptly. 2. Forces and aviation will be ready to repel a possible enemy attack. Report any issued instructions.

On the night of 5 July a 6th Infantry Division combat engineer was taken prisoner in the Tagino region and indicated that on that day German forces of both the Orel and the Belgorod groupings would shift to the offensive in the general direction of Kursk.

GENERAL CONCLUSIONS

1. Our command adequately discovered the plan for the German summer 1943 offensive, and as early as March the *Stavka* of the Supreme High Command had not only made a completely accurate prognosis with respect to the overall nature of the forthcoming operations but had also determined the deployment regions of his main groupings and the probable attack axes.

Accurate and correct analysis of the situation made it possible to make an absolutely correct decision that was appropriate for the circumstances: *to meet the enemy attack in a well-prepared defensive bridgehead, to bleed attacking German groupings dry, and then to launch a general offensive.* The defeat of enemy shock groups created favorable prerequisites for developing new, extensive offensive operations. Thus *our defense mas prepared with the inten-*

tion of a subsequent shift to the offensive. The concentration of forces and their grouping in the Kursk bridgehead attests to this.

2. During the three-month operational pause the ability to foresee the course of developing events; the presence of strategic reserves, men, and *materiel* resources; and industry's irrefutable ability to satisfy all the army's requirements made it possible to create a powerful defense in the region of the Kursk bulge, which the German Army was unable to surmount. The German command was unable to create superiority in forces in a single front sector, not even on the main attack axes. By the commencement of the German offensive the correlation of forces with respect to principal indices was in the Red Army's favor, and only on the main attack axis opposite the Voronezh front did the Germans succeed in achieving an insignificant superiority in tanks.

Enemy attempts to disorganize our defense by the surprise employment of a large number of T-VI tanks and heavy 'Ferdinands' self-propelled guns were also unsuccessful because the Red Army command had taken a series of appropriate countermeasures in advance.

3. Repeating their mistakes of overestimating their own forces and capabilities and of underestimating our forces, the Germans once again embarked on a grandiose adventure, which expressed itself in the July offensive.

4. The characteristic features of the Kursk bridgehead defense were its great depth, which generally amounted to 110 kilometers along enemy main attack axes, not counting the position prepared by the Steppe Military District, and the fact that our forces occupied in advance up to four defensive lines to a depth of up to 60 kilometers.

5. The stability and dynamism of the defense were ensured by the presence of strong mobile reserves of tank armies and corps, which were at the *front* commander's disposal, and also by the presence of a great number of mobile antitank reserves (antitank brigades and regiments and antitank rifle battalions).

6. The Supreme High Command's precise prognosis of the axis of the offensive being prepared by the enemy ensured our capability to concentrate strong strategic reserves in the rear of the Kursk bridgehead and to assign them concrete combat missions with respect to defensive operations (occupation and preparation of a defensive position along the Kshen' River) and to probable counterstroke axes.

Timely and continuous study of the enemy grouping, and also knowledge of his operational methods, made it possible for *front* commanders to concentrate their main mass of forces and weaponry along the probable enemy main attack axes.

7. Having overestimated the penetration capabilities of its own groupings and underestimated the strength of our defense's resistance, the German command relied mainly on the destructive force of the initial blow in the forthcoming offensive; therefore the German force formation was characterized by the absence of strong operational reserves.

By 23 July 1943 our forces had completely liquidated the insignificant tactical successes which the enemy had achieved during the initial days of the offensive.

> Battles fought to liquidate the German offensive demonstrated our forces' high level of combat training, incomparable models of stubbornness, and the steadfastness and heroism of soldiers and commanders of all combat arms, including artillerymen and mortarmen, tank crews, and pilots.
>
> Thus the German plan for a summer offensive must be considered a complete failure.
>
> At the same time, the myth that in the summer the Germans would be successful in the offensive while Soviet forces would be forced to withdraw was shattered.[6]

NOTES

1. **[Editor]. 'Excluding' here means that that particular point is outside that particular formation's boundary and is the responsibility of the neighboring formation. 'Including' means the reverse.**
2. **In determining the correlation of forces, neither 1st Tank Army, which was not yet completely concentrated, nor two of 69th Army's divisions, which were on the approach, were taken into account**
3. **I. Stalin,** *O Velikoi Otechestvennoi voine Sovstskogo Soiuza* **[About the Great Patriotic War of the Soviet Union], 60.**
4. **Details about the German command's regrouping of forces and plans are found in 'Kratkaia kharakteristika deistvii nemetskikh voisk v iiul'skoi operatsii' [Brief chararacteristics of German force operations during the July operation], 38.**
5. **Calculation of the correlation offerees in the main attack sector has taken into account the forces and weapons of the 13 th Army, 2d Tank Army, 9th and 19th Tank Corps, and also mobile antitank artillery reserves on the front and flanks of 13th Army.**
6. **From a** *Stavka* **of the Supreme High Command order of 24 July 1943.**

2

Preparation of the Kursk Bridgehead for Defense

CHARACTERISTICS OF THE DEFENSIVE WORKS

The forces of the Central and the Voronezh Front began the planned preparation of the Kursk bulge defense in April 1943 and continued to develop and improve it up to 5 July, that is, until the day the German offensive began.

In general, the engineer preparation and outfitting of defensive belts was carried out in accordance with the *Red Army General Staff Instructions for Commander's Reconnaissance and Field Defensive Construction.* The *Instructions* set forth the principles for organizing a modern field defense, while special attention was focused on the construction of battalion regions and centers of defense, as well as company strong points as the basis of each defensive position, on extensive development of a trench system and of communication trenches as a means for supporting the maneuvering of fire attacks and of personnel, and on maximum exploitation of terrain for the organization of strong, easily controlled fire in front of the forward edge and in depth.

Forces from units in the second and the third army belt, troops, and the local population carried out the engineer preparation of the main defensive belt. The construction and equipping of *front* positions was done by Directorates for Defensive Construction (*upravlenie oboronitel'nogo stroitel'stva/ (UOS*), employing local forces and means.

In the first place, defensive works were built which provided for the organization of a fire system and the deployment of force combat formations in occupied defensive positions (such as rifle ditches, trenches with main and reserve rifle and machine-gun positions, pillboxes, artillery and mortar firing positions, command and observation posts). At the same time, antitank and anti-personnel obstacles and minefields were set up along the most important axes in front of the forward edge.

In the second place, defensive works were built in defensive depth, trenches, communications trenches, ditches, and artillery and mortar firing

positions were improved, communications trenches were developed in depth and along the front, and shelters and dug-outs were constructed.

In sum, during the course of three and a half months a great deal of work was completed on the engineer preparation and equipping of army and *front* defensive belts and on intermediate and cut-off positions. On the Voronezh Front alone, from 1 April through 1 July, more than 4,200 kilometers of trenches, communications trenches, and ditches were dug, more than 600,000 mines were laid, and around 500 kilometers of antitank obstacles were constructed.

In accordance with a *Stavka* directive dated 21 April, the most important populated areas were adapted for defense, and all bridges were prepared for demolition. The destruction of several populated areas along the most important axes was envisioned to create an operational obstacle zone.

Front commanders focused particular attention on the creation of a strong and stable defense along the most probable enemy offensive axes.

In the defensive belts of the Central Front's 13 th Army and the Voronezh Front's 6th and 7th Guards Army, the main effort was directed toward creating the most effective antitank defense. During the engineer preparation the necessity of a strong antitank defense for these axes continued to grow, since the concentration of enemy tank units more and more clearly attested that the main German attack would occur precisely along these axes.

In addition to the preparation of defensive belts, a 25-kilometer frontal zone was prepared in accordance with *Stavka* directives, with the civilian population being completely removed from its limits. Employed for the first time in the summer of 1942, the preparation of a frontal zone was fully justified. It permitted forces to exploit fully the advantages of populated points in defensive combat as well as to create operational obstacle zones.

During the preparation of the defense the General Staff, *front* and army commanders, and their staffs systematically checked the quality of the defensive work so as to eliminate faults in timely fashion; they also checked the combat readiness of forces, flank and junction security and the stability and effectiveness of the antitank defense along dangerous tank attack axes.

From 1 April through 1 July, the Voronezh Front command and staff conducted three such verifications in all armies, and in May one battalion from each regiment was checked. Army commands and staffs also organized a series of checks which involved a large number of units and formations.

The Central Front command and staff organized a special commission, headed by a member of the Military Council, whose task included a verification of formation and unit defense organizations, down to battalion level.

The results of the verifications were reported separately to the forces of each army by special orders, which stated the detected failings and the

measures for eliminating them. In addition, *front* Military Councils repeatedly listened to reports on the course of defensive work by division commanders, with accompanying reports by engineer service chiefs and artillery division commanders. A considerable part of these reports were heard direct on site.

The *Stavka* of the Supreme High Command focused particular attention on the question of organizing the defense of the Kursk bulge. Its representatives supervised and controlled direct the progress of defensive work in the *fronts* on site. Systematically visiting the forces, they personally checked the defense system and force combat readiness and immediately issued their instructions to those executing them. At the same time, the progress of defensive construction in the Kursk bulge was checked by specially assigned representatives of appropriate central directorates and General Staff officers. While reporting their conclusions on the verification to the Chief of the General Staff, General Staff officers simultaneously made them known to army and *front* commanders, which assisted them in promptly eliminating the detected shortcomings.

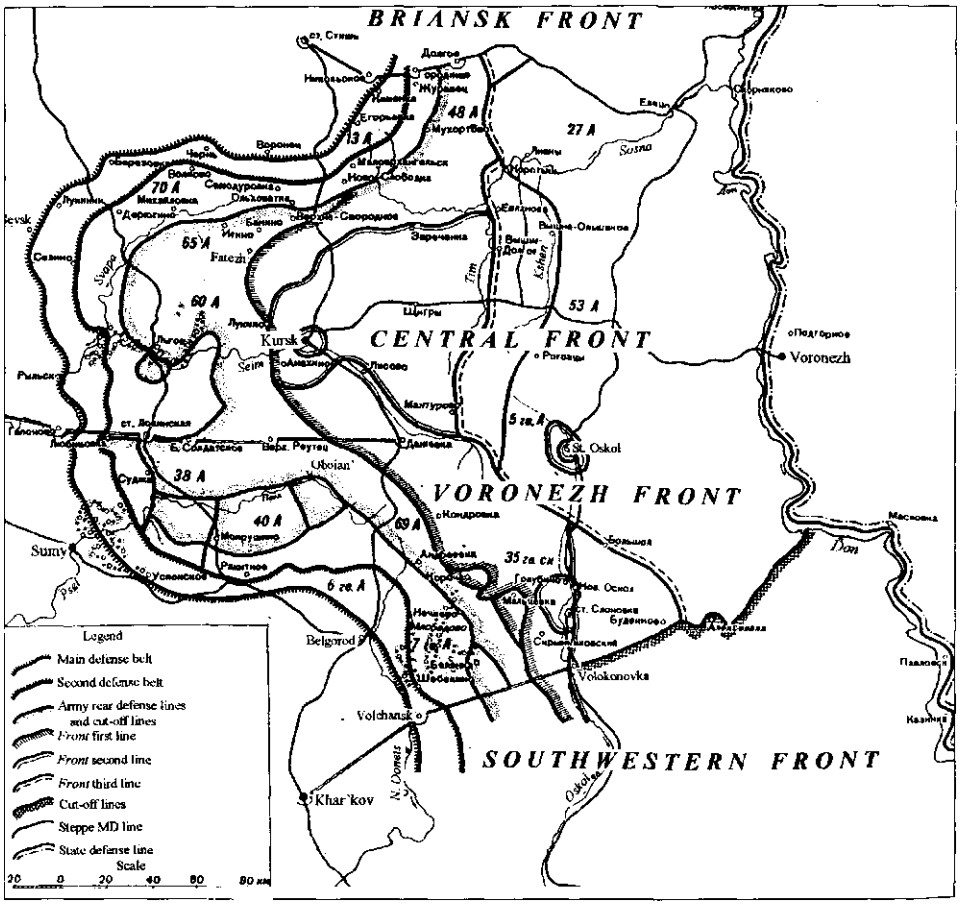
During the three months (April-June) of preparation, three army defensive belts, three principal *front* defensive lines, and several intermediate and cut-off positions were established in the Central and Voronezh Fronts (see Map 4).

Thus up to six defensive lines, successively echeloned into the depth, were created within the *fronts* along the assumed enemy attack axes (Maloarkhangel'sk and Shchigry in the Central Front, and Belgorod and Oboian' in the Voronezh Front). The least developed defensive system was at the junction of the Central and the Voronezh Front - in the heights of the Kursk bulge, where the distance between the army rear belt and the first *front* defensive line reached 60 kilometers, while at the same time in other sectors of the bulge the distance between defensive lines on the average did not exceed 15-20 kilometers.

While constructing and fitting out defensive belts natural lines were used to the maximum: the Northern Donets, Psel, Seim, Svapa, Tim, Kshen', and Don Rivers, as well as forest tracts in the regions of L'gov, east of Sumy, Belgorod, Shebekino, and Nechaevo.

The extent of the army defensive belts reached 550 kilometers in the main belt, 450 kilometers in the second belt, and 580 kilometers in the rear belt. The extent of the *front* [defensive] lines reached 300 kilometers in the first line and 310 kilometers each in the second and the third line.

In addition to these defensive belts and lines, hundreds of kilometers of intermediate and cut-off positions were prepared. Despite the large scale of the engineer work, it should be noted that too few cut-off positions were built. In particular, this relates to the Central Front's main and second defensive belts and the right flank of the Voronezh Front's 7th Guards



Map 4: **Defensive lines in the Kursk bridgehead**

Army. The absence of cut-off positions on the 7th Guards Army's right flank made it possible for the enemy grouping which penetrated in the Belgorod region to deliver a subsequent blow to the north against the 6th Guards Army's flank.

The main defensive belt of the Central and the Voronezh Front

This was an enormous arc whose base was the Orel and Belgorod main railroad line. The forward edge of the main defensive belt, which had been established as a result of the February and March battles (the latter especially), ran along the slopes of the hills facing the enemy and particularly along the reverse slopes and had no significant natural lines of protection. The Voronezh Front's left flank was the exception, where the Northern Donets River protected the 7th Guards Army's defensive sector from Belgorod to Volchansk. The tortuous line of the forward edge was used to create 'fire sacks' and to conduct flank and oblique fire. Combat security was established only on the 6th Guards Army's front and, partially, on the 38th Army's right flank; along the remainder of the front the main defensive belt was in direct contact with the enemy's defensive belt and was protected by security guards, listening posts, and patrols.

The main defensive belt consisted primarily of battalion defensive regions, antitank strong points (PTOP), and an engineer obstacle system. In all there were more than 350 battalion defensive regions in the main belt of both *fronts.* Two or three battalion defensive regions, deployed in one or two echelons, comprised a regimental sector, whose width was 4-6 kilometers and depth was 3^ kilometers.

Thirty-seven rifle divisions occupied the main defensive belt and on average each had a front of around 14 kilometers. Along particularly important axes, divisions defended along fronts of 6-12 kilometers, and in secondary sectors a division defensive front extended as much as 25 kilometers. The defensive depth of first-echelon divisions was 5-6 kilometers.

Antitank strong points [protivotankovye opornye punkty, PTOP] were created along dangerous tank axes and were echeloned in depth. Thus 8 dangerous tank axes were designated along 6th Guards Army's front, where 28 *PTOPs* were created, of which 18 were in the main belt and 10 in the second defensive belt. Six dangerous tank axes were determined in the 7th Guards Army's sector, where 27 *PTOPs* were created. Map 5 shows the disposition of antitank regions and antitank strong points in the 13th Army's defensive sector.

PTOPs were created primarily from artillery weapons, but side by side with them *PTOPs* included antitank rifles, automatic weapons, and, in certain instances, even tanks. The terrain in *PTOP* regions was reinforced by engineer works, mine barriers, and several types of obstacle. In the Voronezh Front's main defensive belt nearly 100 *PTOPs* were created, whose principal mass was grouped along dangerous tank axes.

The defense of the 7th Guards Army's 81st Guards Rifle Division was characteristic with regard to the development of engineer work (see Map 6). In the Mikhailovka region (east of Belgorod) the enemy successfully held on to a sector on the eastern bank of the Northern Donets River. The Voronezh Front's Military Council assigned the 7th Guards Army commander the mission to create a strong defense in this sector so as to prevent the enemy from using the local terrain as a staging area for an offensive.

For this purpose the 81st Guards Rifle Division's main defensive belt was strongly protected not only from the front but also from the flanks. This imparted particular stability to it, and, as a result, the enemy failed to penetrate this sector on 5 or 6 July.

Trenches were of particularly great significance in the main defensive belt, where they were constructed in two or three lines and even four lines along the most important axes. As a rule, automatic weapons and tank destroyers occupied the first trench line. The main mass of works for heavy infantry weapons were located in the second line, which increased their survivability to a considerable degree.

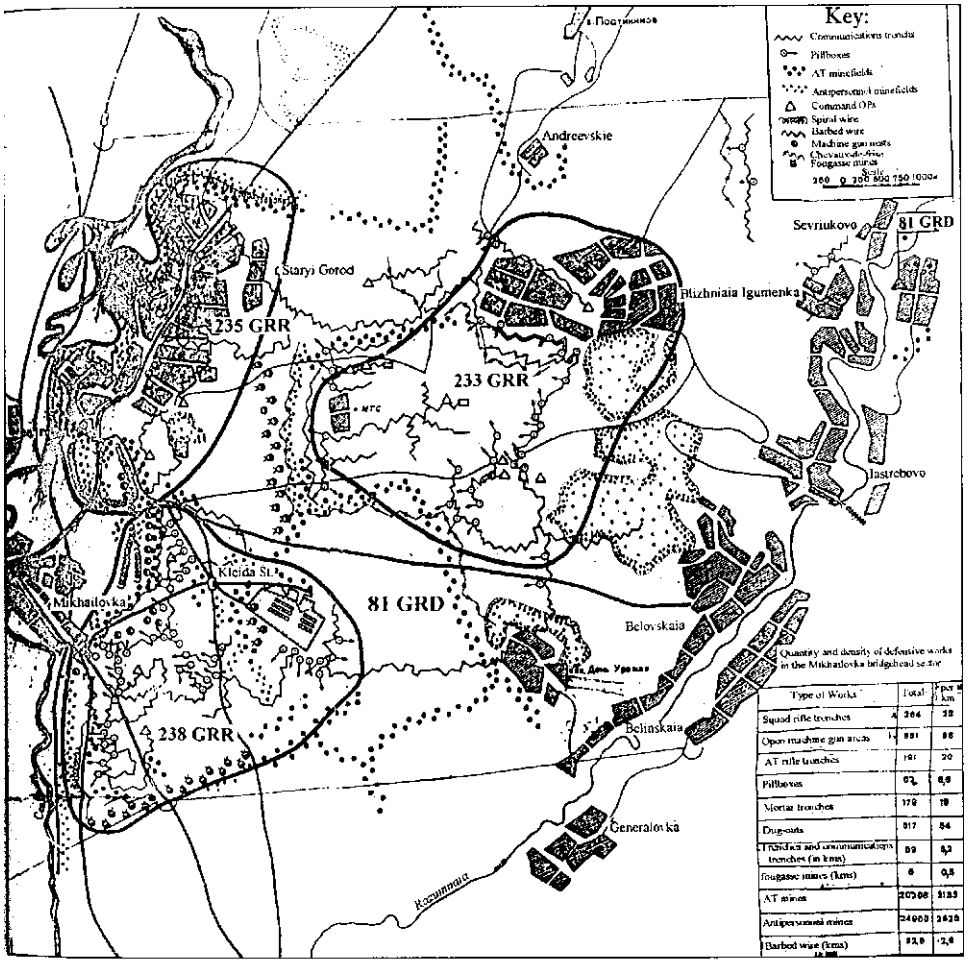
On average, each rifle division defending in the main defensive belt had 66 kilometers of trenches and communications trenches. Each division of the Voronezh Front's 6th Guards Army had 70 kilometers of trenches. Trenches in the defense were built in strict coordination with engineer obstacles. Barbed-wire obstacles, minefields and antitank barriers were not only created in front of the first trench line but were also developed in the depth between successive trench lines, which accorded great stability to the defense.

The characteristics of the army second defensive belt

The second defensive belt, which extended 540 kilometers, ran on average 10 to 15 kilometers from the forward edge of the main belt. Depending on the terrain, the distance between the belts in separate *front* sectors increased to 20 to 25 kilometers. On the main axes the second belt hardly differed from the main defensive belt with respect to the number of defensive works. Table 9 shows the number of defensive works in the first and the second defensive belt along the 6th Guards Army's front.

TABLE 9: THE 6TH GUARDS ARMY DEFENSES

Defensive Belt	*Rifle Trenches*	*AT Rifle Trenches*	*Machine-gun Trenches*	*Pillboxes*	*Trenches/ Communication Trenches*
Main	**1,478**	**1,344**	**1,920**	**327**	**290 km**
Second	**1,333**	**1,120**	**1,540**	**207**	**249 km**



Map 6: **The 81st Guards Rifle Division's defenses, 5 July 1943**

The army second defensive belt lagged considerably behind the main belt with respect to engineer-demolition obstacles. Thus 69,688 antitank mines were laid in 6th Guards Army's main belt but only 20,200 in the second belt, and there were 64,340 anti-personnel mines in the main belt and 9,097 in the second belt. By the beginning of the German offensive the same correlation in the quantity of engineer-demolition obstacles existed between the main and the second belt of other Voronezh and Central Front armies.

Table 10 shows the average density of defensive works per kilometer of frontage in the Central and Voronezh Fronts' army second defensive belt.

As a rule, the entire expanse of the second defensive belt was occupied by

TABLE 10: DEFENSIVE WORKS IN THE ARMY SECOND DEFENSIVE BELT (PER KM)

Fronts Belt	*Rifle Trenches*	*AT Rifle Trenches*	*Machine-gun Trenches*	*Artillery Trenches*	*Trenches/ Communication Trenches*
Central	**20**	**8.6**	**11**	**7**	**2.7 km**
Voronezh	**24**	**16**	**9**	**8.7**	**2.8 km**

forces. It was fully occupied by troops along the main axes, but only in the most dangerous sectors along the secondary ones. Thus only one antitank brigade and one tank brigade were deployed in 38th Army's second belt, covering the town of Sudzha. Economy of forces at the expense of secondary *front* sectors made it possible to create a sufficient density along main axes. An example of this was the 70th Army, in which the main and the second defensive belt were occupied by four rifle divisions each; thus the correlation was 1:1. There was a corresponding correlation of forces in the 6th Guards Army (4:3), the 13th Army (4:3), and in the 40th Army (3:2).

The characteristics of army rear defensive belts

Army rear defensive belts were usually located 20 to 25 kilometers from the forward edge of the main defensive belt. In separate *front* sectors the rear defensive belt was 35 to 45 kilometers in depth and located 10 to 23 kilometers from the second belt to take advantage of the terrain. In the majority of sectors it ran along natural lines - the Psel and Svapa Rivers and along other shallower rivers.

The army rear defensive belt, which was prepared throughout its entire extent, was occupied by troops along only operationally important axes. Thus in the 6th and the 7th Guards Army's defensive belt on the Voronezh Front's left flank it was occupied by the forces of five of the 69th Army's rifle divisions, and in the belt of the Central Front's 13th Army it was occupied by the forces of four rifle divisions.[1] In addition, the main part of the *front* reserves were deployed in this belt, including the Central Front's 13th Antitank [Destroyer] Brigade and the 16th and 19th Tank Corps and the Voronezh Front's 1st Tank Army.

The strongest army rear belt was developed in the Voronezh Front (the 6th Guards, 38th, and 40th Armies). Here, in addition to the main rear belt, an intermediate line and a series of cut-off positions were prepared 15 to 20 kilometers from the main rear belt, one of which was occupied by troops. The total length of army rear belts prepared for defense was 384 kilometers, of which 164 kilometers were along cut-off positions.

As shown by Table 11, in the Voronezh Front sector, the density of defensive works per kilometer of frontage in the army rear defensive belt was also considerably higher than in other sectors.

TABLE 11: DEFENSIVE WORKS IN THE ARMY REAR DEFENSIVE BELT (PER KM)

Fronts	*Rifle Trenches*	*AT Rifle Trenches*	*Machine-gun Trenches*	*Artillery Trenches*	*Mortar Trenches*	*Trenches/ Communication Trenches*
Central	**13**	**8**	**11**	**1.3**	**5.1**	**2.3 km**
Voronezh	**32**	**28**	**13**	**10**	**35**	**4.0 km**

The front lines

All told, three *front* lines were established in the territory of the Kursk bulge, which formed a belt 40-75 kilometers wide and around 300 kilometers long.

The first *front* line, whose right flank linked up with the center of the 13 th Army's army rear defensive belt in the Novo-Slobodka region and further on, was located 20-30 kilometers from the army rear belt (excluding the Central Front's central sector, where the distance of the first *front* line from the army rear belt was 60-65 kilometers). A significant part of the first *front* line was occupied by troops on the right flank (the Central Front) from Novo-Slobodka to Anakhin (northwest of Kursk) and on the left flank (the Voronezh Front) from Kondrovka to Skrynikovskii.

The second *front* defensive line, 310 kilometers long, consisted of three sectors: two of them joined the first *front* defensive line with the third forming, as it were, cut-off positions north and south of Kursk. The third and southern part of the line ran along the Seim and Oskol Rivers. With the exception of a small sector in the immediate vicinity of Kursk, this line was unoccupied.

The third *front* line, which ran along the Tim River, was not occupied by *front* forces. Besides these positions, three circular fortification lines were built in the rear area of the *fronts* around Kursk, Staryi Oskol, and Novyi Oskol. By the beginning of the German offensive, the main part of the defensive work on all lines had been completed or nearly so.

Thus, by the beginning of the enemy offensive, the Central and Voronezh Fronts' forces, defensive construction forces and assets, and the efforts of the local population had built six defensive lines and a series of cut-off positions. The presence of such a deep and articulated defense made it possible for the troops to make a stubborn defense and to conduct any maneuver for delivering counterstrokes.

A characteristic feature of the Kursk bulge defense was that troops occupied four defensive lines in advance, the main and the second defensive belt fully and the army rear belt and first *front* line along the assumed enemy main attack axes. Furthermore, on 16 May the Steppe Front's forces occupied a defensive line along the Kshen' River.

ORGANIZATION OF THE SYSTEM OF FIRES

The principle of massing all firing assets along the most important axes, extensive employment of maneuver by fire on the battlefield, and full exploitation of the firing capabilities of all types of weapon and, first and foremost, of infantry weapons provided the basis for the organization of the system of fires. On the whole, the problems associated with organizing this were resolved successfully. With respect to fire densities, the operation in the Kursk bulge exceeded by many times previous defensive operations in the Patriotic War.

The infantry system of fire

While organizing the system of fire, special attention was paid to the following problems:

- creation of a continuous fire zone in front of the forward edge of the defense to a depth of no less than 400 meters and with a density of up to 10 infantry weapons per one linear meter of frontage;
- deep echelonment of firing assets to ensure the necessary fire density to the entire defensive depth of armies on the most important axes;
- extensive maneuver by fire during combat to ensure a great concentration of fire in threatened regions and *front* sectors;
- extensive employment of flanking and oblique fire in front of the forward edge of the battle and in the depth of the defense;
- convenience of fire control by means of creating the necessary quantity of observation posts and organizing reliable communications;
- dense fire protection of junctions and flanks; and
- creation of a system of fire which would provide forces the ability to conduct an all-round defense.

On the basis of the Chief of the Red Army General Staffs directive dated 18 April 1943, the *front* headquarters issued special instructions to forces on the necessity of using all heavy infantry weapons (heavy machine guns, mortars, antitank guns, and field guns) to create stationary barrage fire in front of the forward edge of the main defensive belt.

Some armies set up close-range machine guns 100-150 meters behind the first trench lines. These machine guns had open but artificially camouflaged positions and operated according to the principle of hidden fire points [SOT]. They were in no way detected before the beginning of the enemy attack and, therefore, were not subjected to enemy artillery and aviation actions. Machine-gun companies were employed in earth and timber

emplacements and had several reserve open positions in the interests of creating fire in front of the forward edge, on the flanks, and along the most important axes into the defensive depth.

Light mortars were deployed in trenches, while heavy machine guns had specially equipped firing positions deployed in the gaps between the trenches. As a rule, antitank rifle companies were used in platoons or squads along dangerous tank axes. They were deployed direct in the first trench line or in specially equipped firing positions behind the trenches.

Table 12 shows the overall density of fire per kilometer of frontage in the main defensive belt along the most important axes into the Central and Voronezh Fronts.

TABLE 12: DENSITY OF FIRE IN THE FRONT'S MAIN DEFENSIVE BELT (PER KM)

Main Axis Army	*Rifles*	*Automatic Weapons*	*Heavy Machine-guns*	*Mortars*	*45mm AT Guns*
13 th	**331**	**78**	**8.4**	**20**	**3.4**
6th Guards	**261**	**136**	**7.6**	**9.4**	**2.3**

The system of fire in the second and subsequent defensive belts was structured according to the same principle, and the density of fire of the army second defensive belt was almost the same as that in the main defensive belt. Table 13 shows the comparative density of fire means [weapons] per kilometer of frontage in the three army defensive belts in one of the Voronezh Front sectors.

TABLE 13: DENSITY OF FIRE IN VORONEZH FRONT DEFENSIVE BELTS (PER KM)

Division	*Rifles*	*Automatic Weapons*	*Light Machine-guns*	*Heavy Machine-guns*	*Mortars*	*AT Guns*	*AT Rifles*
Main Defensive Belt							
52d Guards Rifle Division, 6th Guards Army	**280**	**168**	*25*	**9.8**	*9.2*	**2.8**	**16.7**
Army Second Belt							
90th Guards Rifle Division, 6th Guards Army	**205**	**124**	**18.3**	**7.2**	**8.3**	**2.0**	**13.9**
Army Rear Belt							
305th Rifle Division, 69th Army	**214**	**84**	**11**	**3**	**7**	**1.7**	**9.8**

The system of artillery fire

The principle of massing artillery and mortars along the main axes provided the basis for the organization of artillery fire. This was achieved by the appropriate distribution of assets among the armies and formations, and the employment of extensive maneuver by tractors and wheeled vehicles.

Having determined the probable axes of enemy operations, *front* and army commanders created along these powerful artillery groupings capable of withstanding the battering-ram blows of enemy tanks and infantry. Thus, for example, in the Central Front, the overall density of field and antitank guns per kilometer of frontage was 12.3 and on the most important axis (the 13th Army's front) this density was three to four times greater. In turn, the 13 th Army commander created a denser grouping of artillery weapons along dangerous tank axes. Thus on the Ponyri axis there were more than 86 guns and mortars per kilometer of frontage and on the Maloarkhangel'sk axis there were 68. The densest artillery grouping in the Voronezh Front was created in the 6th and 7th Guards Armies' defensive belts.

The employment of tanks

Tank regiments and brigades, which were attached to armies direct, were used to reinforce the second and, partially, the main defensive belt. Tank platoons and companies on dangerous tank axes were deployed in the troop combat formations direct. Great attention was paid to organizing tank ambushes. Together with the fire from main positions, tanks were also extensively employed as mobile firing points, which considerably increased the flexibility of the system of fire. In the 6th Guards Army some of the tanks, numbering from 10 to 15 vehicles, operated as part of antitank strong points [РТОЛ]. During defensive battles this principle for using tanks in the defense justified itself in the light of the enemy's use of T-VI tanks and self-propelled 'Ferdinand' guns.

Thus the system of fire was structured on the basis of close cooperation between all types of weapon and full use of the firepower of each of them, while artillery and mortar fire were the basic means which defined the strength of the defense. The specific weight of artillery weaponry in the defense of the Kursk bulge was higher than had ever been deployed before and equaled the density of a modern offensive operation. The method of the massed use of fire assets along decisive axes was instructive. Extensive use of infantry weapons ensured the creation of a continuous 400-meter fire zone in front of the forward edge of the main defensive belt along decisive axes with a density of up to 8—10 infantry weapons per linear meter of frontage.

TROOP COMBAT TRAINING

While exploiting the temporary lull in combat operations, together with the defensive work needed to fortify their positions, the Voronezh and Central Fronts' forces conducted intensive training. The principal training task was to teach infantry, artillery, tank, and engineer troops to fight against German tanks, mainly the T-VI, and against self-propelled 'Ferdinand' guns to overcome their fear of tanks and to instill into them an iron steadfastness in the defense.

The training of officer cadres and staffs

Combat training was conducted with staffs and officer cadres in accordance with the plan for organizing and conducting defensive combat. First and foremost, the Voronezh Front commander required practical work on:

- the organization of all types of fire in the defense;
- the organization of an antitank and antiaircraft defense;
- engineer preparation of positions;
- control of all types of fire;
- repulsion of tank attacks, the separation of infantry from tanks, and the latter's piecemeal destruction;
- maneuver by antitank artillery weaponry, guards mortar units, tanks, second echelons, and reserves to create a dense defense; and
- the organization and conducting of flank counterattacks and counterstrokes to encircle and destroy advancing enemy forces.

Without exception, during the preparatory period for the defense, all staffs were brought up to full officer strength. The working out of functional staff officers' responsibilities, the drafting of combat documents, and the inculcation of solid troop control skills provided the basis for the training of staffs and the instilling of cohesion in them. Within this training program, staff officers were trained in realistic conditions in accordance with defense plans and variants. During these sessions staff sections compiled combat orders, appropriate plans, and various graphic documents (i.e. weapons-firing schematics, march tables, artillery-firing tables, schedules, etc.). These documents were checked in force exercises and then confirmed by the command, and then served as the principal documents for conducting defensive combat. Each staff exercise was preceded by a cycle of lectures on such themes as 'Supporting force regrouping', 'Supporting the commitment of mobile reserves into battle in the defense', and 'Organizing the antitank defense'. Prominent generals and senior officers were tasked to deliver these lectures.

Study of firing procedures and artillery-rifle training simulation with subsequent verification of artillery firing readiness in combat firings were fundamental in artillery-officer cadre training. Special meetings were held with rifle-division artillery commanders and artillery-regiment commanders. Primary attention in artillery staff training was focused on problems in the organization of antitank defense, the organization of the system of fire, counter-artillery preparation, and fire control during combat.

A series of war games were conducted on the ground to train the commanders of combined arms formations and combat arms formations and their staffs.

In particular, on the eve of the German offensive, a war game on the theme of 'The army operation to liquidate an enemy penetration at the junction of two forward armies' was conducted on the ground in the 69th Army, in the Voronezh Front's second echelon.

In the 1st Tank Army's headquarters a session was held with corps and brigade commanders and their staffs in which two themes, 'The tank corps counterstroke in a *front* operation' and 'The commitment of a tank army's tank (mechanized) corps into a penetration' were extensively discussed. This session, and especially a talk by the Voronezh Front commander General of the Army Vatutin, considerably assisted the Tank Army staff and corps staffs to organize their work correctly and prepare for the forthcoming operations.

After working out problems associated with the organization of the defense, several of the senior officers from the operational sections of the *fronts'* staffs were dispatched to the troops, where they participated in training army and division staffs, attended staff exercises, took part in staff development of combat documents, and assisted in organizing in-place cooperation with artillery, tank formations, and aviation.

Apart from rendering practical assistance to the troops, the presence and active participation of *front* and army staff officers in the exercises of subordinate troops and staffs during the preparatory period for the defensive operation greatly affected troop control during the battle. The fact is that staff officers who were completely familiar with the disposition of their formations, their missions, and their march routes were able to reach these formations quickly under all conditions, bring them forward to jumping-off positions in accordance with the orders of *front* and army commanders, ensure the receipt and execution of the mission, and also quickly carry out any task involving the control of the execution of the combat order.

Twice-daily telegraph discussions between *front* and army headquarters were set up to accelerate the exchange of operational information between staffs during combat operations. U-2 aircraft and vehicles were allocated for this purpose which could be employed only in case of an interruption in wire communications.

During the preparation of the defense, the military-topographical sections of *front* (army) staffs produced relief maps on a scale of 1:50,000. These were used extensively when laying out new march routes, organizing reconnaissance, conducting war games and orientations, and in target acquisition.

Infantry training

While training infantry for the defense primary attention was focused on overcoming the soldiers' fear of tanks and on the ability to control antitank rifles, grenades, and Molotov cocktails to perfection and boldly enter battle against enemy infantry following behind the tanks, isolate them from the tanks, and destroy them.

Infantry training was conducted on fields specially designed for this purpose. The fields were located 6-7 kilometers from the forward edge of the defense; full profile trenches, ditches, and communications trenches were dug on them; and wire obstacles were emplaced. Firing ranges were set up on several of the training fields. On a daily basis first-echelon units were moved by companies to a training field in the rear, where the exercises were conducted. Second-echelon forces trained in their regions every other day (one day on defensive work and the next on tactical and firing exercises).

Themes such as 'repelling an enemy tank attack', 'destroying enemy infantry which has penetrated the forward edge of the defense', 'battalion withdrawal and occupation of an intermediate defensive position and cut-off position', 'counterattacks against infantry following behind tanks', and 'combat in encirclement' were worked out during the process of building cohesion in companies and battalions.

Artillery training

Special training ranges were established in armies to train artillerymen to fire against tanks. These had mock-up tanks, which moved and appeared for a short time in various places on the range. In turn, gun batteries were brought to the range, where direct combat firing against tanks was conducted. During each type of firing, batteries changed positions once or twice. Special attention was focused on studying the tactical-technical data on T-VI tanks, their vulnerabilities, and the methods for fighting them. Special exercises were conducted on repelling tank and submachine-gunner assaults with artillery.

The combat training of artillery units was conducted under continuous control by *front* and army artillery staffs. Such control paid special attention to the ability to call up and open artillery fire quickly, the mastery of signals for summoning fire, the learning of artillery missions and signals for summoning fire on the part of combined-arms commanders, and the precise

fire cooperation of guns in antitank regions. Special commissions created by army artillery commanders verified the artillery combat training.

An important measure was the training of the artillery of both *fronts* for the impending counterpreparation. The counterpreparation plans were compiled in advance, in some armies two months before the beginning of the defensive battle (Voronezh Front), and were subsequently systematically refined. The counterpreparation plan was held in strict secrecy during artillery combat training. Officers and soldiers were systematically trained in conducting fire against mock-ups, but no one knew the actual designation of this fire. In May Red Army Main Artillery Directorate representatives carefully inspected the equipment in all artillery units. A significant number of the guns which required factory repair were replaced by serviceable ones.

Tank force training

While training tank forces special attention was paid to bringing subunits, units, and tank formations up to strength and on employing them in the defense in accordance with the planning variants. Tank formation and unit commands and their staffs carefully conducted personal commanders' reconnaissance of all march routes and deployment lines for their units and formations well before the beginning of the offensive. Special teams marked these march routes clearly by using indicators for daytime and night tank movement. Engineer units quickly set about repairing roads and bridges and laying column routes.

Tank force staffs compiled march route maps on the basis of data from the commanders' reconnaissance. Additionally all minefields laid by our forces and radio signal tables were clearly indicated on the maps. For each defensive variant a combat order was drawn up in advance, all calculations were made, and the order and sequence of tank unit actions were established.

All defensive variants were worked out with officers in war games. Force games were conducted in the field under real conditions. Usually units and formations were alerted at night by an alarm and advanced by forced march to the region indicated by the plan. While occupying the region for defense or using it as a staging area for a counterstroke, tank crews quickly set up their positions, dug tank ditches, built shelters for ammunition, camouflaged their positions, and checked and established the march routes along which the counterstroke was intended. As a result of these exercises, all tank positions and approach march routes to them were completely prepared for defense, and all commanders and soldiers knew their place in the combat and march formation and their defensive missions.

During the final days of June, the 1st Tank Army's Military Council and headquarters conducted corps-controlled command and staff exercises for

the corps staffs, while enlisting brigade staffs and, in part, battalion staffs too. Exercises conducted with officer cadres and troops made it possible for staffs to verify all calculated data compiled by them in accordance with the defensive variants, refine the plan for employing their forces, and check control signals. Tank force officers participated in all commanders' personal reconnaissance conducted by combined-arms commanders, organized defensive firing systems jointly with them, planned counterattack march routes, and participated in exercises with rifle units.

Engineer force training

When training engineer forces principal attention was paid to the training of newly-arrived units. Newly-formed mobile obstacle detachments and sapper [combat engineer] subunits allocated to accompany tanks trained most carefully. These detachments practiced laying mine obstacles jointly with tanks on paths of tank movement in fields specially set aside for training. When training engineer forces great attention was paid to close links between minefields and artillery fire and tank actions, for which *front* engineer force staffs compiled a detailed map indicating the boundaries of our minefields. Subsequently this measure facilitated the protection of minefields against fire from our own artillery.

Chemical training

All measures were taken so as to provide the forces fully and quickly with gas masks and anti-chemical packets and cloaks. In June regimental and divisional chemical subunits prepared areas for degassing weapons and uniforms. Medical units prepared degassing and decontamination points. Chemical observation posts were set up in the regions of command and battalion observation posts and near regimental and divisional commanders' command posts. The chemical alarm signal was duplicated by radio and telegraph. Regular sessions on chemical protection were conducted with soldiers and officers of all combat arms. In addition, troops trained daily in dealing with gas masks, staying in them for up to eight hours. A considerable number of soldiers were put through chemical fumigation.

CONCLUSIONS

1. As a result of three months of preparation in the defensive sectors of both *fronts*, six defensive belts were set up, including three army and three *front* belts. The depth of the army defense was up to 40 kilometers. The total depth of the belt prepared for the defense of the Kursk bulge reached 130-150 kilometers. The presence of such defensive depth permitted forces

to execute extensive maneuver in any direction, and everywhere terrain was prepared for a stubborn defense and for delivering counterstrokes.

2. While considering the probable impending enemy attack axes, the Central and the Voronezh Front command devoted particular attention to the creation of a strong defense along the Orel-Kursk and Belgorod-Kursk axes. Here, first and foremost, fortified works were erected, antitank and anti-personnel obstacles were constructed, and intermediate and cut-off positions were created. Main reserves were concentrated and forces occupied the first three or four defensive lines along these axes.

3. During the engineer preparation of the terrain for the defense special attention was devoted to developing a trench system, which played a significant role during the defensive combat. Trenches not only protected the maneuver of personnel and fire on the battlefield and prevented some personnel losses from enemy fire but also served as a substantive part of strong points in the total infantry and antitank defense scheme. Great attention in engineer preparation of the defense was also devoted to creating antitank and anti-personnel obstacles, combining them with the overall system of fire, and creating a large number of reserve firing positions for all types of weapon.

4. The antitank defense was structured according to the principle of combining artillery and infantry fire with engineer obstacles, and creating powerful mobile antitank reserves from artillery and engineer assets. For the first time a considerable number of antitank strong points were built in both *fronts'* sectors and they included not only artillery but also infantry and sappers. Antitank strong points and the presence of powerful mobile antitank reserves for *front* and army commanders defined the stability of the antitank defense.

5. The fundamental principle in building the system of fire was the massed employment of all firepower along decisive axes; this achieved considerable success. The fire density of artillery and mortar weapons along probable enemy attack axes exceeded that in secondary sectors by three to eight times and often approached a density which was typical of an offensive operation.

6. Staffs, units, and formations of all Central and Voronezh Front combat arms were intensively involved in combat training during the preparation of the defensive lines. Staff and force exercises were conducted under real conditions which approximated to all impending defensive combat. Such purposefulness of staff and force training merits attention as one of the most effective methods of achieving troop steadfastness in the defense and improving the quality of troop control during defensive combat.

NOTE

1. One 13th Army rifle division was located in the first *front* line.

3

Brief Characteristics of German Operations in the July Operation

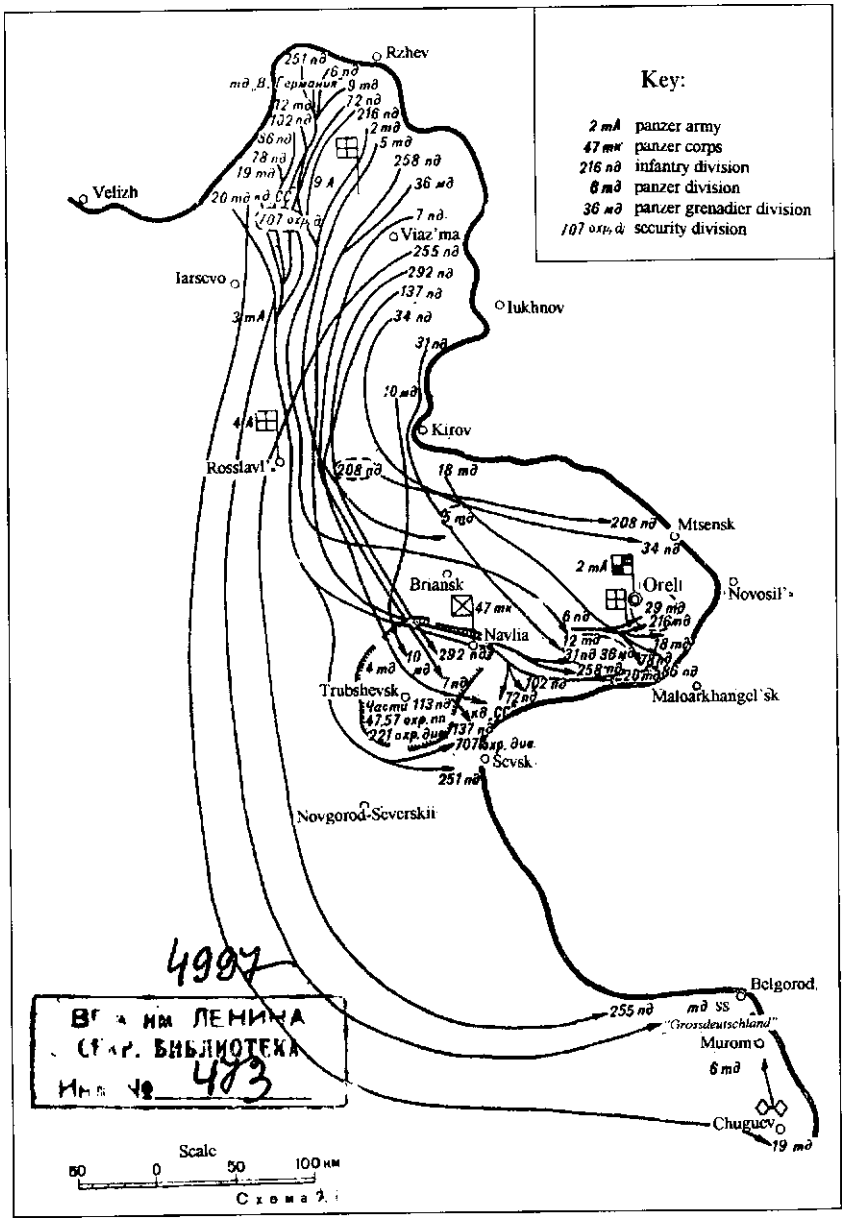
REGROUPINGS AND THE CREATION OF RESERVES

As a result of the brilliant victories the Red Army achieved in the winter of 1942-43, the strategic situation on the fronts of the Patriotic War changed radically. One hundred and two enemy divisions were utterly defeated during our offensive, and, as a result, the correlation of forces sharply changed in the Red Army's favor. The initiative finally shifted into the hands of the Soviet command.

Immediately following the defeat of the Stalingrad grouping it became evident to the German command that the Don Front forces thus freed would be used immediately in one of the active front sectors.

The absence of sufficient forces and weaponry to replenish the enormous losses suffered in the winter battles of 1942 and 1943 forced the German command to undertake a series of urgent measures on the creation of strategic and operational reserves. The enemy solved this problem by transferring a number of divisions from western Europe and by reducing the front line in several sectors. By withdrawing his forces from the Demiansk bridgehead, the enemy reduced his front in this sector by 240-250 kilometers and moved 7-8 divisions into the reserve. As a result of the troop withdrawal from the Rzhev bridgehead, the Germans successfully reduced the front by 300 kilometers and moved 20-22 divisions into the reserve. Thus, as a result of this regrouping and the completion of the withdrawal, the German command replenished its strategic reserves with 27-30 divisions (see Map 7).

Our forces' successful offensive along the Kursk axis in February and March 1943 forced the German command to transfer from the Rzhev bridgehead to the Orel region a considerable quantity of forces from Third Panzer Army and Ninth Army. Among the transferred divisions were two



Map 7: **The regrouping of enemy forces during the preparatory period for the Kursk operation**

panzer divisions (the 12th and 20th), eight infantry divisions (the 216th, 137th, 78th, 34th, 102d, 86th, 258th, and 251st), one security division (the 707th), and one SS cavalry division. Subsequently the 18th Panzer Division was also transferred there from the Briansk axis. The transfer of 30 divisions made it possible for the enemy to counterbalance the forces somewhat and to stabilize the front.

During this period the Germans moved forward the 19th Panzer Division, the *Grossdeutschland* SS Panzer Division, and the 255th Infantry Division, which had been transferred from other sectors, against the Southwestern and Voronezh Fronts' forces.[1]

Because the enemy force regroupings were provoked by our forces' operations, they bore a disorganized character. Enemy divisions were removed unit by unit from secondary front sectors, and, after they reached their new designated location, they were subordinated to the corps headquarters operating there.

Enemy formations which formerly were operating in the Rzhev bridgehead became part of Ninth Army and Third Panzer Army. With their arrival in the Orel region and further to the west, the German command began to prepare earnestly for a new offensive operation. To this end the Ninth Army headquarters and several army and panzer corps headquarters were moved back into the reserve. The withdrawn corps headquarters were subordinated to the Ninth Army commander.

As a result of these measures Ninth Army consisted of the XXIII Army Corps (commanded by Lieutenant-General Freissner), the XXXXI Panzer Corps (commanded by Lieutenant-General Harpe), the XXXXVI Panzer Corps (commanded by General of Infantry Zorn), and the XX Army Corps (commanded by General of Artillery von Roman). The XXXXVII Panzer Corps, which had been transferred from Second Panzer Army to fight against partisans in the Briansk forests, joined Ninth Army somewhat later. During the early days of April, Ninth Army headquarters, under the command of army commander Colonel-General Model, arrived in the Orel region. By this time Ninth Army's corps headquarters and these corps' formations had begun to arrive.

Reserves were created along the Belgorod axis by means of local regroupings and troop and tank reinforcements from enemy forces operating in the region. During this period the *Adolf Hitler* SS Panzer Division and the *Grossdeutschland* SS Panzer Grenadier Division were withdrawn into the reserve, and the 6th Panzer Division was transferred from the Chuguev region to the Murom region (northwest of Khar'kov).

Beginning on 15 March, the enemy undertook the urgent transfer of forces (mainly reinforcements), as well as of tanks and fuel from the rear to the front line. According to information received through partisan and other sources, during March, April, and the first half of May, the Germans trans-

ferred up to 170,000 men, 2,100 tanks, 2,000 guns, 16,000 motor vehicles, and up to 1,500 fuel transporters to the front lines opposite the Briansk, Central, and Voronezh Fronts. During this period enemy panzer divisions were replenished with equipment and numbered no fewer than 150-160 tanks each, and in some divisions with up to 180 tanks each. The strength of infantry divisions was brought up to 9,000-11,000 men, and individual divisions, for example, the 78th Assault Division, had up to 12,000 men before the beginning of the offensive.

THE GERMAN COMMAND'S PLAN

March 1943 marks the beginning of the enemy's preparation for the great summer offensive. According to the German-Fascist High Command's plan, the principal strategic mission for summer 1943 included the destruction of the Red Army's largest force grouping, which was deployed in the Kursk region, with a subsequent attack against Moscow. The enemy's Orel and Belgorod groupings, deployed in the regions of the northern and the southern base of the Kursk bulge, which had been formed as a result of our forces' successful winter offensive, were designated for this purpose.

By accomplishing this principal strategic mission, the German command counted on raising the Army's prestige, strengthening the bloc of Axis powers, and re-establishing the undermined authority of Hitler's leadership in Germany and that of Quisling governments in the occupied European countries.

While preparing for the offensive, the German command worked out an operational plan under the provisional name of 'Citadel'. This plan envisioned the delivery of powerful, concentric blows from the Orel and Belgorod regions in the general direction of Kursk to cut off Red Army forces located in the Kursk bulge and, then, while covered from the east by infantry formations, to liquidate them along the line of the Oskol River and further north, thereby removing the danger of impending blows from the Red Army against its forces from the direction of the Kursk bridgehead.

Subsequently, after regrouping and bringing up fresh reserves, the German command intended to develop the offensive to the northeast to envelop Moscow from the south and the southeast. It also planned to deliver a secondary attack west of Moscow simultaneously with the offensive of the main grouping.

The offensive plan of the Orel grouping (see Map 3)

The mission of the German Ninth Army's XXXXI and XXXXVI[2] Panzer Corps was to penetrate our forces' defense along the Verkhniaia Gnilusha

and Trosna front and reach the Samodurovka and Ponyri Station line (10-12 kilometers) on the first day of the operation. The commitment of the XXXXVII Panzer Corps into the penetration, with the mission of reaching the region east of Kursk on the fifth day of the operation, was planned from this line. The Ninth Army's XX and XXIII Army Corps were assigned the mission of protecting the shock group's flanks by active operations.

In the region southeast of Kursk, Ninth Army's forces, having advanced from the north, were to link up with the forces of Fourth Panzer Army, which were attacking from the south.

The enemy concentrated 8 infantry divisions (the 216th, 78th, 86th, 292d, 6th, 7th, 31st, and 258th), 2 panzer grenadier divisions (the 36th and 10th), 6 panzer divisions (the 2d, 4th, 9th, 12th, 18th, and 20th), up to 8 assault-gun battalions, up to 10 reinforcing artillery regiments, and up to 4 heavy mortar regiments for the forthcoming offensive.

The enemy shock group had the following formation to penetrate our defense: 6 infantry divisions, 2 panzer divisions, and 1 panzer grenadier division reinforced with assault-gun battalions were deployed in the first line; and 2 infantry divisions (the 292d and 31st), 1 panzer grenadier division (the 10th), and 4 panzer divisions (the 2d, 4th, 9th, and 12th) were located in the second echelon for exploitation of the penetration.

Each enemy division along the main axis attacked on a front of 4—5 kilometers. At the beginning of the penetration, panzer divisions had the same front but subsequently, when operating in the depth of the defense, their offensive front narrowed to 2 kilometers, which was explained by the great losses the divisions would have suffered during the first days of combat and by German desires to concentrate the maximum effort in a narrow front sector to exploit the penetration.

During the penetration infantry and panzer divisions were structured in two echelons. The second consisted of strong reserves, which in some divisions amounted to a regiment. These reserves were employed not only to intensify the attack from the rear and to pre-empt unforeseen circumstances but also to replace first echelon regiments after two or three days of battle.

Heavy assault guns were employed *en masse.* A penetration group was created in the sector under the command of Major Kahl. This consisted of the 653d Heavy Panzer Battalion of the Reserve of the High Command made up of T-VI 'Tiger' tanks, the 654th Heavy Antitank Battalion of the Reserve of the High Command which was armed with self-propelled 'Ferdinand' guns, a 105mm assault-gun battalion of the Reserve of the High Command (the battalion's number was not established), and the 216th Heavy 150mm Assault-Gun Battalion of the Reserve of the High Command. Group 'Kahl' (up to 200 assault guns) had the mission of absorbing the blow from our artillery, while moving forward in front of the tanks and infantry,

and to destroy earth and timber emplacements and antitank guns by direct fire, thereby protecting the tank and infantry advance. The group was to reach the Ponyri Station region on the first day of the offensive.

The offensive plan of the Belgorod grouping (see Map 3)

Fourth Panzer Army delivered its main attack from the region southeast of Tomarovka with units of both the SS Panzer Corps and XXXXVIII Panzer Corps. The Fourth Panzer Army's shock group was to penetrate the defense and develop the offensive along the highway and railroad in the general direction of Oboian' and Kursk, with the mission of reaching the Kursk region on the fifth or sixth day and linking up with Ninth Army, which was advancing from the north. The German command assumed that our reserves located in the Kursk region would be destroyed within two or three days. The capture of Kursk was planned for the tenth day of the operation.

The III Panzer Corps was to deliver a secondary attack from the Belgorod region and further south. This corps had the mission to develop the offensive along the eastern bank of the Northern Donets River and the Razumnaia River to the north and to protect the flank of Fourth Panzer Army's shock group. Infantry divisions consolidating the success of the tank formations were to protect the left flank. At the same time it was planned that, as the offensive developed, infantry units would turn their front to the west against our forces which were attempting to break out of the encirclement. Protected from the flanks, the Fourth Panzer Army's main forces were to exploit success swiftly in the direction of Kursk.

By the beginning of the offensive, the enemy had five infantry divisions (the 332d, 167th, 168th, 106th, and 320th) and the *Death's Head* SS Panzer Division in the first echelon on the main axis along the front from Soldatskoe to Volchansk. Seven panzer divisions (the *Grossdeutschland, Das Reich, Adolf Hitler*, 6th, 7th, 11th, and 19th) were designated to intensify the attack from the depth. In addition, the 3d Panzer Division was subsequently committed to battle.

Second Army, under the command of General of Infantry Weiss and consisting of the XIII Army Corps (the 82d, 340th, 327th, and 88th Infantry Divisions and a composite regiment of the 377th Infantry Division) and the VII Army Corps (the 75th, 323d, 26th, and 68th Infantry Divisions), was defending along the Lipnitsa, Sumy, and Krasnopol'e front. Subsequently, the XX Army Corps, withdrawn from Ninth Army subordination, was included in its composition. The Army's reserves consisted of the 88th and 323d Infantry Divisions, which were subsequently moved to the front line. The German Second Army, operating at the junction of the Central and Southern Army Groups, served as a connecting link between them and had no active missions.

It should be pointed out that, while preparing for the summer 1943 offensive, the German command took into account the Red Army's increasing might and the depth of our defense along the main attack axis. Therefore it devoted great attention to the maximum saturation of its forces with penetration weaponry (tanks, self-propelled guns, heavy artillery, heavy mortars, and aviation). According to the German command's plan, tanks, supported by powerful aviation, were to be the main penetration means. A considerable quantity of the tanks were T-VI heavy tanks and 'Ferdinand' guns.

On the whole, procedures for employing infantry did not differ from tactical procedures employed by the Germans in earlier offensive operations. Infantry was to attack along the main axis accompanied by a large number of tanks and self-propelled guns; usually an infantry battalion was supported by 20-30 tanks and self-propelled guns. Along a secondary axis an infantry battalion had five or six tanks in support and, in some cases, only self-propelled guns. Extensive employment of tank assaults was planned for operations in the defensive depth. As a rule, T-VI tanks were to have automatic weapons groups accompanying them.

The enemy grouping before the offensive (Orel bridgehead)

The Second Panzer Army, under the command of Colonel-General Schmidt, and Ninth Army, under the command of Colonel-General Model, were operating in front of the Western Front's left flank and in front of the Briansk and the Central Front. The Second Panzer Army occupied a defensive position along the Kirov-Zmievka front (see Map 1). It included:

- the LV Army Corps (the 321st, 339th, 110th, 296th, and 134th Infantry Divisions);
- the LIII Army Corps (the 211th and 293d Infantry Divisions, the 25th Panzer Grenadier Division, and the 208th and 112th Infantry Divisions); and
- the XXXV Army Corps (the 34th, 56th, 262d, and 299th Infantry Divisions).

The 5th Panzer Division, deployed in the Zhizdra region, was located in the army commander's reserve. This division had the mission of protecting the Second Panzer Army's left flank.

The Ninth Army operated along the Zmievka-Sevsk front (see Map 3). It consisted of:

- the XXIII Army Corps (the 383d Infantry Division, the 36th Panzer Grenadier Division, and the 216th Infantry Division);

- the XXXXI Panzer Corps (the 78th, 86th, and 6th Infantry Divisions, and the 18th Panzer Division). In addition, the 292d Infantry Division, which had arrived by the beginning of the operation, was in corps' reserve;
- the XXXXVI Panzer Corps (the 7th, 258th, and 102d Infantry Divisions, and the 20th Panzer Division), and Group Manteufel - the 9th, 10th, and 11th Jaeger [light infantry] Battalions. The 31st Infantry Division, which had arrived on the eve of the operation, and up to six separate jaeger battalions were corps' reserve;
- the XXXXVII Panzer Corps (the 2d, 4th, and 9th Panzer Divisions). The corps reserve consisted of the 12th Panzer and 10th Panzer Grenadier Divisions, which were at the same time in the army reserve; and
- the XX Army Corps (the 72d, 45th, 137th, and 251st Infantry Divisions).

Besides these listed forces, in case of extreme necessity the German command could use as a reserve a number of divisions which were operating against partisans in the following regions: Zhukovka - the 707th Security Division, south of Trubchevsk - the 221st Security Division, Unecha - the 213th Security Division, and Gomel' and Novo-Belitsa - the 203d Security Division and the 1st SS Cavalry Division.

The VIII Hungarian Corps, consisting of the 102d, 105th, and 108th Light Infantry Divisions, secured the Ninth Army's lines of communication and rear areas.

The average operational density on the Ninth Army's front was 7 kilometers per division, and 2.5-3 kilometers per division on the penetration front.

In all, the German Ninth Army had around 1,450 tanks and assault guns for the offensive. Of this number, there were around 900 tanks and assault guns in the panzer divisions and up to 250 tanks and assault guns in the infantry divisions. In addition, in the separate battalions of the Reserve of the Supreme High Command attached to the Army, there were around 160 'Ferdinand' assault guns and up to 150 'Tiger' tanks. The presence of these weapons created an average density of around 5 tanks and assault guns per kilometer of frontage and of up to 40-50 tanks and assault guns per kilometer of frontage in the penetration sector.

The Belgorod grouping (see Map 3)

The Fourth Panzer Army, under the command of Colonel-General Hoth, was operating along the main axis against the Voronezh Front from Krasnopol'e, through Belgorod, and further south to Volchansk. The Army consisted of:

- the LII Army Corps (the 57th, 255th, 332d, and 167th Infantry Divisions);
- the XI Army Corps (the 168th, 106th, and 320th Infantry Divisions);
- the SS Panzer Corps (the *Adolf Hitler, Das Reich, Death's Head*, and *Grossdeutschland* panzer divisions);
- the XXXXVIII Panzer Corps (the 11th Panzer Division and the 3d Panzer Division, which arrived somewhat later, and one panzer regiment from the 17th Panzer Division); and
- the III Panzer Corps (the 6th, 7th, and 19th Panzer Divisions).

The *Grossdeutschland* SS Panzer Division and the 7th Panzer Division in the Khar'kov region, the *Das Reich* SS Panzer Division in the Borisovka region, the *Adolf Hitler* SS Panzer Division and the 6th Panzer Division in the Veselaia Lopan' and, Mikoianovka region, the 11th Panzer Division in the Kolomak region, and the 19th Panzer Division in the region southwest of Belgorod were located in the Army commander's reserve.

Thus the III and XXXXVIII Panzer Corps and the SS Panzer Corps' main forces were in reserve and were committed to battle during the offensive. The presence of other enemy reserves in front of the Voronezh Front was not noted. Subsequently, having exhausted his available reserves, the enemy transferred several formations from the First Panzer Army, which were in reserve in front of the Southwestern Front.

The average density on the Fourth Panzer Army's front was 10-11 kilometers per division and 4-4.5 kilometers per division in the penetration sector. Subsequently, with regard to the transfer of an additional three divisions from the Southwestern Front to the penetration region, the density in the penetration sector increased to 3-3.5 kilometers per division.

In all, there were around 1,700 tanks and assault guns of several calibers on the Fourth Panzer Army's front. Of these, up to 1,300 light and medium tanks were in the panzer divisions. There were several panzer battalions of the Reserve of the Supreme High Command on the enemy's main attack axis, numbering up to 100 'Tiger' tanks and 50 'Ferdinand' assault guns. The average density on the Army front was around 8 tanks and assault guns per kilometer of frontage. This density increased to 40-50 pieces in the main attack sector.

The enemy enlisted aviation - more than 2,000 aircraft - to participate in the offensive against Kursk. Of these 865 operated along the Orel-Kursk axis and 950 along the Belgorod-Oboian' axis. In addition, during the operation more than 200 aircraft operated from airfield centers in Smolensk, Stalino, Zaporozh'e, and Kirovograd.

ENEMY PREPARATION FOR THE OFFENSIVE

There is much information, received from various sources, about the German command's intentions and the dates of the prepared offensive operation.

Thus at the beginning of May partisans reported: 'The Germans are concentrating forces and preparing a large-scale offensive against Kursk and further against Moscow. The beginning of the offensive is 20 May.'

Prisoners from the 8th and 13th Jaeger Battalions and the 78th Bicycle Squadron, who were captured on 7 May in the Khitrovo region in the German 78th Infantry Division's defensive sector, claimed:

> Jaeger battalions, a cycle squadron, and a training battalion are operating in the first line, and the division's infantry regiments (the 14th, 195th, and 215th) are in reserve and are preparing for an offensive, which is planned soon.

A captured non-commissioned officer-pilot, taken prisoner on 10 May, claimed, 'There are rumors among pilots that the German command is preparing a large-scale offensive, and it is assumed that it will begin at the end of May.'

A captured officer-pilot from the 1st Dive Bomber Squadron's 2d Group claimed:

> It must be noted that, for the last ten days, neither squadron group performed combat sorties, personnel rested, and equipment was repaired. This was associated with the fact that, in a talk with pilots on 12 May, Group Commander Major Ernst announced that the squadron would soon be carrying out a crucial mission connected with the forthcoming German offensive from the Orel region. The commencement of the offensive was planned for 15 May. Therefore, as of 12 May, combat sorties were halted.

With respect to the German command's intentions, the pilot claimed:

> There were persistent rumors among the officers that the purpose of the summer 1943 offensive was to encircle and capture Moscow. For this purpose German forces in the Orel region would shift to the offensive to encircle the Soviet Kursk grouping and, then, continuing to develop the offensive, would cut Moscow off from the main industrial regions. The Orel grouping's offensive would be coordinated with an offensive by the Belgorod grouping and supported by actions of forces located west of Moscow.

On 14 May a concentration of up to 900 tanks and 1,500 motor vehicles was detected by air reconnaissance, which was photographing the Pozdeevo,

Kromy, and Zmievka regions. In subsequent days the presence of panzer and panzer grenadier units in this region was confirmed several times by air reconnaissance.

Enemy pilots who were shot down by our aviation and antiaircraft artillery in the Kursk *region on 20* May indicated that during the first half of May they had observed several times intensive movement of railroad trains with tanks and motor vehicles from Briansk to Orel and continuous movement of motor vehicles from Orel to Kromy. Troops choked Orel and populated points to the south.

A captured pilot from the 2d Detachment of the 4th Reconnaissance Group pointed out that, 'The principal concentration of German forces in the region south of Orel was completed during the first half of May.'

Analysis of intelligence information made it possible to conclude that the German command was preparing an offensive by its Orel and Belgorod groupings. Obviously it was originally planned to begin the operation in the second half of May. According to available information, the enemy's Orel grouping was ready for an offensive operation in May, since the concentration of its shock group had already been essentially completed by the 15th. The delay was caused by the enemy's Belgorod grouping in which the creation of a shock group was only planned, while the SS Panzer Corps divisions, which had suffered heavy losses in previous battles, were still not fully manned with tanks and personnel.

Changes in the dates for the offensive

According to information received later, it was determined that the German command continued to prepare intensely for the offensive operation, whose dates had already been changed. To illustrate we cite the following from prisoners.

A soldier from the 216th Infantry Regiment (of the 86th Infantry Division), who had deserted to our side on 25 May in the Arkhangel'skoe region, stated:

> From conversations among officers, I found out that on 15 May an offensive was being prepared in the Verkhnee Tagino sector and further east, in the general direction of Kursk; however, it was subsequently postponed.

A lance-corporal of the same regiment, who had deserted to our side on 26 May, stated:

> Two or three weeks ago active preparation for an offensive was under way in the regiment, training for offensive actions with attached assault guns and flame throwers was organized in the division, but later all talk about an offensive ceased.

Captured soldiers from the 20th Panzer Division's 112th Panzer Grenadier Regiment, who were apprehended on 12 June, stated:

> In May a large-scale German offensive was being prepared. The 20th, 18th, and 12th Panzer Divisions were concentrated in the Orel-Kromy region. They began to prepare for an offensive on 18 April. For two weeks the 20th Panzer Division underwent intensive training, working out the penetration of the Russian defense in the field and on terrain similar to the area of future battles. Officers explained that, according to the command's plan, infantry was to capture the forward edge to a depth of 5—6 kilometers, after which panzer units were to enter the penetration. After working out the missions, the 112th Panzer Grenadier Regiment was brought up to the first line and prepared for the offensive. From 20 to 30 May, 20th Panzer Division conducted battalion exercises in the Gnilusha region, at which Colonel-General Model, division commander Major General Kassel, and a number of officers were present. The theme of the exercises was the offensive against an enemy defense.

These prisoners claimed that the German offensive was called off on 20 May.

All information received by this date made it possible to conclude that the dates for the operation were postponed and that the enemy were continuing to prepare for the offensive carefully. The Ninth Army commander decided to exploit the fact that the operation had been postponed to clear his rear area of partisans, who were operating in the Briansk forests. To this end, the XXXXVII Panzer Corps, consisting of the 4th Panzer and 10th Panzer Grenadier Divisions, the 7th and 292d Infantry Divisions, the 221st Security Division, units of the 113th Infantry Division, the separate 47th and 57th Security Regiments brought up from the Second Panzer Army, and the Hungarian VIII Army Corps, were thrown one after another against the partisans. Thus up to 9 or 10 divisions were thrown against the partisans, that is, essentially an entire army group. Despite their heroic struggle, the partisans, under pressure from a numerically superior enemy, were forced to withdraw from the Navlia, Suzemka, and Seredina Buda region in the direction of Trubchevsk.

In June the German command halted operations against the partisans and began to transfer the XXXXVII Panzer Corps to the Kromy region, while designating it for operations in its shock group's second echelon. By the end of June preparation for the Belgorod grouping's operation had also been completed. The SS Panzer Corps, replenished with tanks and assault guns, as well as units of the XXXXVIII and III Panzer Corps, was concentrating in the Belgorod region. All of these corps were combined into an army shock group under the command of Colonel-General Hoth. The increase in the

density of combat formations in the front sector south of Kromy and west of Belgorod by means of the commitment of panzer and infantry divisions into the first line attested to the imminence of the German offensive.

During the preparation of defensive positions our intelligence successfully captured enemy documents and prisoners. According to these documents and prisoners' statements, it was determined that the enemy had intensified considerably his forces' chemical training. The enemy explained such training by suggesting that a chemical attack would ensue from our forces. This was not only implied to soldiers in conversations, but it was also emphasized in special orders. Thus an order dated 29 May to one of the 320th Infantry Division's infantry regiments stated:

> Recently information has become available on the intention of Soviet forces to use stable toxic substances. By using toxic substances the enemy is attempting to destroy our equipment and personnel and our sacred race.

Further on in this order instructions were given not only concerning chemical protection but also concerning the use of smoke canisters, smoke grenades, chemical mortars, and other devices.

Hitler's order concerning the offensive

During the first days of July the enemy's Orel and Belgorod groupings were fully prepared for the offensive. German forces awaited the order.

On 4 July 1943, the eve of the offensive, Hitler's order was announced to German forces. From its contents it was obvious what significance the high command attached to the summer campaign and, in particular, to the Kursk operation.

With the mendacity and boasting peculiar to Hitler and his cohorts, the order stated:

> Soldiers! Today you begin a great offensive whose outcome can have decisive significance for the war. Your victory must even more than before reinforce throughout the world the fact that, in the final analysis, it is useless to render any resistance whatsoever against the German Army . . . Until now it was Russian tanks, first and foremost, which helped them to achieve some success. The colossal attack, which this morning will strike the Soviet armies, must shatter them to their very foundation. And you must know that everything depends on the success of this engagement...

The German command required that their officers announce this order to all subunits. After the troops were informed, the order was to be destroyed.

GENERAL COURSE OF THE GERMAN OFFENSIVE[3]

The Orel-Kursk offensive (see Map 3)

After conducting a strong air strike and artillery preparation the enemy launched the offensive on the morning of 5 July. On the first day the Germans committed up to 500 tanks and assault guns into combat. At the cost of enormous losses (up to 50 percent of participating tanks) they succeeded in penetrating 6—8 kilometers into our defense. Having failed to achieve success, the enemy was forced to commit the XXXXVII Panzer Corps' units prematurely into the gap between the XXXXI and the XXXXVI Panzer Corps on 6 July. The total number of committed tanks and assault guns reached 500-550. Having lost around 250 tanks and assault rifles and up to 40 percent of his personnel, the enemy was able to advance only 2-3 kilometers on this day of battle. Attacks by the left-flank XXIII Army Corps to widen the penetration were unsuccessful.

Having committed the corps reserves (with the exception of the 12th Panzer and 10th Panzer Grenadier Divisions) after a strong artillery and aviation preparation, the enemy attempted to exploit success to the south on 7 July. The total number of tanks and assault guns committed by the Germans reached 550—600, but they were able to advance only in separate sectors and here only to a depth of 1.5-2 kilometers.

On 8 July the enemy attempted to exploit success in a 10—12 kilometer-wide sector, primarily along the Samodurovka and Teploe axis. A group of up to 200 tanks and assault guns successfully penetrated to the eastern outskirts of Samodurovka and reached the approaches to Ponyri 2.[4] The enemy advanced up to 5 kilometers in this narrow sector. However, in other penetration sectors all attacks were repelled, with heavy losses for him.

After four days of combat it became evident to the German command that the offensive on the Orel—Kursk axis had failed. However, the tactical success which the enemy's Belgorod grouping had gained by this time compelled the Germans to continue the attacks in the hope that our command would transfer troop units deployed north of Kursk to the region north of Belgorod, thereby making it easier for the Orel grouping to accomplish its missions. However, the German command's hopes turned out to be in vain, as our grouping did not weaken along the Orel axis.

On 9 July the Germans continued their attacks, concentrating their main efforts on their right flank and attempting to widen the penetration sector. The enemy was able to advance only 1—2 kilometers in a western direction. All attacks along the main attack axis were repulsed, and from 9 July combat took on only local significance. From 9 through 12 July the enemy began to move panzer divisions into the reserve to replenish them with personnel and tanks.

The Belgorod—Oboian' axis (see Map 3)

After a strong artillery and aviation preparation, the enemy assumed the offensive from the region north of Tomarovka and Belgorod on the morning of 5 July. While committing a considerable part of the SS Panzer Corps forces into battle (up to 600 tanks and assault guns), the Germans penetrated our defense's main belt and in some sectors wedged to a depth of up to 10 kilometers. Enemy infantry divisions, which were attacking along the secondary axis from the region south of Belgorod, advanced a total of 3-5 kilometers. Enemy units committed to battle on the first day suffered losses of up to 40 percent in tanks and personnel.

After a one-hour artillery preparation on 6 July, the enemy continued to develop the offensive northward by committing his reserves into battle. During the day and at the cost of heavy losses, he managed to advance 20-25 kilometers from the forward edge in separate sectors of the main axis and 12 kilometers in the sector east of Belgorod. The SS Panzer Corps, as well as the XXXXVIII Panzer Corps' 11th Panzer Division and the 332d Infantry Division, was fully committed to battle on the second day of the operation. The total number of tanks and assault guns reached 650-700. Units of the 168th, 106th, and 320th Infantry Divisions and the 6th Panzer Division fought in the secondary sector southeast of Belgorod. Enemy losses amounted to 35-40 percent of the tanks and personnel of these units.

On the morning of 7 July the enemy continued to develop the offensive after a brief and powerful artillery and air preparation. Forward enemy units on the main axis penetrated to Belenikhino Station (12-15 kilometers southwest of Prokhorovka Station). The 3d Panzer Division, which had been transferred by the beginning of the operation from the Southwestern Front, was committed on the main axis. The number of tanks and assault guns reached 700. Along the secondary axis in the region southeast of Belgorod units of the III Panzer Corps (the 6th, 7th, and 19th Panzer Divisions) and the 168th and 106th Infantry Divisions advanced up to 5 kilometers while developing the offensive to the northeast.

On 8 July the enemy directed his principal efforts on the main attack axis toward widening the existing penetration wedge. In the region northeast of Belgorod the enemy employed the III Panzer Corps' units in an attempt to exploit success to the northeast and advanced 5-7 kilometers in a narrow front sector. The number of tanks and assault guns here reached 300.

On 9 July the enemy attempted to exploit success along the main axis toward Oboian' and advanced 2-3 kilometers in separate sectors. Along the remaining penetration front the Germans consolidated their existing positions and partially regrouped. In particular, the 7th Panzer Division was replaced in the region east of Belgorod by units of the 198th Infantry

Division, which had been transferred from the Southwestern Front. To consolidate success and widen the penetration on the main attack axis on 10 July, the enemy committed a panzer regiment of the 17th Panzer Division. On this day the Germans undertook no active operations in the region northeast of Belgorod. Instead they continued to concentrate units of the 6th, 7th, and 19th Panzer Divisions (replenishing them with tanks) and prepared [to resume] the offensive.

On 11 July the enemy penetrated along the main attack axis toward Prokhorovka with the force of up to a tank division and engaged our units in combat 4 kilometers southwest of this population center. At the same time the Germans assumed the offensive northeast of Belgorod, employing units of the 6th, 7th, and 19th Panzer Divisions and the 198th Infantry Division, with a total strength of up to 400 tanks and assault guns. Exploiting success to the northeast along the bank of the Northern Donets River, they advanced 15-18 kilometers and captured Krivtsovo and Kazach'e, in attempting to reach the rear area of our forces, which were operating along the Belgorod and Kursk railroad line.

Having encountered stubborn resistance by our forces, the enemy assumed the defense along the main attack axis on 12 July, while continuing to conduct offensive combat of only local significance in separate sectors. Essentially, this was the final day of the German offensive along the Belgorod axis. After 12 July they went over to the defense and remained active only in separate sectors.

The enemy withdrawal from the Orel bridgehead

By 12 July the enemy had already withdrawn several panzer divisions into reserve to replenish them with personnel and *materiel.* On 12 July forces of the Western Front's left wing and the armies of the Briansk Front launched an offensive, and, as a result, the enemy was forced to strengthen his Second Panzer Army, which was operating opposite the Briansk Front. Thus on 13 July the 12d Panzer and 36th Panzer Grenadier Divisions were transferred to the region northeast of Orel.

The transfer of the 12th Panzer Division from the Kromy region to the Bolkhov region was noted on 12-13 July (see Map 1). From 13-15 July the 20th and 18th Panzer Divisions were transferred to the Briansk axis, as was the 9th Panzer Division on 18 July. On 15 July the Germans committed the 10th Panzer Grenadier Division from the reserve into battle in the region south of Kromy, having replaced it with units from the 292d Infantry Division.

On 14 July, owing to the failure of the offensive operation, the commander of the Second Panzer Army Colonel-General Schmidt and a number of corps commanders were relieved of their duties. Colonel-

General Model, the 'master of defense' as he was called in the German Army, assumed command of the two armies (the Second Panzer and the Ninth). Subsequently, in connection with the defeat of several divisions, part of [the Second Panzer Army's] corps headquarters was withdrawn into the reserve, part was subordinated to other armies, and the Second Panzer Army staff left for the Balkans.

On 15 July the enemy began a slow fighting withdrawal in the penetration sector south of Kromy. By 18 July the Germans had completed the withdrawal to the jumping-off positions which they had occupied before the offensive.

On 16 July the enemy was completing the transfer of the 26th Infantry Division from the Voronezh Front to the Bolkhov axis, and, on 21—22 July, he also transferred the *Grossdeutschland* SS Panzer Division to the Briansk axis.

On 22 July the 10th Panzer Grenadier Division was transferred from the region south of Kromy to the Briansk axis.

Enemy attempts to employ all his forces to delay our offensive and to stabilize the front were not crowned with success. In connection with the successful offensive by the Western Front's left wing and the armies of the Briansk Front, the enemy decided to abandon the Orel bridgehead on 22 July. On 23 July the main forces of the enemy's Kromy grouping began to withdraw slowly along the entire front, while conducting delaying actions along intermediate lines.

The withdrawal of the Belgorod grouping

Our successful offensive against the Orel bridgehead forced the German command to abandon active operations along the Belgorod axis. The failure of the offensive and the sharp change in the correlation of forces during the battles forced the enemy to shift to the defense. However, shifting to the defense along an unprepared line was clearly inexpedient, and in this regard the enemy decided to conduct a fighting withdrawal to [their initial] prepared jumping-off line. At the same time, the German command withdrew the majority of its panzer divisions into reserve for replenishment and transferred part of them (the *Grossdeutschland* SS Panzer Division) to other fronts. On 23 July, under attacks by our forces, the enemy continued a slow fighting withdrawal to the main defensive line.

Thus the German offensive against Kursk failed. The aims established by the German command were not achieved, and enemy forces were dealt a serious defeat. Of the 23 panzer divisions operating on the Soviet-German front, 18 (the 2d, 3d, 4th, 5th, 6th, 7th, 8th, 9th, 11th, 12th, 17th, 18th, 19th, and 20th Panzer Divisions, and the *Death's Head, Adolf Hitler, Das Reich*, and *Grossdeutschland* SS Panzer Divisions) suffered heavy losses. In

other words, in the Battle of Kursk, the German Army lost a large part of all of its tanks operating against the USSR.

GENERAL CONCLUSIONS

1. There was no element of operational or tactical surprise in the enemy's offensive operation since our command discovered in advance his groupings, his concept, and the dates for the beginning of the operation, which the Germans themselves were compelled to admit. Thus intelligence information of the German 86th Infantry Division pointed out:

> As a result of many months of work, the Russians have created a deeply echeloned system of positions with three principal defensive lines. On the basis of air and ground observation and also prisoner statements, the enemy expected our offensive on 5 July. From 3 July his forces were in a state of constant combat readiness. The enemy knew that the offensive would begin at 0200 hours and, therefore, at 0115 hours he began a half-hour artillery fire raid [Editor's note: our counterpreparation is being referred to here]. The enemy knew about the offensive in advance with an accuracy of one hour and, therefore, the surprise element from our side was completely absent.

2. With respect to its concept, plan, and tactical procedures, the German July 1943 offensive did not differ from all previous operations. Here the German command also attempted to penetrate our defense to the entire depth by means of the massed employment of combat weaponry, first and foremost aircraft, tanks, and artillery and, then, subsequently, to exploit the penetration. However, the Red Army's significantly increased technical capability, the combat training and cohesiveness of units, and the maturity of operational-tactical *thought at* all levels of our command forced the Germans to make several corrections in their tactics and techniques for conducting combat. The course of the July operation also demonstrated that the German command had placed great hopes on new types of armament ('Ferdinands' and 'Tigers'), on their massed employment, and on new tactical procedures (the operations of Group 'Kahl'). These hopes, however, were not justified due to the increased effectiveness of our antitank defense.

3. The operation demonstrated the weakness of German operational-tactical intelligence, which was based principally on statements by prisoners and air reconnaissance data. Prisoners could provide information concerning only the forward edge, and this was not always correct, and air reconnaissance data were inadequate, since the main transfer of Red Army forces and their regrouping took place at night. Thus the enemy poorly understood the army depth and knew practically nothing about the depth of our

front defense in the Kursk bulge. Poor intelligence and, consequently, poor knowledge of the tactical and operational depth of the defense and also the state of defensive works led to an incorrect assessment of Red Army strengths and incorrect operational planning. This conclusion is confirmed by prisoner statements. Thus a German pilot from the 3d Bomber Squadron's 2d Group, who was taken prisoner on 6 July, stated:

> The German operation was aimed at capturing Kursk. The German command planned to conduct the operation for a brief period; however, today, 6 July, the commander announced to the pilots that the operation was developing slowly, since mistakes were made in assessing the stability of the Russian defense.

4. The enemy force grouping for the offensive and the distribution of reinforcing weaponry, and first and foremost tanks, in several front sectors indicate that the Germans were attempting to penetrate our defense by employing concentrated attacks by tank formations, supported by a large quantity of aviation, in narrow front sectors. The absence of operational-strategic reserves made it impossible for the enemy to exploit the success he had gained during the first days of the offensive along the Belgorod axis. The planning of the offensive, with the assignment of major strategic missions without adequate reserves, once again confirmed the adventuristic nature of the German High Command's strategy.

Conclusions regarding the actions of enemy combat arms

Aviation. The Germans threw a large quantity of bombers and fighters into the penetration sectors. Enemy aviation accomplished two missions: ensuring air superiority and putting pressure on our defending combat formations.

In the enemy's employment of aviation the principal mission was working over the forward edge. At this time the nearest army rear areas were subjected to air activity on a smaller scale than ever before. In the first place, this was explained by the fact that the Germans, aware of the increased might of our defenses, were forced to employ their aviation primarily in penetration sectors. Air activities, in combination with artillery, were supposed to suppress our defense's system of fire and destroy a considerable part of the personnel, equipment, and engineer-technical works in the defense, thereby opening the path for German tanks.

German aviation delivered continuous strikes against penetration sectors, employing large, high-explosive bombs and small fragmentation bombs. But, thanks to the extensively developed trench and shelter system in our defense, the Germans did not achieve the desired effect from air operations, since our personnel losses were insignificant.

During the offensive battle we noted that enemy air operations were directed toward the destruction of our antitank ditches. For this purpose, enemy aviation employed large bombs whose explosions demolished ditch walls, and in these places enemy tanks overcame antitank ditches relatively easily. Several instances were recorded of massed raids by German aviation to destroy our minefields. To this end the enemy achieved suitable results by the massed employment of air power.

Artillery. There were instances when active air actions were substituted for an intense artillery preparation against the forward edge and regions of our artillery's firing positions. During the first stage of the offensive the role of artillery was secondary, and bombers and self-propelled artillery gave primary support to the tank attacks. Subsequently, when the tanks had suffered considerable losses, artillery and mortars exhibited customary activity, especially when we shifted to the offensive. It should be pointed out that during the offensive the enemy designated targets and called up artillery fire by employing reconnaissance aircraft, infantry, and tanks. As distinct from past enemy offensive operations, extensive artillery movement was observed within infantry combat formations.

Tanks. The Germans employed the new heavy T-VI tanks and 'Ferdinand' self-propelled guns on a massive scale for the first time during the July operation. In this regard there were some changes in the structure of combat formations during tank attacks. During the ongoing battles the following formation appeared: 20—30 heavy tanks advanced in front and self-propelled guns, primarily 'Ferdinands,' followed directly behind them, and then medium and light tanks came with accompanying motorized infantry.

T-VI heavy tanks were employed not only as the primary means of penetration but also as armored protection for the medium and light tanks which followed behind them. This also determined the nature of the structure of tank combat formations in several instances. Namely, during small tank subunit operations T-VI tanks moved primarily along the combat formations' flanks, during large tank group operations T-VIs invariably moved at the head, and during actions along roads T-VIs usually moved in a wedge formation, providing protection against antitank artillery fire for the remaining tanks.

It was characteristic that in all instances T-VI tanks operated carefully without becoming separated from the medium and light tanks and the infantry moving behind them. The average speed in combat did not exceed 5-6 kilometers per hour. Every 50—100 meters the tanks halted to fire. As a rule, while moving and during halts the heavy tanks avoided going into hollows. When encountering a strong and stable enemy defense, heavy tanks most often attempted to go around artillery firing positions.

Engineer forces. Considering the presence of the massive obstacles in our defensive system, the enemy had new, modernized sapper [combat engineer] battalions in the combat formations of his tank groups to ensure successful penetration. Each tank battalion consisted of four companies, a company consisted of three platoons, a platoon consisted of three squads, and a squad had 10 men and 2 'Diesel' motor vehicles. There were 5 soldiers, 50 antitank and anti-personnel mines, standard explosive charges, accessories for explosions, a 1942 model mine detector, a prodder, an entrenching tool, and emergency provisions in each vehicle. A squad's armament consisted of a light machine-gun, a grenade launcher, and a special antiaircraft gun. Each battalion had a motorcycle platoon, whose mission was to clear our minefields. In addition, there were three light tanks with armored protection in a battalion, behind which the sappers were deployed.

The German employment of these battalions, however, was apparently not very effective. Under the pressure of our powerful artillery fire, the Germans cleared mines and obstacles with the help of tanks, together with the work of sappers. For this purpose the enemy used T-VI tanks in front of which were attached 6-7-meter rods with a wooden roller set up on them. When the roller came up against a mine, the mine exploded, while the tank remained unharmed. In this manner the enemy easily detected the forward edge of the minefield, which was cleared with the help of sapper subunits.

The sappers accompanying the tanks usually operated in two echelons. Most often the first was protected by armored transports, while second-echelon sappers advanced on motor vehicles and motorcycles.

The enemy attached great significance to consolidating the terrain, especially along his flanks. On the second or the third day of the operation in the Voronezh Front, the attacking grouping had already begun to conduct defensive work on an extensive scale (the adaptation of our defensive works and the emplacement of wire obstacles and minefields on the flanks of the attack).

Chemical forces. One of the distinguishing features of the German July offensive, especially along the Belgorod axis, was the massive employment of non-toxic smoke. It was determined that special chemical teams and subunits were enlisted to set up smoke screens. Smoke was employed:

- to camouflage their forces while assembling on tank and infantry attack lines, during the movement of infantry attacking behind tanks, while forces were overcoming water obstacles, while removing damaged equipment from the battlefield, and for covering the withdrawal of tanks and infantry after unsuccessful attacks;
- to blind our observation and command posts and sectors of the forward

edge; in this instance the enemy partially succeeded in weakening our fire power, since ranging fire was almost excluded for a considerable number of our weapons;

- to correct fire, to range separate lines, and to carry out target designation for aviation and tanks; and
- to reveal our system of fire, albeit in separate sectors.

The enemy employed several sizes of smoke pots for smoke screens, conducted artillery and mortar shelling of the forward edge with special smoke mines and shells, and used special heavy propellants, which were part of the equipment in chemical subunits.

Smoke pots weighing 20 kilograms were usually thrown in front of moving tanks to conceal the echelons following behind them.

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4

The Defensive Battle for the Kursk Bridgehead

The combat operations of Voronezh and Central Front forces from 5 through 15 July 1943 developed into the largest defensive battle in the history of the Great Patriotic War, the battle for the Kursk bridgehead.

Appropriate chapters of this work have characterized the organizational bases of the defense, the preparations of the Kursk bulge for defense, and the grouping of the two sides by the beginning of the battle.[1] Below, a brief description is given of the dynamics of the defensive battle along the Belgorod-Kursk axis [of the Voronezh Front] and on the Central Front's right wing, and several conclusions are also offered.

THE DEFENSIVE BATTLE ON THE BELGOROD-KURSK AXIS

The battle on the Belgorod-Kursk axis developed along a 90-kilometer front to a depth of up to 35 kilometers. More than 4,000 tanks, up to 7,000 guns and mortars, and around 2,000 aircraft from both sides participated in it. These numbers bear witness to the quantity of combat equipment employed in this battle, in all of whose stages tanks and artillery played the leading role.

The Voronezh Front's defensive battle may be subdivided into the following stages:

First stage: combat for the main defensive belt from 5 through 7 July;

Second stage: combat for the second defensive belt from 7 through 15 July, including combat along the Oboian' axis from 7 through 9 July, the battles for Prokhorovka from 10 through 12 July, and the 69th Army's combat from 13 through 15 July in the Rzhavets, Leski, and Gostishchevo region; and

Third stage: the German Army's shift to the defense, and the Voronezh Front's offensive battles from 16 through 23 July to re-establish its position.

This section briefly describes the course of combat operations during the first two stages of the defensive battle on the Belgorod-Kursk axis.

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Third stage-, the German Army's shift to the defense, and the Voronezh Front's offensive battles from 16 through 23 July to re-establish its position.

This section briefly describes the course of combat operations during the first two stages of the defensive battle on the Belgorod—Kursk axis.

Combat for the Main Defensive Belt

Combat on 4 July against German forward detachments (see Map 8). The defensive battle in the Voronezh Front started beyond the combat security strong points during the second half of the day on 4 July. By 2400 hours the enemy had succeeded in dislodging the 6th Guards Army's combat security units in the Gertsovka Station, Butovo, and Hill 230.8 regions and reaching the forward edge of the main defensive belt in this sector. All attempts by German units to dislodge our combat security forces in the Dragunskoe and Iakhontov sector were unsuccessful. Throughout 4 July the enemy conducted reconnaissance with small groups opposite the 7th Guards Army's front and in individual sectors the Germans attempted to cross over to the eastern bank of the Northern Donets River.

Thus enemy intentions to eliminate completely the 6th Guards Army's combat security on 4 July in order to secure a jumping-off area for the deployment of their main forces were not completely realized.

Combat operations on 5 July on the Tomarovka—Oboian' axis. At dawn on 5 July, the enemy was forced to continue combat operations to destroy our combat security in the Dragunskoe, Iakhontov, and Zagotskot regions. It should be noted that the powerful counterpreparation conducted before the enemy offensive had a decisive effect on German operations on the morning of 5 July. The enemy suffered considerable losses, and, as a result, the German offensive began at different times.

Four panzer and two infantry divisions advanced in the first echelon against the 6th Guards Army. The enemy delivered his main attacks in the Koro vino and Cherkasskoe, and Zadel'noe and Gremuchii sectors. Here the Germans had concentrated the greater number of their tanks and their main aviation efforts. Throughout 5 July the enemy committed 600-700 tanks and assault guns along the Cherkasskoe and Bykovka axes.

Cooperating with the advancing tanks, German aviation completed around 2,000 sorties during the first day of battle along the Oboian' and Korocha axes, almost exclusively against our infantry combat formations and artillery firing positions. During the first day our aviation conducted 1,274 sorties on the Oboian' axis alone. One hundred and fifty-four enemy aircraft were shot down in the air battles.

Since our command knew beforehand about the forthcoming offensive and successfully adopted a series of necessary countermeasures, the Voronezh Front's forces met the offensive in complete readiness. During the first day the enemy suffered great losses, including up to 200 tanks and more than 10,000 soldiers and officers.

By the close of 5 July the 6th Guards Army's divisions, which had been defending along the Cherkasskoe axis, withdrew and occupied the next position.

Having drawn back its left flank, the 71st Guards Rifle Division occupied a defense along the Bubny and Krasnyi Pochinok line.

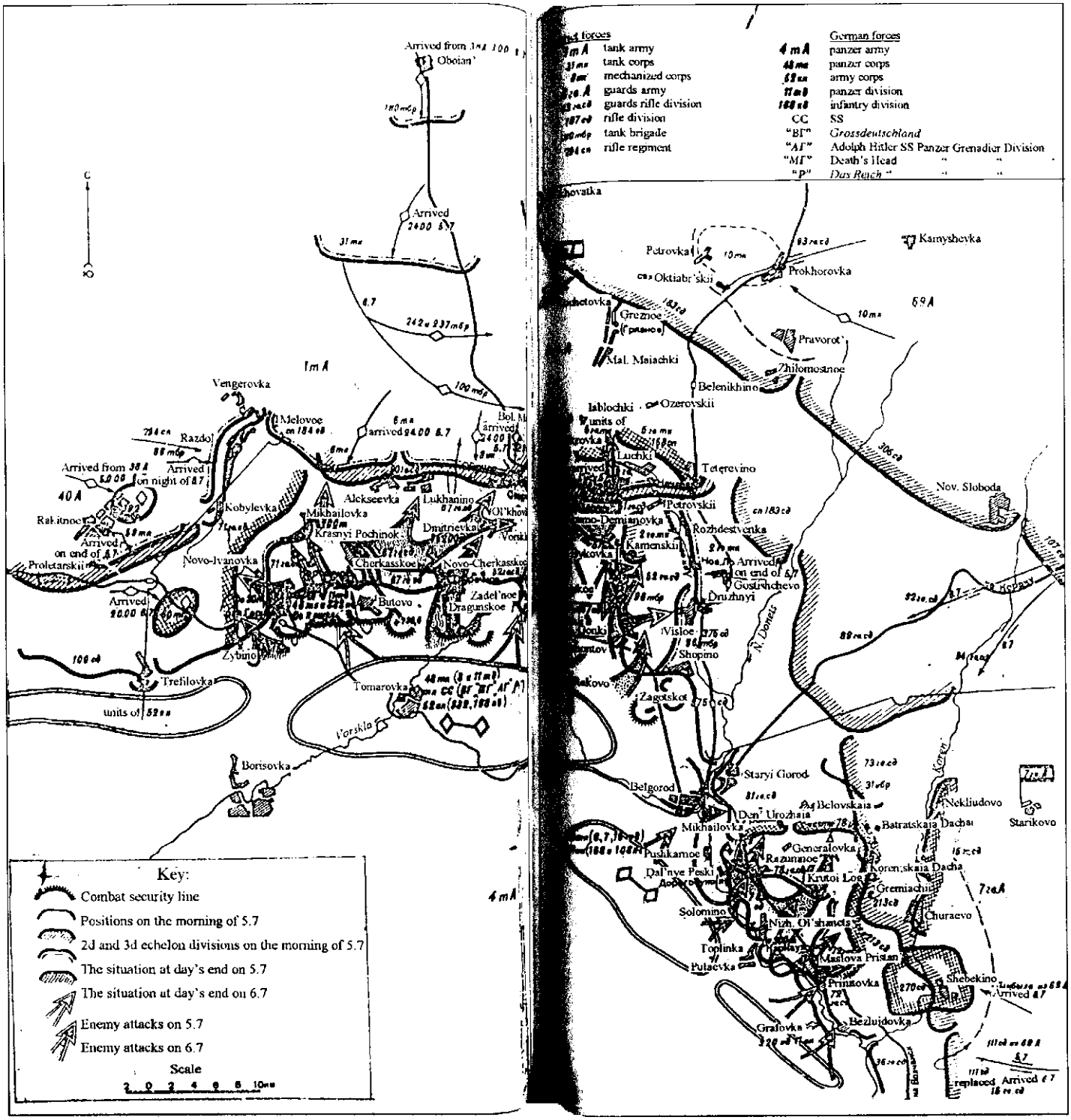
Abandoning Cherkasskoe, the 67th Guards Rifle Division assumed the defense along the (excluding) Krasnyi Pochinok and Trirechnoe front.

Having absorbed the SS Panzer Corps' main attack along the Koz'mo-Dem'ianovka axis, the 52d Guards Rifle Division was cut into two. By the end of the day two of its regiments had occupied a defense along the western bank of the Vorskla River in the Voznesenskii and Vorskla sector and the third regiment along the Kamenskii and Gonki line. To prevent an enemy tank penetration further to the north, units of the 51st Guards Rifle Division, which had earlier been occupying a defensive sector in the army second belt, were brought forward to the Solonets and Nechaevka line. Thanks to these measures, further enemy attempts to penetrate to Iakovlevo were unsuccessful.

Combat operations on the Belgorod—Korocha axis. By dawn on 5 July the enemy had deployed the main forces of the III Panzer Corps in the Belgorod and Grafovka sector. All three infantry divisions (the 168th, 106th, and 320th) and two panzer divisions (the 19th and 6th) were operating in the corps' first echelon. The 7th Panzer Division constituted the corps' second echelon. The enemy artillery preparation commenced at 0330 hours on 5 July and continued for 30 minutes. After the artillery preparation, the enemy began to force the Northern Donets River simultaneously at eight points (at Pushkarnoe, Dal'nie—Peski, Dorogobuzhi, Solomino, Puliaevka, Maslova Pristan', Priiutovka, and Bezliudovka). Attempts to advance from the Mikhailovka bridgehead were unsuccessful. Units of the 81st Guards Rifle Division successfully repelled all the enemy attacks. By 1100 hours the enemy had constructed a crossing at Maslova Pristan' and by 1300 hours at Karnoukhovka. At midday the enemy began an offensive to the east and northeast. The enemy attacks were greeted by stubborn resistance of the garrisons of our antitank strong points in the Razumnoe, Krutoi Log, and Maslova Pristan' regions. At the cost of enormous losses, the enemy succeeded in capturing a bridgehead on the eastern bank of the Northern Donets River with a width of up to 10-12 kilometers and a depth of up to 3-4 kilometers, and forming a wedge in the main defensive belt.

By the day's end our units were occupying the following positions: the 78th Guards Rifle Division - Hill 126.3 and Krutoi Log, and the 72d Guards Rifle Division and 213th [Rifle] Division units - (excluding) Krutoi Log, the eastern outskirts of Maslova Pristan', and Priiutovka.

Command measures. On 6 July the *front* commander assigned the troops the mission to continue the destruction of the advancing enemy by means of a stubborn defense. The principal measures were directed at the timely



Map 8: The course of the defensive battle on the Belgorod-Kursk axis, 5-6 July 1943

organization of a defense in the second defensive belt along the Oboian' axis and the prevention of a widening of the penetration along the flanks.

During the second half of the day, when the enemy's main attack axis had been clearly determined, the *front* commander issued orders concerning the movement of the 1st Tank Army and the 2d and 5th Guards Tank Corps into the second defensive belt.

The 1st Tank Army was to occupy a defensive position in the Melovoe, Syrtseva, and Iakovlevo sector immediately behind the 6th Guards Army's second echelon. The army was assigned the mission to prevent enemy penetration in the direction of Oboian' under any circumstances. The 5th Guards Tank Corps received the mission to occupy a position along the (excluding) Iakovlevo, Nechaevka, and Teterevino line, behind the 51st Guards Rifle Division. The 2d Guards Tank Corps was ordered to occupy a position along the Rozhdestvenka and Druzhnyi line. The 35th Guards Rifle Corps commander received the mission to move the 93d Guards [Rifle] Division forward to the Prokhorovka region by 0300 hours on 6 July, where it was to occupy the Petrovka, Oktiabr'skii State Farm, and Provorot' line (behind the 69th Army's 183d [Rifle] Division) with the mission to prevent enemy penetration to the northeast. By the end of 5 July the division had reached its assigned region. The two other divisions of the corps (the 92d and 94th Guards Rifle Divisions) were thrown in to reinforce the Korocha axis.

To prevent enemy penetration to the west and the northwest, the 40th Army commander was ordered to reinforce the defense on his left flank and effectively cover the Korovino and Rakitnoe axis by moving part of his forces to the Proletarskii and Vengerovka line. Two tank brigades were transferred from the 38th Army, one each to reinforce the 40th and 1st Tank Armies. This regrouping was completed by 2400 hours on 5 July.

Thus by the close of 5 July the Oboian' axis was reinforced by the 1st Tank Army and the 5th Guards Tank Corps, which occupied the army's second defensive belt jointly with the 6th Guards Army's second echelon. Likely enemy attempts to widen the penetration to the west and the northwest were to be parried by units of the 40th Army, which had been moved to the Proletarskii and Vengerovka line. The axis toward Gostishchevo was covered by the 2d Guards Tank Corps.

During the second half of the day on 5 July the *front* commander, to reinforce the Korocha axis, ordered the 69th Army commander personally by unit telephone to resubordinate the 111th and 270th Rifle Divisions to the 7th Guards Army commander. On the night of 6 July the II 1th [Rifle] Division replaced the 15th Guards [Rifle] Division on the Shebekino and Volchansk line, and, after the transfer, the 15th Guards Division was to occupy the Nekliudovo and Churaevo line along the eastern bank of the Koren' River as the second army echelon. The 270th Division was left in the

army commander's reserve, and, by the end of 6 July, it had concentrated in the Shebekino region.

Having undertaken these measures to strengthen the defense along the Oboian' and Korocha axes, the *front* commander at the same time made provisions, if circumstances were favorable, for the possibility of active operations to destroy the German grouping which had penetrated into the 6th Guards Army's dispositions. For this purpose he ordered the 1st Tank Army commander to prepare a counterstroke in the general direction of Tomarovka, the 5th Guards Tank Corps commander a counterstroke in the general direction of Bykovka, and the 2d Guards Tank Corps commander a counterstroke in cooperation with the 5th Guards Tank Corps, against Gremuchii.

Combat in the main defensive belt and enemy's arrival at the army second belt. Having suffered considerable losses in personnel and tanks on 5 July, the enemy was not particularly active during the night and morning of 6 July. Instead, he brought forward second echelons and reserves, replenished his formations with equipment, and re-established disrupted command and control. Only at 1000 hours on 6 July was the enemy able to begin an artillery and air preparation. It should be mentioned, however, that, as a result of the enormous aircraft losses on the first day of battle and the dynamic actions of our fighter aviation, enemy activity in the air was sharply reduced on 6 July.

Striving at all costs to penetrate into the Oboian' region as quickly as possible, the German command decided on 6 July to deliver two concentric blows on the Oboian' axis: one employing the forces of two panzer and one infantry division from the Cherkasskoe region northeast in the general direction of Pokrovka, and the other using the forces of the SS Panzer Corps and the 167th Infantry Division from the Koz'mo-Dem'ianovka and Bykovka region along the Oboian' Highway to encircle the 6th Guards Army's 67th and 52d Guards Divisions and to penetrate further toward Oboian'.

Combat on the Cherkasskoe-Pokrovka axis began at 1130 hours on 6 July after a 90-minute artillery preparation. Units of the 71st Guards Rifle Division were attacked by a tank group numbering up to 100 machines and two infantry regiments supported by 200 aircraft. Here the enemy directed his main attack toward Krasnyi Pochinok.

Overcoming strong resistance by divisional units and after introducing new reserves, the enemy succeeded in capturing Novo-Ivanovka, Krasnyi Pochinok, and Mikhailovka. To reinforce this axis the 40th Army commander transferred the 309th Rifle Division's 294th Rifle Regiment to the Kobylevka and Razdol line. By the end of the day, the regiment had occupied its designated line.

At 1130 hours a German grouping consisting of 200 tanks with motorized infantry and self-propelled guns launched an offensive from the Cherkasskoe region in the direction of Lukhanino, Dubrova, and Ol'khovka. In addition, a group of up to 50 tanks began an attack against Trirechnoe.

As a result of stubborn combat, the enemy succeeded in capturing the Alekseevka, Lukhanino, Novo-Cherkasskoe, and Trirechnoe regions by 1500 hours and Dmitrievka and Ol'khovka by 1700 hours.

Since the capture of Dmitrievka and Ol'khovka placed the 52d Guards Rifle Division in a perilous situation, it conducted a fighting withdrawal by order of the army commander, to positions behind the second defensive belt. The 67th Guards Rifle Division also conducted a fighting withdrawal to the Syrtsev and Dubrova region.

A further enemy advance to penetrate to the Belgorod and Oboian' Highway was halted by the 3d Mechanized Corps' and 90th Guards Rifle Division's units, which repelled eight tank attacks before darkness fell. Up to 100—150 tanks participated in each attack.

Combat on the Iakovlevo axis. Having deployed up to 300 tanks at 1130 hours after a 90-minute artillery preparation, the enemy began the attack against Iakovlevo. In the light of our forces' stubborn defense in this region, the German command was forced to alter the axis of its attack, and in the second half of the day to direct the main attack to the northeast, against Luchki and the 5th Guards Tank Corps' units. During the intense combat the tank corps' units knocked out 95 enemy tanks and several 'Ferdinand' self-propelled guns. By the time darkness had fallen, the enemy had succeeded in capturing Luchki and part of his forces had enveloped the corps' right flank. The corps' units continued to fight a fierce battle against the enemy northeast of Iakovlevo until 2400 hours on 6 July. On the next morning the 5th Guards Tank Corps' units withdrew fighting to the Pokrovka and Teterevino line.

It became evident from the course of combat operations that the enemy intended to penetrate to Oboian' at the junction between the 1st Tank Army and the 5th Guards Tank Corps. Having assessed the situation at 1700 hours on 6 July, the 1st Tank Army commander ordered the 31st Tank Corps' 100th Tank Brigade to move forward into the Bol'shie Maiachki region. The 242d and 237th Tank Brigades were brought forward to the Ozerovskii region by forced march. By the day's end the 100th Tank Brigade had occupied a defensive line from Bol'shie Maiachki through Iablochki.

While delivering his main attack to the north against Iakovlevo, the enemy simultaneously attempted to push the 6th Guards Army's left-flank units back beyond the Lipovyi Donets River. As a result, the 375th Rifle Division withdrew its right flank somewhat and continued to defend along

the western bank of the river on the Visloe and Shopino line. During this day the enemy lost around 200 tanks, 80 aircraft, and a large number of personnel on the Oboian' axis.

Combat on 6 July on the 7th Guards Army's front. All enemy attempts on the morning of 6 July to carry out an attack from the Mihailovka bridgehead with the 19th Panzer and 168th [Infantry] Divisions' forces once again ended completely unsuccessfully. Thereafter the 19th Panzer Division was transferred to the Dorogobuzhino region to attack to the northeast. The enemy continued to deliver his main attack from the Nizhnii Ol'shanets region against Krutoi Log. As a result of sustained combat, the Germans succeeded in capturing Razumnoe, Generalovka, and Krutoi Log.

By the end of the day army formations occupied the following positions: the 81st Guards Rifle Division had withdrawn its left flank to the Den' Urozhai Collective Farm; units of the 78th and 73d Guards Division defended the southeastern outskirts of Belovskaia, Batratskaia Dacha State Farm, and Koren'skaia Dacha; and units of the 213th Rifle and 72d Guards Rifle Divisions occupied a defensive position along the Gremiachii and Priiutovka line. Thus, as a result of two days of combat, the enemy had succeeded in capturing a bridgehead on the eastern bank of the Northern Donets River, and a part of his forces had reached the forward edge of the second defensive belt. During combat on 6 July the Germans lost up to 100 tanks and around 10,000 killed and wounded. On the same day enemy air activity decreased significantly. During the day of combat up to 900 sorties were recorded on the 6th and 7th Guards Armies' fronts. Our aviation carried out 1,278 sorties.

The results of the first stage of the defensive battle. As a result of the two-day battle and despite enormous losses, the German command did not achieve decisive success on any one of its attack axes. The mission to penetrate the entire depth of our defense using short, powerful attacks by large tank groupings and to reach the Oboian' region during the first days of the battle for the further development of the offensive to Kursk was not accomplished. Enemy plans were thwarted mainly thanks to the timely movement of *front* reserves (the 1st Tank Army and the 2d and 5th Guards Tank Corps) into the army second belt. Tank formations absorbed the enemy tank attacks at positions prepared in advance, and, as a result, the enemy was stopped in front of the second defensive belt on almost all axes; only in the Iakovlevo-Luchki sector did the SS Panzer Corps' units succeed in lodging in the second defensive belt and create the threat of penetrating it.

Despite the fact that the enemy had penetrated 10—18 kilometers into the depth of our defense by the end of the second day of the battle, he was not able to maneuver freely on any axis and was forced to advance forward,

while gnawing through our deeply echeloned defense. Neither were enemy attempts to develop success along the flanks crowned with success.

The German offensive was associated with such enormous losses in personnel and especially of tanks that, beginning on the second day, the command was forced to bring up a large number of tanks from the deep operational rear area to replenish those losses. It should also be mentioned that our divisions, which were defending in the first echelon, suffered considerable losses too.

On the whole, by the end of 6 July the Voronezh Front's reserve had already been committed to combat for the second defensive belt, with the exception of three of the 69th Army's divisions which had already occupied the army rear belt of the 7th Guards Army and the 35th Guards Rifle Corps. Part of the 38th Army's resources were employed to reinforce the 40th and 1st Tank Armies. Only one defensive line - the second defensive belt - remained occupied by forces along the Oboian' axis. Forces continued to occupy two, and in some places three, defensive lines along the Prokhorovka and Korocha axes.

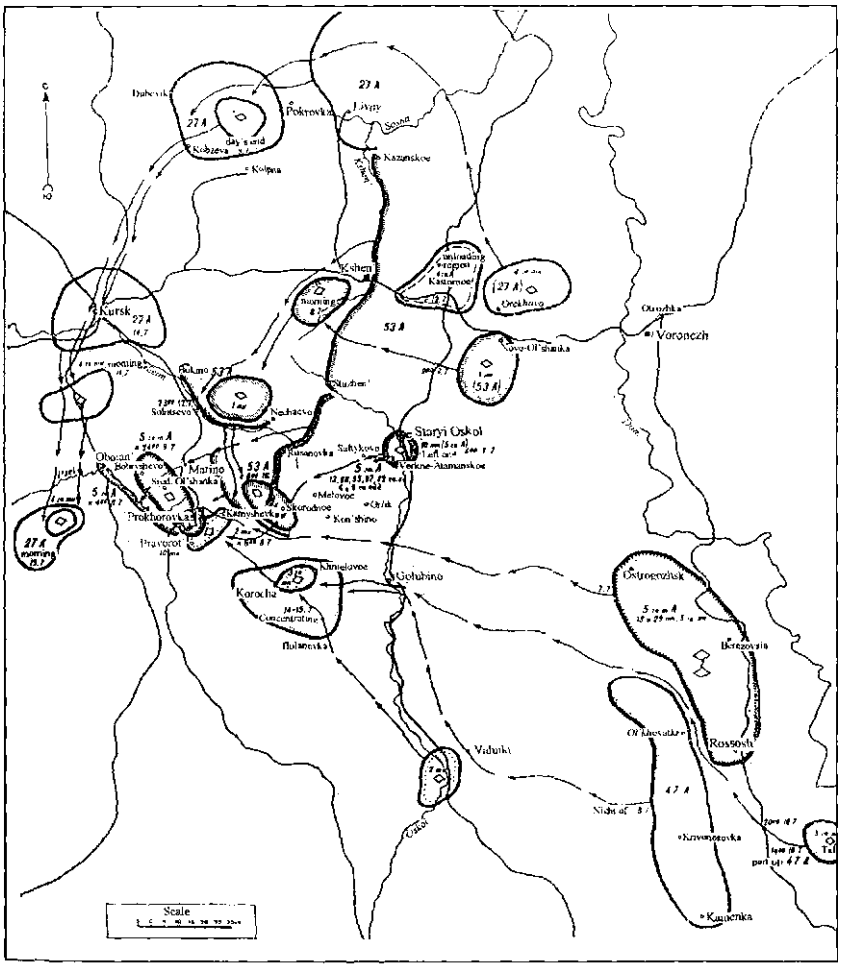
At 1200 hours on 6 July, the *front* commander decided to prepare flank counterstrokes to encircle and destroy the enemy who had penetrated north and northeast of Tomarovka. These were supposed to be delivered on the morning of 7 July. By the evening on 6 July, however, the situation had changed significantly. The projected counterstrokes were postponed.

Measures of the Stavka *of the Supreme High Command.* At 1830 hours, while reporting to the Supreme Commander-in-Chief about the situation which had developed in the Voronezh Front, the *front* commander emphasized that six German panzer divisions were operating in front of the 6th Guards Army alone and that the enemy was continuing to bring up fresh reserves.

To ensure dynamic operations, the *front* commander requested that the Supreme High Command reinforce the Voronezh Front with four tank and two aviation corps.

This report, which was transmitted to the *Stavka* by telegraph, was supplemented by the following observations by the *Stavka* representative Marshal of the Soviet Union Vasilevsky, who was at the Voronezh Front during the defensive battle:

> The situation in the *front* at 1700 hours corresponds to what was reported. For my part, to conduct further active operations, I consider it expedient to reinforce the front with two tank corps, sending one of them to the Prokhorovka region (30 kilometers southwest of Oboian') and the other to the Korocha region; Zhadov's 10th Tank Corps and Malinovsky's 2d Tank Corps from Valuiki could be used for this purpose. In addition, I would consider it expedient to move Rotmistrov to the Oskol River in the region south of Staryi Oskol.[2]



Map 9: **The maneuver of strategic reserves**

96 On 6 July the *front* commander received a personal order from Stalin by telephone 'to exhaust the enemy in prepared positions and prevent his penetration until our active operations begin in the Western, Briansk, and other *fronts.*' Agreeing with Vasilevsky's opinion, the *Stavka* of the Supreme High Command issued instructions concerning the movement by forced march of the 5th Guards Tank Army from the Steppe Military District to the western bank of the Oskol River in the Saltykovo, Melovoe, Orlik, and Verkhne-Atamanskoe regions for operations in the direction of Oboian' and Kursk (see Map 9). The army moved out at 0130 hours on 7 July, and, by the morning of 8 July, its main forces had concentrated in their designated region.

By order of the *Stavka*, the 10th Tank Corps (from the 5th Guards Army), which was deploying into the Staryi Oskol region, was transferred to Voronezh Front control. At 0400 hours on 7 July, the corps set out from its occupied region, and by 1900 hours had concentrated in the Prokhorovka region. At the same time, the 2d Tank Corps was also placed at the disposal of the Voronezh Front commander, and by 0800 hours on 8 July it had concentrated in the Kamyshevka and Provorot' region.

On the basis of the Supreme High Command's instructions, the *front* commander decided:

> . . . to defeat the enemy in defensive combat in an earlier prepared defensive line, having reinforced the 7th Guards Army's dangerous axis with units of the 35th Guards Rifle Corps, and the Iakovlevo-Prokhorovka axis by moving two tank brigades and one antitank brigade into the junction between the 1st Tank Army and the 5th Guards Tank Corps. All of the Voronezh Front's air power would attack and destroy enemy tanks and personnel on the Oboian' axis, and the Southwestern Front's aviation would be used against the enemy operating against the 7th Guards Army.

The 1st Tank Army was reinforced by the 40th Army's 29th Antitank Brigade, which was moved into the junction between the 1st Tank Army and the 5th Guards Tank Corps.

Combat in the Second Defensive Belt

Combat on 7 July on the Oboian' axis (see Map 10). During 7 July the enemy's main efforts on the Oboian' axis were directed against the 1st Tank Army's center (the 3d Mechanized Corps). In the morning an enemy group of 300-500 tanks with motorized infantry and air support delivered a strong attack from the Syrtsev and Iakovlevo region in the *direction of* Krasnaia Dubrova, and a group of up to 100 tanks attacked Bol'shie Maiachki. Simultaneously, the enemy developed the offensive from the Teterevino State Farm and Ozerovskii region against Greznoe, seeking to penetrate into the rear of the 6th Guards and 1st Tank Armies' forces. Assaulting with infantry and tanks, the enemy protected the right flank of his main grouping along the Komsomolets State Farm, Teterevino, and Shopino front. The enemy exhibited no activity against the 6th Guards Army's right flank. On the whole, by the end of 7 July, as a result of the intense combat, our forces continued to hold on to the second defensive belt with the exception of the Bol'shie Maiachki and Malenkie Maiachki sector, where the enemy had successfully penetrated into our defense to a depth of 4-12 kilometers. The enemy reached the rear belt of our defense in a small wedge in the Bogoroditskoe and Ivanovskie Vyselki sector.

The most noteworthy events of this day were the combat operations of

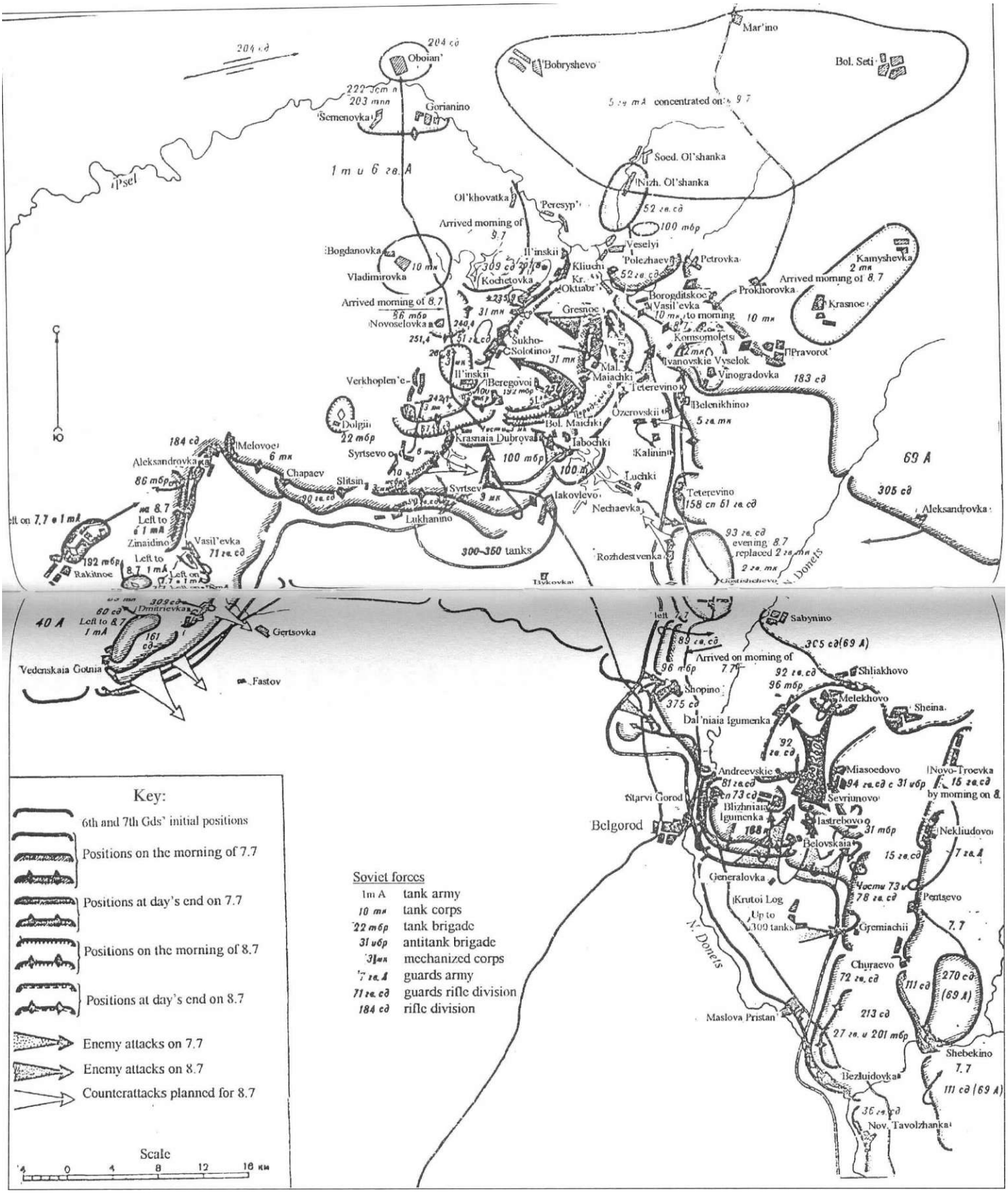
the 3d Mechanized Corps and attached units of the 6th and 31st Tank Corps. Forced to abandon its defensive position under the onslaught of superior enemy forces, the corps exhausted advancing enemy forces during the day, inflicted great losses on him, and did not permit a penetration in a single sector of its front as a result of a skillfully executed mobile defense in combat at successively occupied intermediate positions.

By the end of the day, the 1st Tank Army, with units of the 90th Guards Division, occupied a defensive line from Lukhanino, through Krasnaia Dubrova and the western part of Malenkie Maiachki, to Greznoe. On 7 July the 309th Rifle Division, three antitank brigades, and a howitzer, a mortar, and a tank regiment were resubordinated from the 40th and 38th Armies to the 1st Tank and 6th Guards Army commanders. On the basis of an order by the *front* commander, the 52d Guards Rifle Division, which had been withdrawn into the 6th Guards Army's reserve, had by nightfall on 7 July occupied defenses along the northern bank of the Psel River in the Kliuchi and Polezhaev sector to counter a possible German penetration to the northern bank of the river.

Combat operations on the Korocha axis. On 7 July on the Korocha axis the enemy directed his main efforts in the general direction of Iastrebovo and Sevriukovo. As a result of fierce combat, he had succeeded by the end of the day in capturing the Belovskaia, Iastrebovo, and Sevriukovo region. All German attempts to penetrate into the Melekhovo region were unsuccessful. They were repelled by the 7th Guards Army's forces and by forward units of the 35th Guards Corps and 69th Army, which had reached this region.

By the end of the day, the forces of the 7th Guards Army continued to fight in the first and in part of the second defensive belt. Since the enemy's arrival in the Sevriukovo region threatened the army's right flank with envelopment, the army commander undertook during the second half of the day a number of measures to reinforce this axis. To do so, at 1430 hours the 111th Rifle Division was ordered to move north from its occupied positions between Shebekino to Volchansk and to occupy a defensive line from (excluding) Churaevo through Shebekino, and the 270th Rifle Division was ordered to occupy the (excluding) Nekliudovo and Churaevo line, there replacing the 15th Guards Rifle Division. After being relieved, the latter was to occupy a defensive position along the Novo-Troevka and Neliudovo line. By the end of 7 July, the 111th and 270th Rifle Divisions had occupied their assigned positions, and the 15th Guards Division did so by the morning of 8 July.

Command measures on 8 July. On the basis of a *Stavka* of the Supreme High Command directive on the night of 8 July, the Steppe Military District's 47th Army moved forward from the Ol'khovatka, Krivonosovka, and



Map 10: **The defensive battle on the Belgorod-Kursk axis, 7-8 July 1943**

Kamenka region to the Khmelevoe, Korocha, and (excluding) Bulanovka region (see Map 9).

At 2300 hours on 7 July the *front* commander decided to deliver a counterstroke on the next morning with his tank formations and part of the 40th Army's left-flank forces against the flanks of the main enemy grouping to weaken the pressure from that grouping on the Oboian' axis.

The 10th and 2d Tank Corps were to attack from the Vasü'evka and Vinogradovka line in the general direction of Iakovlevo and Bykovka (see Map 10). The 5th Guards Tank Corps had the mission to deliver a blow from the Belenikhino and (excluding) Teterevino front against Ozerovskii.

The 2d Guards Tank Corps was to attack from the Rozhdestvenka region against Luchki. The 6th Tank Corps had the mission to attack from the Syrtsevo region toward Iakovlevo. The left-flank divisions of the 40th Army, the 161st and 71st Guards Rifle Divisions (transferred from the 6th Guards Army) were to launch an offensive in the general direction of Gertsovka. All *front* aviation was tasked with supporting the planned counterstrokes. The offensive was to begin at 1030 hours after a 30-minute artillery preparation. All remaining *front* formations received the order to defend their existing positions stubbornly.

The 309th Rifle Division with the 86th Tank Brigade and 36th Guards Mortar Regiment, which had just arrived from the 40th Army, was ordered to occupy a position along the line of Hills 251.4, 240.4, and 207.8, with the mission to prevent an enemy penetration along the Belgorod-Oboian' Highway. The 86th Tank Brigade arrived at its assigned region by the morning of 8 July, while the 309th Division was subordinated to the 1st Tank Army commander only on the morning of 9 July.

By the morning of 8 July the 3d Mechanized Corps had arrived in the Hill 260 and Il'inskii region in the 1st Tank Army's reserve to put itself in order. By direction of the 31st Tank Corps' commander, the 100th Tank Brigade was placed in reserve in the Veselyi region. Having reached the Oboian' region from 38th Army, the 203d [Heavy] Tank Penetration Regiment with the 222d Antitank Regiment was ordered to occupy defenses by the morning of 8 July along a line from the southern outskirts of Semenovka through Goianino on the immediate approaches to Oboian'.

Combat along the Oboian' Highway on 8 July. From the early morning of 8 July, units of the 6th Tank and 3d Mechanized Corps fought exceptionally intense battles. During the day the enemy committed a total of 400 tanks in the Oboian' Highway sector. Enemy tank attacks were supported by aviation operating above the battlefield in groups of 40-50 aircraft each. All enemy attempts to penetrate to the north were unsuccessful. In the evening units of the 3d Mechanized Corps, together with 6th Guards Army forces, continued to hold on to the line of the southern outskirts of Verkhopen'e

and Hill 260. Antitank artillery units, whose fire inflicted heavy losses on the enemy and thwarted his attack, played an exceptional role in these battles, and, as a result of the day's fighting along the highway in the region of Hill 242.1, 104 German tanks, including 28 'Tigers,' were destroyed.

The battle for Greznoe and the withdrawal of the 31st Tank Corps to the Sukhaia Solotinka River. No less intensive were the battles on 8 July which unfolded on the 31st Tank Corps' and 192d Tank Brigade's front, where the enemy concentrated up to 300 tanks in a renewed attempt to reach the 1st Tank Army's rear area by attacking Kochetovka and Sukho-Solotino. By the end of the day, the corps, with 51st Guards Rifle Division units, had withdrawn under enemy attacks to the Sukho-Solotino, Kochetovka, and Il'inskii line. By the day's end the 192d Tank Brigade was still holding on to Hill 251 and Beregovoi.

Combat on this day on the Oboian' axis was characterized by intense operations by our aviation. During the day it completed more than 1,000 sorties and took part in 85 air battles, and as a result 106 enemy aircraft were shot down.

The 10th Tank Corps, which was pre-empted by the enemy, did not deliver a counterstroke. However, together with units of the 69th Army's 183d Rifle Division, it engaged in positional combat against groups of enemy tanks which had assumed the offensive on the morning of 8 July. All enemy attempts to penetrate to the Psel River on this axis were repulsed.

Having launched their offensive at different times (the former at 1000 hours against Kalinin, and the latter at 1200 hours against Nechaevka), the 5th and the 2d Guards Tank Corps advanced a short distance, but, having encountered strong counterattacks by enemy tanks supported by aviation, they withdrew to their jumping-off positions. The attack by the 40th Army's 161st Rifle and 71st Guards Divisions similarly did not produce a substantive result.

In the sector of the 7th Guards Army, while continuing to develop his attack northward in an attempt to reach the rear area of *front* formations defending along the Lipovyi Donets River, the enemy had captured Melekhovo by the end of the day as a result of sustained combat.

Thus on 8 July despite continuous attacks and heavy losses, the enemy was once again unable to fulfill his immediate mission to reach the Oboian' region. All his attempts to penetrate to Oboian' from the south along the Belgorod-Oboian' Highway and along the axis to Greznoe through Kochetovka were unsuccessful thanks to the 1st Tank and 6th Guards Armies' firm defense. Having widened the apex of his wedge in the Krasnyi Oktiabr' and Kochetovka sector up to 8-10 kilometers, the enemy was only able to push the 31st Tank Corps back to the Sukhaia Solotinka River and advance 4-6 kilometers in this sector. On the whole, the forces of 1st Tank

and 6th Guards Armies continued combat in the second defensive belt. It should also be noted that the counterstrokes undertaken by the Voronezh Front command did not produce appreciable results; they did, however, divert considerable enemy reserves and, as a result, enemy pressure in the Oboian' Highway sector was weakened.

Command measures on 9 July (see Maps 9 and 10). Considering the intensity of the situation on the Oboian' axis, on 8 July the *Stavka* of the Supreme High Command ordered the 5th Guards Tank Army to concentrate in the Bobryshevo, Sredniaia Ol'shanka, and Marino region by the end of 9 July, having advanced its forward detachments forward to the Psel River in the Oboian' and Veselyi sector. By *2300* hours on 9 July the army had concentrated in the designated region, and its forward detachments reached the Psel River on the next morning.

Naturally, the *front* commander directed his main attention toward the strengthening of the Oboian' axis to a maximum. To do so, the *front* commander ordered at 0035 hours on 9 July, by direct telephone conversation, the 10th Tank Corps' commander to transfer the Vasil'evka and Komsomolets State Farm defensive sector to the 2d Tank Corps and to revert to the operational subordination of the 1st Tank Army's commander. The 10th Tank Corps commander received the order from the 1st Tank Army's commander to concentrate in the Vladimirovka region to parry enemy attempts to penetrate along the highway to Oboian'. Having been transferred from the 38th Army, the 204th Rifle Division concentrated in the Oboian' region and became part of the *front* reserve.

In accordance with a series of orders issued during the period from 1930 hours until 2200 hours on 8 July, the 1st Tank Army was additionally reinforced by two tank, one antitank, and one guards mortar regiment from the 40th Army and by one antitank regiment from the 38th Army. In all, from 6 through 9 July the 38th and 40th Armies transferred two rifle divisions, one antiaircraft division, three tank brigades, four tank regiments, three antitank brigades, eight antitank artillery regiments, one gun artillery regiment, and four guards mortar regiments to reinforce the Oboian' axis. In addition, the 10th Tank Corps was transferred to reinforce this axis.

The principal mission of the 1st Tank, 6th Guards, and 69th Armies' forces on 9 July was to hold firmly to occupied positions and prevent an enemy penetration to Oboian' and Prokhorovka. On the basis of the *front* commander's instructions, the army commanders carried out the necessary internal regroupings on the night of 9 July. By the morning of 9 July the 309th Rifle Division, which had been transferred to the 1st Tank Army from the 40th Army, had occupied a defensive line from Malinovoe woods through Melovoe woods to the southern outskirts of Ol'khovatka as the army's second echelon.

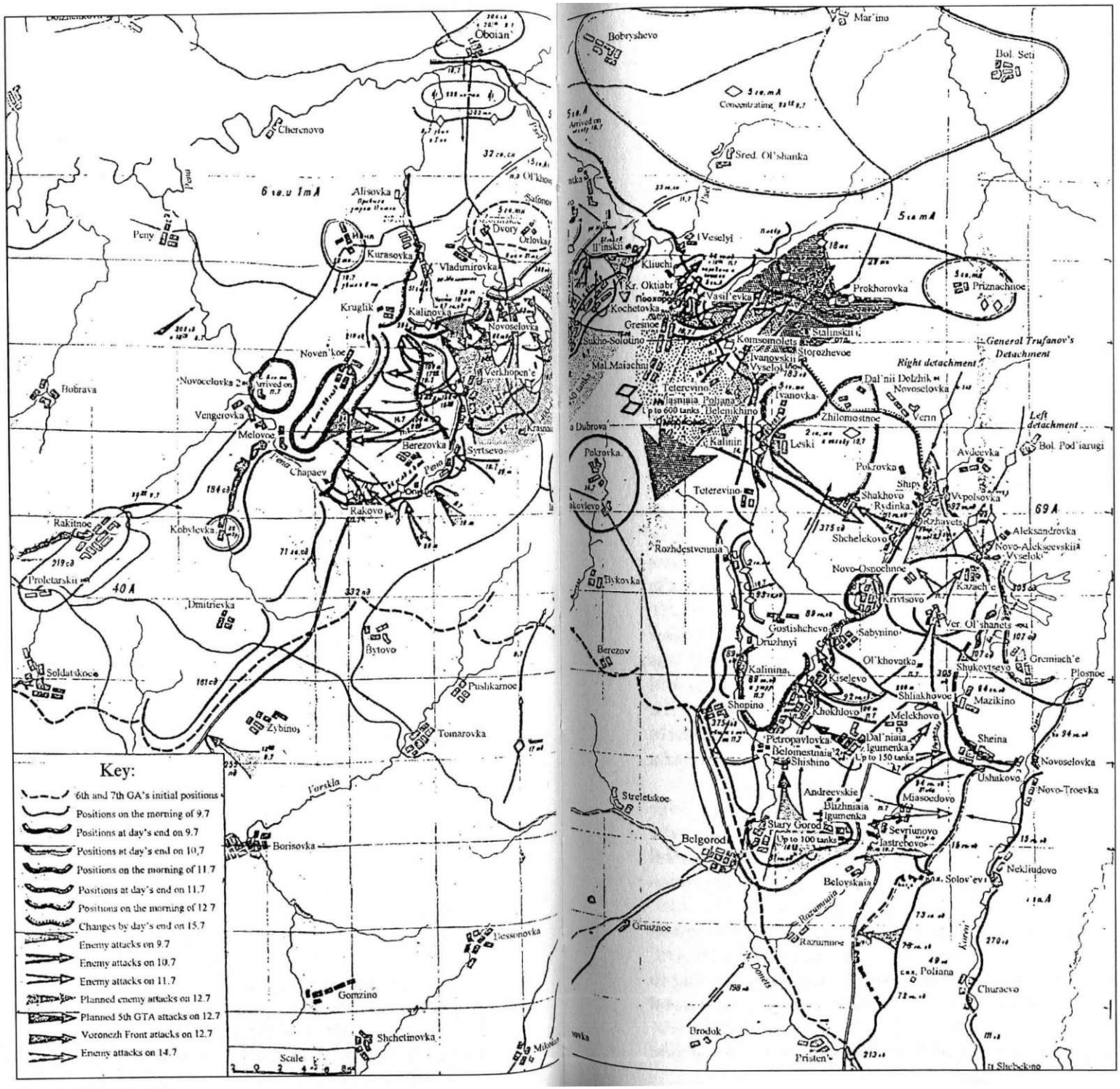
Combat on 9 July: the final German attempt to penetrate to Oboian' from the south (see Map 11). On 9 July the enemy's main efforts were concentrated in the Belgorod-Oboian' highway sector. During the night of 9 July, the German command concentrated 400-450 tanks in the 10-kilometer front sector from Verkhopen'e to Sukho-Solotino. The average tank density was 50 tanks per kilometer of frontage and on the main attack axes, this density reached 100 tanks. To ensure the success of this grouping, the enemy threw in all his available aviation, carrying out more than 1,500 sorties during the day.

The *front* command undertook a series of timely and necessary measures to repulse the new attack being prepared by the enemy. It created a strong antitank artillery shock force in the Oboian' Highway sector, consisting of one antitank brigade, three separate antitank regiments, and four guards mortar battalions. A considerable portion of the *front's* tank reserve was assembled in this sector.

On 9 July the enemy delivered his main attack from the Krasnaia Dubrova region against Novoselovka and units of the 3d Mechanized Corps and 67th Guards Rifle Division. At midday the enemy succeeded in penetrating the defense and corps units began to withdraw northward. Simultaneously, the 31st Tank Corps was also forced to begin to withdraw. By day's end, as a result of their losses, several units of the 3d Mechanized Corps had to be withdrawn from combat to the rear of the 309th Rifle Division's combat formation, which in the meantime had halted the enemy's further advance along the line from the Malinovoe woods to the Melovoe woods. The 51st Guards Rifle Division occupied defenses along the Melovoe woods and Il'inskii line.

German attempts to penetrate into the Kalinovka region were repulsed by units of the 67th Guards Rifle Division and also by positional tank fire and counterattacks by units of the 10th Tank Corps, which had reached the Kruglik and Kalinovka line during the second half of the day. Having repelled a series of fierce enemy attacks and suffered considerable losses, the 67th Guards Rifle Division withdrew to the Kalinovka region to reorganize and refit. The enemy also launched several unsuccessful attacks against 6th Tank Corps units while attempting to force the Pena River in the Spitsin and Syrtsevo sector and against units of the 52d Guards Rifle Division, which were defending a line along the Psel River in the Krasnyi Oktiabr' region. The enemy continued defensive activity in front of the 38th and 40th Armies and in the Belenikhino and Shopino sector.

As a result of combat on 9 July, the last attempt by the German command to penetrate our defense along a narrow (8-10 kilometers) front by means of a powerful ram and to reach the Oboian' region in order to develop further the offensive against Kursk had failed. By the end of 9 July, after fierce battles the enemy had succeeded only in pushing our units 6-8 kilometers



Map 11:
The defensive battle on the Belgorod-Kursk axis, 9-15 July 1943

back to the north along the main attack axis. This insignificant tactical success, however, cost him enormous losses. He lost 295 tanks knocked out and burned and a considerable number of self-propelled guns, armored transports, motor vehicles, and personnel in fighting along the Oboian' axis.

On the night of 10 July the 5th Guards Tank Army's forward detachments, which had been concentrated in the Bobryshevo, Sredniaia Ol'shanka, and Bol'shie Seti region, began to appear along the line of the Psel River on the Oboian' axis. The Oboian' region itself was protected by the 38th Army's 204th Rifle Division, which had arrived there by the evening of 9 July.

Combat operations on 9 July along the Korocha axis. After the fierce battles on 8 July in the Melekhovo region, the units of the 7th Guards Army occupied the following positions by the next morning: the 81st Guards Rifle Division continued to hold on to Staryi Gorod and Blizhniaia Igumenka; the 92d Guards Rifle Division with the 96th Tank Brigade consolidated along the Andreevskie and (excluding) Shliakhovo line; the 94th Guards Rifle Division with the 31st Antitank Brigade defended the (excluding) Ushakovo and Miasoedovo line; and the 305th Rifle Division, which had already been sent to the Sabynino and Ushakovo line on the afternoon of 8 July, continued to defend it. By the morning of 9 July the 69th Army's 107th Rifle Division had been brought forward to the Verkhnii Ol'shanets, Gremiach'e, and Ploskoe line. Thus by that morning there were two defensive lines which were occupied by forces in the highway sector along the Korocha axis.

Although it had cut a narrow wedge 8-10 kilometers deep into our defense and captured the Melekhovo region, the German tank group was unable to maneuver freely, since by the evening of 8 July our forces had closed in on it from three sides. The width of the pocket formed by the penetrating German group was no more than 5-6 kilometers. Our forces continued to hold on to the important strong points of Blizhniaia Igumenka and Miasoedovo along both sides of the base of the enemy wedge.

Further development of the attack northward from the narrow wedge formed as a result of the 8 July penetration by German units into the Melekhovo region was extremely risky, since, in the event of successful counterattacks by our forces from the Blizhniaia Igumenka and Miasoedovo regions, the entire main German group could have been encircled.

Therefore the German III Panzer Corps command decided to relinquish its continuation of the offensive northward on 9 July and all of its forces' efforts were directed toward widening the existing pocket while striving to reach the Northern Donets River in the Khokhlova and Staryi Gorod sector.

At 1600 hours, as a result of an attack by 100 tanks supported by a strong

air group, the enemy succeeded in penetrating our defensive front and by 1800 hours had captured Blizhniaia Igumenka and Staryi Gorod. At the same time, the enemy group operating in the Melekhovo region launched an offensive. As a result of repeated attacks the enemy penetrated the 92d Guards Rifle Division's defenses and by 2000 hours had captured Dal'niaia Igumenka after a fierce street battle. Thus the enemy had managed to widen somewhat to the west the pocket formed as a result of combat on 8 July and to protect his main group's left flank.

The results of combat from 7 through 9 July. The sustained, three-day battle did not provide the enemy with decisive success. As has already been pointed out, on 9 July the enemy made his last attempt to penetrate to Oboian' along the Oboian' axis by means of a powerful tank ram and thereby open the road to Kursk. This attack, like all the previous ones, did not produce any tangible results. Therefore 9 July may be considered as the beginning of the crisis for the German offensive. On 9 July the German command was finally forced to abandon continuation of its offensive to Kursk through Oboian'.

As the course of subsequent events demonstrated, beginning on 10 July, the German command strove to detect our *front's* most vulnerable areas for the delivery of a new attack. To this end the Germans shifted their main efforts on 11 July to the Prokhorovka axis, with the intention of penetrating to Kursk by a circular route through Prokhorovka. On the morning of 9 July the enemy was already conducting combat reconnaissance in the Krasnyi Oktiabr' and Komsomolets State Farm sector, using separate tank groups with motorized infantry and attempting to penetrate to the northern bank of the Psel River. Moreover, according to reports from units operating along this axis, a group of more than 200 tanks was detected in the Greznoe, Ozerovskii, and Iasnaia Poliana region. All this provided a basis for thinking that on 9 July the Germans had already begun to prepare for a possible offensive operation on the Prokhorovka axis.

By the end of that day the 6th Guards and 1st Tank Armies were continuing to fight in the army second defensive belt and the enemy had succeeded in approaching the army rear defensive belt only in the 12-13 kilometer-wide Il'inskii and Ivanovskii Vyselok sector. On the eastern bank of the Northern Donets River northeast of Belgorod the German command had already been forced by the end of 6 July to abandon the delivery of a deep attack to the northeast to reach the Korocha region. However, the new mission - to reach the rear area of the 6th Guards Army's left-flank units which were defending along the Lipovyi Donets in order to widen the penetration — could similarly not be accomplished by 9 July. As a result of the offensive operations in this region, the Germans succeeded only in diverting to the area up to six rifle divisions from the *front* reserve.

It should be mentioned that by 9 July the enemy had completely exhausted all of Fourth Panzer Army's reserves and, beginning on that day, the German command was forced to transfer reserves from other fronts to bolster the offensive operation. Thus on 9 July the 198th Infantry Division, formerly operating against Southwestern Front forces, was thrown into battle against the 7th Guards Army. On this day too the enemy began to bring units of the 17th Panzer Division forward to the combat area.

German forces suffered enormous losses during this period of combat. Only 400 men remained in some infantry regiments, while some companies numbered only 20. Beginning on 6 July to replenish their tank losses, the German command was forced to bring up machines from the rear daily.

It must be recalled that on 8 July the German offensive against the Central Front had completely collapsed and that the Germans were forced to return to the defense along the Orel axis. From this moment on, it made no sense to continue the offensive operation against the Voronezh Front.

Measures of the Stavka of the Supreme High Command (see Map 9). With regards to the existing situation on the Voronezh Front, on 9 July the *Stavka* of the Supreme High Command issued instructions to the Steppe Military District commander concerning the movement of three armies to the Belgorod-Kursk axis.

On the evening of the same day the 27th Army, which had earlier been designated for operations on the Orel axis and had completed a march to Maloarkhangel'sk, received an order to move from the Dubovik, Kobzeva, and Pokrovka region to the Kursk region and to occupy defenses in the Kursk Fortified Region.

On the morning of that day the 53d Army, which was occupying a Steppe Front defensive line along the Kshen' River in the Kazatskoe, Kshen', and Stuzhen' sector, received an order to advance into the *front* first line along the Seim River and occupy a defense with three divisions in the Bukino, Solntsevo, and Nechaevo sector to create a strong screen in the operational depth of the defense along the Prokhorovka—Kursk axis. By the morning of 12 July this army had occupied its designated position.

The 5th Guards Army, which was occupying a Steppe Front defensive line in the (excluding) Stuzhen', Rusanovka, and Skorodnoe sector, left its occupied positions and, by the morning of 11 July, had reached the Psel River, where, having been resubordinated to the Voronezh Front commander, it occupied the army rear defensive belt in the Oboian' and Prokhorovka sector.

Measures of the front command. Measures undertaken by the Voronezh Front commander on 9 July were primarily directed toward strengthening the Oboian' axis and organizing a stable defense along the Prokhorovka axis (see Map 11).

The 5th Guards Tank Corps, which was previously defending in the Belenikhino and Teterevino sector, was resubordinated to the 1st Tank Army's commander to strengthen the Oboian' axis. The corps was ordered to hand its defenses over to the 69th Army and to concentrate in the Orlovka and Zorinskie Dvory region by 0100 hours on 10 July. In addition, the 40th Army commander was ordered to move the 219th Rifle Division from the Rakitnoe and Proletarskii region to the Kruglik, Kurasovka, and Alisovka line, and by the morning of 11 July the division had occupied its designated line.

The 204th Rifle Division, which was located in *front* reserve in the Oboian' region together with the 10th Tank Corps and the 67th Guards Rifle Division, was to occupy the Kruglik and (excluding) Malinovoe defense line by 10 July. Considering the strong German tank group which had been observed on the previous day in the Greznoe, Ozerovskii, and Iasnaia Poliana region and the intensified enemy reconnaissance actions along the Prokhorovka axis from the Sevriukovo and Iastrebovo region, the *front* commander had grounds for assuming that on 10 July the Germans might attempt to develop an offensive against Prokhorovka using a large tank group.

In addition, the possibility could not be excluded that the enemy might attempt to encircle units defending north of Belgorod by means of attacks from the Iasnaia Poliana and Ozerovskii region eastward against Shakhovo and from the Melekhovo region northward against Rzhavets. To parry these possible attacks and to strengthen the defense on the Prokhorovka and Korocha axes to a maximum, the *front* commander decided to combine the direction of all forces operating along these axes in the hands of the 69th Army commander.

At 1130 hours the *front* commander subordinated the 183d, 93d Guards, 89th Guards, 375th, 81st Guards, 92d Guards, 94th Guards, 305th, and the 107th Divisions, the 2d Guards Tank Corps, the 148th Tank Regiment, the 96th Tank, 30th Antitank, and 27th Artillery Brigades, two antitank regiments, and one guards mortar regiment to the 69th Army commander.

This Army was entrusted with the mission to defend the Vasil'evka, Belenikhino, Shopino, Belomestnaia, Kiselevo, Shliakhovoe, and Miasoedovo front.

The army commander was ordered to withdraw the 2d Guards Tank Corps and the 93d Guards Rifle Division defending with it from the Rozhdestvenka and Druzhnyi line and concentrate them in the Leski, Shakhovo, and Dal'nii Dolzhik region. In addition, at 2350 hours the *front* commander pointed out personally by direct telephone conversation to the commander of the 2d Tank Corps, defending the Vasil'evka and Ivanovskii Vyselok sector, that 'the enemy has concentrated no fewer than 250 tanks on

the Vasil'evka and Belenikhino front, and it must be assumed that on 10 July he will launch an offensive in this sector'.

On the evening of 9 July the *front* commander also warned the 7th Guards Army's commander about the possibility of an attack by large enemy forces next day against the 69th Army. The 7th Guards Army commander was ordered to strengthen his right flank by the morning of 10 July so as to assist the 69th Army, if necessary with fire and perhaps by counterattacks, and in no case was he to permit a German penetration at the junction between 69th Army and 7th Guards Army.

Combat operations on the Prokhorovka axis

After his last attempt to penetrate to Oboian' had failed on 9 July, the enemy shifted his main attack to the Prokhorovka axis. Simultaneously, the III Panzer Corps' formations shifted their operations from the Melekhovo region toward Verkhnii Ol'shanets and further north in the general direction of Prokhorovka. The implementation of these two attacks created a threatening situation for the 69th Army's right flank.

On 10 July the Germans carried out a regrouping of their forces previously operating along the Oboian' axis and assembled them to the east along the Prokhorovka axis. Simultaneously, on 10 July and the first half of the next day the enemy organized an attack with part of his forces from the Syrtsevo and Verkhopen'e region westward to liquidate the salient occupied by our forces along the Chapaev, Spitsin, Syrtsevo, and Verkhopen'e front.

By the end of 10 July, after sustained combat, the enemy had pressed the 6th Tank Corps' left-flank units 1.5-2 kilometers back to the west. German attempts to advance northward along the highway to Oboian' and also to force the Psel River in the Kliuchi region were unsuccessful. Attempts by German infantry, reinforced with tanks, to press units of the 305th and 94th Guards Rifle Divisions back from the Melekhovo region to Mazikino and Ushakovo and from the Servriukovo region to Hill 206.9 were successfully repelled by our units.

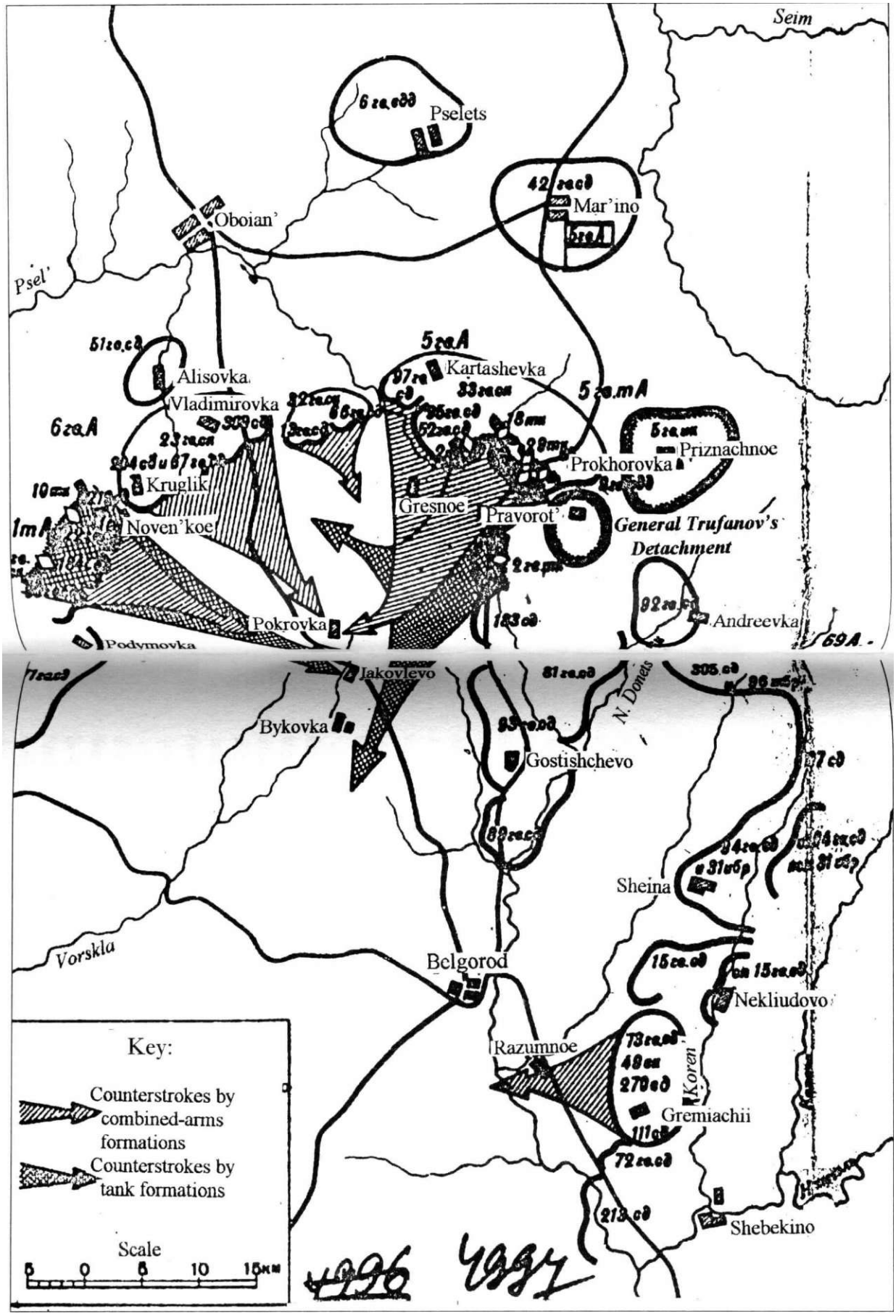
Command measures: the preparation of the counteroffensive (see Maps 11 and 12). In assessing the situation which had arisen in the Voronezh Front by the close of 10 July, the *front* commander thought that the enemy, having ceased the intensive attacks by his main grouping along the Oboian' Highway, was regrouping and that on the morning of 11 July would probably employ large forces to launch an offensive along the Prokhorovka axis with the immediate mission to capture Prokhorovka. At the same time, one could not exclude the possibility of continuing enemy offensive operations also along the Oboian' axis and northward from the Melekhovo region against the 69th Army.

On the night of 11 July the *front* commander reached a decision concerning the expediency of launching a counteroffensive with part of the *front's* forces to encircle and defeat the main German grouping, which was straining toward Oboian' and Prokhorovka. The basic concept of this operation involved the delivery of concentric attacks against the enemy grouping with the forces of the 5th Guards and 10th Tank Corps together with the 6th Guards Army's 22d Guards Rifle Corps in the general direction of Iakovlevo, and with the 5th Guards Tank Army and the 5th Guards Army's 33d Guards Rifle Corps in the general direction of Greznoe, Iakovlevo, and Bykovka. The 6th Guards Army's left-flank 23d Guards Rifle Corps and the 5th Guards Army's right-flank 32d Guards Rifle Corps were to deliver secondary attacks in the general direction of Pokrovka. The 7th Guards Army was also to deliver a secondary attack with part of its forces against Razumnoe.

All necessary measures were to be carried out on 11 July and the night of 12 July. The offensive was to begin on the morning of the 12th. This decision was communicated to army commanders by the morning of 11 July and additionally they were required to develop concrete plans for their armies' attack. Based on this decision the *front* commander ordered the transfer to the 6th Guards Army by 0700 hours on 11 July of the 71st Guards and the 184th and 219th Rifle Divisions from the 40th Army, the 204th Rifle Division from the *front* reserve, and the 309th Rifle Division from the 1st Tank Army.

The 69th Army commander decided during the night of 11 July to regroup in order to withdraw his units from the dangerous pocket formed in the region north of Belgorod (see Map 11). By the morning of 11 July the 89th Guards Rifle Division had occupied defenses along a front from Kalinina through the northern outskirts of Belomestnaia to Kiselovo (on the western bank of the Northern Donets River) in the region between the Lipovyi Donets and Northern Donets Rivers. On the night of 11 July the 375th Rifle Division was brought forward to the Shakhovo, Zhilomestnoe, and Novoselovka region to strengthen the defense on this axis. The 81st Guards Rifle Division was brought forward into the army commander's reserve in the Krivtsovo region. By the end of 10 July the 2d Guards Tank Corps had concentrated in the Zhilomestnoe, Leski, and Shakhovo region to reinforce the Prokhorovka axis. On the order of the *front* commander the 5th Guards Tank Corps left its occupied positions at 1800 hours on 10 July and was resubordinated to the 1st Tank Army commander to reinforce the Oboian' axis.

Combat operations in the Prokhorovka region. While continuing the attack with part of his forces in the direction of Vengerovka, during the day on 11 July, the enemy pushed units of the 90th Guards Rifle Division and the 6th



Map 12: **The Voronezh Front commander's decision on the 12 July counteroffensive and the grouping of forces on the morning of 12 July 1943**

Tank Corps back to the Chapaev, Noven'koe, and Kruglik line, behind the 184th Rifle Division's combat formations (see Map 11).

On this same day the enemy directed his main efforts against Prokhorovka. As a result of sustained combat, which developed west of this point, the enemy succeeded at midday in penetrating our defense with a group of more than 100 tanks and infantry and, by the day's end, reached the Oktiabr'skii and Stalinskii region, where he was halted by units of the 5th Guards Army's 9th Guards Airborne Division, approximately 2 kilometers west of Prokhorovka. Units of the German III Panzer Corps, which were advancing from the Melekhovo region, reached the Verkhnii Ol'shanets region.

Thus the mission of capturing Prokhorovka by the end of 11 July was not accomplished, but the enemy had approached close to it and with the slightest success of his subsequent attack, Prokhorovka - the most important junction of routes that would make it possible for the enemy to maneuver further northward - could be lost.

The battle for Prokhorovka reached its culminating point on 12 July (see Map 11).[3] The enemy threw more than 600 tanks (up to four panzer and one infantry division) against it from the west. Furthermore, all the forces of the III Panzer Corps, three panzer divisions, were flung from the Novo-Oskochnoe region into the attack. On our side, the 5th Guards Tank Army took part in the battles for Prokhorovka.

In its immediate vicinity the main forces of the 5th Guards Tank Army collided with the main German grouping consisting of the three divisions of the SS Panzer Corps and the 17th Panzer Division.[4] The total number of tanks from both sides reached 1,200-1,300.[5]

As a result of the 5th Guards Tank Army's being engaged, the main German grouping advancing against Prokhorovka from the west suffered enormous losses, and, by the evening of 12 July, it was forced to go on the defensive, having abandoned further attempts to resume active operations. The 5th Guards Tank Army also suffered comparable losses. Around 800 damaged and burned tanks of several makes and systems remained on the battlefield.

Combat on 11 July on 69th Army's left flank. Having concentrated up to 250-300 tanks in the Melekhovo region on the night of 11 July, at dawn the enemy began an offensive simultaneously along two axes. A group of around 100 tanks with infantry began an offensive from the Dal'niaia Igumenka and Melekhovo region against Khokhlova and Kiselevo. The main German grouping (around 200 tanks) directed its attack from the Melekhovo region to the north against Ol'khovatka and Verkhnii Ol'shanets. In addition, German infantry, supported by 20-30 tanks, attempted to penetrate the 94th Guards Rifle Division's front by attacks in the direction of Miasoedovo

and to force the division back to the Koren' River to widen the existing pocket to the east.

After a series of repeatedly unsuccessful attacks, the enemy succeeded during the second half of the day in capturing the populated points of Khokhlovo and Kiselevo, having pushed subunits of the 89th Guards Rifle Division back to the eastern bank of the Northern Donets River, from where they crossed to the west when darkness fell.

As a result of the massed tank attack northward from the Melekhovo region, the enemy successfully penetrated during the first half of the day the 305th Rifle Division's front and captured Shliakhovoe and Ol'khovatka. When darkness fell a sizable group of German tanks reached the Verkhnii Ol'shanets region and separate groups reached Novo-Oskochnoe and Kazach'e. Rifle units of the 92d Guards and 305th Rifle Divisions continued to remain in their positions and fought against enemy infantry which had been cut off from its tanks by our defensive fire. Combat continued in this manner until darkness fell.

As a result of these repeated attacks, the enemy managed to drive our units out of and then captured Miasoedovo. Enemy attempts to advance to the wooded grove east of Miasoedovo were repulsed by fire and counter-attacks by the 94th Guards Rifle Division. To liquidate the dangerous penetration, the 69th Army commander decided to regroup his forces on the night of 12 July and to withdraw some of his formations to new defensive lines.

After regrouping in accordance with this plan, the army's formations occupied the following positions by dawn on 12 July (see Map 11). The 93d Guards Rifle Division continued to defend its occupied line from Rozhdestvenka through Druzhnyi. The 89th Guards Rifle Division, having left no more than two battalions with antitank guns on the Kalinina and Petropavlovka front, occupied a defense along the Kiselevo and Krivtsovo front. The 81st Guards Rifle Division occupied a defense on the western bank of the Northern Donets River from Krivtsovo to Ryndinka. The 92d Guards Rifle Division with the 96th Tank Brigade occupied a previously prepared line along the Vypolzovka and Novo-Alekseevskii Vyselok front, and the 107th and 305th Rifle Divisions occupied defenses along the Balka Razumnaia and Gremiach'e line. The 94th Guards Rifle Division with the 31st Antitank Brigade occupied the Shukhovtsevo, Mazikino, Sheina, and Ushakovo line, with one rifle regiment and a regiment of the 31st Antitank Brigade in second echelon along the Ploskoe and Novoselovka line on the eastern bank of the Koren' River. To the left, the 7th Guards Army's 15th Guards Rifle Division continued to defend along the (excluding) Sheina and Solov'ev Collective Farm line.

Having brought the III Panzer Corps' main forces forward to the Novo-Oskochnoe and Kazach'e region during the night of 12 July, the enemy

resumed the offensive to the north at 0400 hours on 12 July. As a result the Germans captured Rzhavets and Ryndinka.

At 0500 hours on 12 July the *front* commander ordered the 5th Guards Tank Army commander to throw strong mobile detachments quickly into the Ryndinka, Avdeevka, and Bol'shie Pod'iarugi region with orders to halt the enemy offensive and to dislodge him from Ryndinka and Rzhavets. The army commander ordered that two detachments be formed under the command of his deputy General Trufanov. The right [flank] detachment consisted of the 5th Guards Mechanized Corps' 11th and 12th Mechanized Brigades and the 2d Guards Tank Corps' 26th Tank Brigade. After this detachment arrived in the Ryndinka and Avdeevka region, the 92d Guards Rifle Division and one of the 375th Rifle Division's regiments were included in this detachment. The left [flank] detachment (the army's former forward detachment) consisted of the 1st Separate Guards Motorcycle Regiment, the 53d Guards Tank Regiment, and the 689th Antitank and 678th Howitzer Regiments.

At 1800 hours the detachments attacked the enemy simultaneously from the Pokrovka and Avdeevka line in the direction of Ryndinka and against Hill 222.1, south of Avdeevka.

A fierce tank meeting engagement ensued and, as a result, the enemy was forced out of Ryndinka with heavy losses and thrown back to the Rzhavets region on the eastern bank of the Northern Donets River. The German 19th Panzer Division's 73d and 74th Panzer Grenadier Regiments were utterly smashed in this battle and, while exploiting success, one of our detachment's brigades reached Hill 216.0. By the end of the day, having consolidated on the Ryndinka and Hill 216.0 line with part of the 92d Guards Rifle Division's forces, the right detachment repelled enemy attempts to penetrate to the north throughout the night.

From early morning on 12 July the enemy also assumed the offensive with a part of his forces from the Kazach'e region against Novo-Alekseevskii Vyselok and captured the latter. A further enemy advance against Aleksandrovka was stopped by a counterattack by the 96th Tank Brigade and General Trufanov's left detachment.

The offensive battles of the 7th Guards Army's 49th Rifle Corps. In accordance with the *front* commander's plan, the 7th Guards Army's 49th Rifle Corps (the 73d Guards and 270th and 111th Rifle Divisions) launched an offensive from the Solov'ev Collective Farm and Poliana Farm region at 0900 hours on 12 July. As a result of sustained combat, by the day's end the corps had reached the Hill 207.9 and Hill 191.2 line. Further offensive attempts were unsuccessful.

As a consequence, the enemy was forced on 12 July to abandon further attempts to continue the offensive northward to penetrate to Prokhorovka.

That day was one of final crisis for the German offensive, the day when the enemy completely abandoned his assigned mission of capturing Kursk from the south.

Here it should be recalled that, on 12 July, the forces of the Western, Briansk, and Central Fronts' launched a decisive offensive to liquidate the enemy's Orel grouping. On that day the initiative passed fully into the hands of the Red Army command. The Battle for Kursk was finally won in the fierce tank battles of 12 July.

Measures of the front *command.* Based on an assessment of the results of combat on 12 July, the *front* command acknowledged the possibility that the enemy would continue active operations along the Prokhorovka axis. On the basis of an estimate of the situation,^«/ forces were assigned the following missions on 13 July:

- to prevent any further enemy advance toward Prokhorovka from the west and south;
- with joint operations by part of the 5th Guards Army's forces and two brigades from the 5th Guards Mechanized Corps (of the 5th Guards Tank Army) to liquidate the enemy grouping which had penetrated to the northern bank of the Psel River;
- to liquidate the German III Panzer Corps units which had penetrated to the Rzhavets region; and
- to continue the offensive by the 1st Tank and 6th Guards Army and the 5th Guards Army's right flank.

Combat operations of the 69th Army's forces on 14-15 July. Having failed to penetrate the Voronezh Front's defense along the Prokhorovka axis and having suffered enormous losses in the bitter fighting on 11 and 12 July, the enemy was forced to abandon active operations. By 13 July German forces had assumed the defensive in front of the entire Voronezh Front, with the exception of the 69th Army's right flank and the formations of the 5th Guards Tank Army, where intense fighting continued from 13 to 15 July. Having abandoned the continuation of the operation to reach the Kursk region, the German command assigned the III Panzer Corps and the SS Panzer Corps the local mission to encircle the five 69th Army divisions, which were defending in the narrow salient formed by the Lipovyi Donets and Northern Donets Rivers. The accomplishment of this mission would have made it possible for the enemy to reduce his defensive frontage somewhat, to widen to the east the salient which had formed as a result of his aborted offensive, and to ensure favorable conditions for the withdrawal of the German Fourth Panzer Army's main forces.

To protect the left flank of the Fourth Panzer Army's shock group, the

German command launched a local attack on 14 July in and north of the Berezovka region.

On 13 July, the SS *Das Reich* Panzer Division, which had been reinforced at the expense of other SS Panzer Corps divisions, was concentrated in the Iasnaia Poliana, Kalinin, and Ozerovskii region. Part of the SS Panzer Corps' forces were concentrated in the Pokrovka and Iakovlevo region on the night of 12 July and during the day on 13 July to carry out an offensive on the 14th against the 6th Guards Army's right flank.

During 14 and 15 July the enemy attempted to encircle the 69th Army's right wing by concentric attacks from the Iasnaia Poliana and Shchelokovo regions in the general direction of Shakhovo. Owing to the looming threat of the encirclement of five of the 69th Army's divisions, the decision was reached on the night of 15 July to withdraw them from the developing pocket.

In fierce combat and under the protection of rearguards, the divisions reached the Storozhevoe, Zhilomostnoe, Novoselovka, and Shipy line on 15 July. Thus the enemy's persistent and expensive attempts to encircle the army's right flank were unsuccessful.

As a result of the enemy offensive launched from the Rakovo and Berezovka region on 14 July against the 6th Guards Army's right flank, our units withdrew 1.5-2 kilometers after stubborn resistance.

The offensive combat which the 6th Guards Army's 23d Guards Rifle Corps and the 5th Guards Army conducted on 14 July produced no substantive results.

In accordance with the *front* commander's decision on the morning of 15 July, the 6th and 5th Guards Armies temporarily ceased offensive operations and assumed the defense along their existing lines.

The withdrawal of the enemy's main grouping to his jumping-off position. As a result of the complete failure of the offensive operation by the enemy's Belgorod-Khar'kov grouping against Kursk, the German command had already begun by 16 July to conduct a gradual withdrawal of the army's main forces to the position it had formerly occupied, under the cover of strong rearguards.

Parts of the enemy's panzer divisions were transferred to reinforce his Orel grouping, whose situation at this time was rather serious due to the successfully developing offensive of Western and Briansk Front forces.

Based on the existing situation, the *front* commander decided on 16 July to assume the offensive to defeat the withdrawing main German grouping. Having overcome the resistance of strong enemy rearguard units, *front* forces had by 23 July for the most part reached the line which our forces had occupied before the beginning of the German offensive.

THE DEFENSIVE BATTLE ON THE CENTRAL FRONT'S RIGHT FLANK

The Germans did not succeed in concealing their offensive preparations. Our command knew about the offensive they were readying. Our forces were forewarned, all combat equipment was brought to full readiness, and, in particular, all mines and explosive obstacles in front of the forward edge of the defense were checked and prepared, mobile obstacle detachments moved forward into their jumping-off positions according to the plan, all fighter and bomber crews occupied their posts at airfields in readiness for a rapid take-off, and *front* artillery was prepared to conduct the counter-preparation (see Map 13).

The enemy offensive unfolded in front of the 13th Army and in front of the 70th Army's right flank along the Krasnaia Slobodka and Izmailovo front, on a total expanse of 50 kilometers.

Combat operations on 5 July

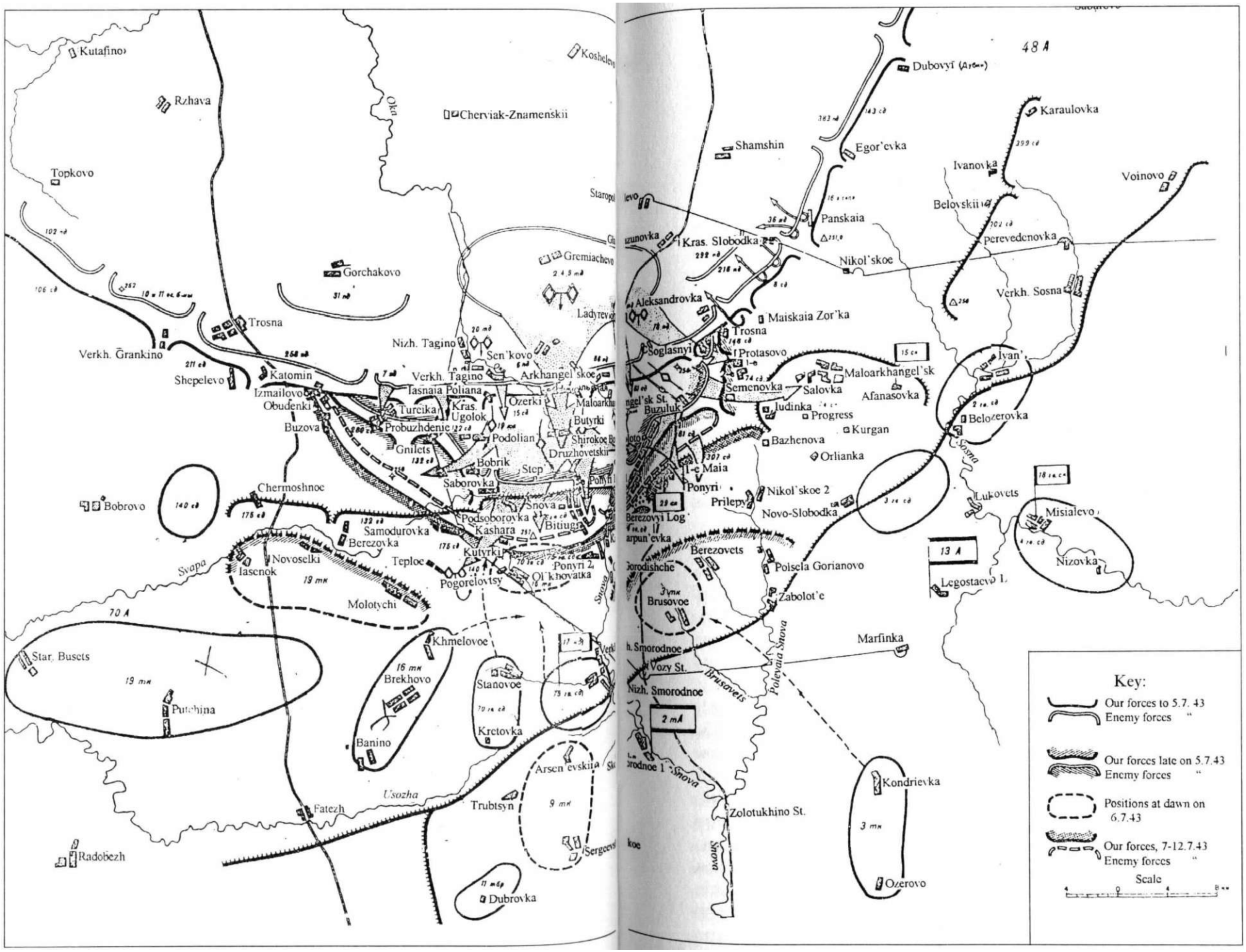
At 0220 hours on 5 July the 13th Army's artillery began a counterpreparation. The 4th Artillery Penetration Corps, and 2 divisional, 1 gun, and 1 *mortar regiment, totaling* 595 guns, participated in the 30-minute counter-preparation. The primary mass of artillery fire was directed at suppressing enemy batteries, and this was achieved: the majority of the batteries were suppressed, and the enemy offensive was delayed for almost two hours.

At 0430 hours the German artillery began an artillery preparation, which continued for 80 minutes. At first the enemy conducted this in a disorganized fashion, but gradually his artillery fire grew into intense fire raids. The objectives of German artillery pressure were our infantry combat formations and artillery to a depth of up to 3-4 kilometers from the forward edge of the defense.

Simultaneously with the artillery preparation, German bomber aviation, in groups of 50-100 aircraft each, attacked the main defensive belt, subjecting infantry and artillery to a depth of 6—8 kilometers and in some cases up to 10 kilometers to air raids.

To weaken the German artillery preparation, the 13th Army command decided to repeat the counterpreparation. It commenced for a second time at 0435 hours, that is, 5 minutes after the beginning of the German artillery preparation and, as with the first time, it continued for 30 minutes. This time 967 guns and mortars were employed.

Our counterpreparation considerably reduced the effectiveness of the German artillery fire but was unable to frustrate the offensive by German-Fascist forces. At 0530 hours enemy infantry and tanks, supported by a large number of aircraft, launched the offensive and all the 13th Army and its



Map 13: The course of the defensive battle on the Orel-Kursk axis, 5-12 July 1943

adjoining flank with the 48th and, particularly, the 70th Army were in the sector of their offensive. To disorient our command with regard to the main attack axis, the Germans launched their most active offensive operations in the junction between the 48th and the 13th Army, that is, along the secondary axis. Here the enemy attacked the forward edge of the 8th, 148th, and 16th Rifle Divisions' defenses along the Panskaia and Maloarkhangel'sk Station front using the forces of up to two infantry divisions with tank support. The Germans delivered their main attack on the Maloarkhangel'sk axis.

By 0600 hours the enemy had succeeded in penetrating our force dispositions in separate sectors. Intense combat engulfed the Soglasnyi and Maloarkhangel'sk Station region. Fired upon from several directions, the German tanks were forced to turn back, having suffered heavy losses. Soon units of the 8th and 148th Rifle Divisions completely destroyed the enemy infantry which had penetrated behind the tanks into our disposition and reestablished the forward edge of the defense.

Thus the enemy's first strong attack was successfully repelled by the 13th Army's right-flank forces. The Germans were not only unable to penetrate the defense there, but in many areas they were not even able to reach its forward edge.

In the 16th Latvian Rifle Division's sector, the enemy succeeded in penetrating into our defense to a depth of up to 1.5 kilometers, where he was stopped and then pushed back to his initial position by counterattacks.

Having failed to achieve success along the Maloarkhangel'sk axis, hours the Germans began a strong offensive at 0730 hours along the Soglasnyi, Arkhangel'skoe, and Iasnaia Poliana front in the general direction of Ol'khovatka with a force approaching five infantry and three panzer divisions (up to 500 tanks), powerfully supported from the air. They delivered their main attack in a narrow front sector between Arkhangel'skoe and Verkhnee Tagino, where they committed their main mass of tanks.

Massed artillery fire, continuous minefields, and our air strikes greatly delayed but did not stop the German tank attack. After 0800 hours the enemy succeeded in reaching and attacking the forward edge of the defense of the 13th Army's 81st and 15th Rifle Divisions. Steadfastly fighting, the units of these divisions repulsed four fierce attacks and only after the fifth attack, in which fresh forces took part, did German tanks and infantry succeed in penetrating to the forward edge of the defense in several places. A difficult struggle ensued and, as a result, the units of these divisions, unable to withstand the attacks, began to withdraw slowly to the south. Simultaneously the enemy delivered a powerful attack with a force of up to two infantry divisions and 100 tanks with air support against the 132d and 280th Rifle Divisions, which were deployed on the 70th Army's right flank; but he could not penetrate the defense of these divisions.

Considering the serious situation created in the 13th Army's center, the *front* commander threw more than 200 fighters and 150 bombers into this sector. To strengthen the durability of the defense in the 13th Army's sector, two antitank, one howitzer, and one mortar brigade were transferred to the army from the *front* reserve. At the same time the 74th Rifle Division, which was located in army second echelon, was moved forward into the Protasovo region with orders to cover the Maloarkhangel'sk axis from the west.

At a cost of heavy losses, the Germans had captured the population points of Nikol'skaia 1, Ozerki, and Iasnaia Poliana by 1030 hours. Units of the 81st and 15 th Rifle Divisions succeeded in stopping the enemy offensive along this line; however, confronted by superior forces, they could not hold them up for long. The Germans penetrated the occupied defensive line by means of powerful attacks by large tank and infantry groups and headed toward the south. Up to 60 tanks penetrated at Nikol'skaia 1 and began to develop the offensive in the general direction of Ponyri 1 and more than 100 tanks, which had penetrated in 15th Rifle Division's sector, advanced in the directions of Snova and Podolian'. After penetrating the first defensive line in the 81st and 15th Rifle Divisions' sectors, the enemy resumed his offensive along the Maloarkhangel'sk axis and forced the 148th Rifle Division to withdraw its left flank southeastward to the Trosna region.

The 13th Army's commander called upon the services of two mobile obstacle detachments, a tank regiment, and all divisional and army sapper [combat engineer] subunits to destroy the penetrating tanks.

Divisional artillery and a part of the heavier caliber antiaircraft artillery moved into open positions and struggled with the enemy tanks. He began to suffer heavy losses. By 1300 hours our units had destroyed up to 40 percent of the penetrating tanks. However, having committing fresh forces, the Germans continued to strengthen their onslaught along the entire front.

Up to 40 tanks with infantry totaling up to two regiments, which had penetrated into the Podolian' region, began to press the 15th Rifle Division, which had begun to withdraw with heavy losses to the south and southeast while leaving the 70th Army's right flank uncovered. Attempting to forestall the envelopment of the army's flank from the east, the commander of this army's 132d Rifle Division (right-flank) moved his 712th Rifle Regiment east of Gnilets. However, the strength of this regiment turned out to be inadequate and, having turned west from the Podolian' region, the Germans delivered a powerful attack and the regiment began a fighting withdrawal to Gnilets, where by 1230 hours, having exerted its final strength, it halted the enemy.

At the same time, the Germans penetrated the 132d Rifle Division's defense by repeated attacks from the front and began to spread out in

the direction of Gnilets, threatening the 712th Rifle Regiment with encirclement. German aviation shifted its strikes from the 13th Army to the 70th Army's right flank. Despite heavy losses from our fighter aircraft and antiaircraft artillery, dive bombers bombed the combat formations of the 132d and 280th Rifle Divisions. Outnumbered by the enemy by more than two to one, the 132d Rifle Division began to withdraw and, faced with intensified German pressure from the front, the 280th Rifle Division was also forced to begin a withdrawal.

During the day our infantry slowly withdrew to the south, while exploiting its powerful artillery support and stubbornly resisting the enemy. By the end of the day the formations of the 13th and 70th Armies had withdrawn and consolidated along the [following] line: the 81st and 15th Rifle Divisions - Semenovka, Shirokoe Boloto, and Saborovka, and the 132d and 280th Rifle Divisions - the southern outskirts of Bobrik, Gnilets, the southern outskirts of Probuzhdenie, and Izmailovo. The 74th Rifle Division reached the Protasovo region and eliminated the breach which had been formed between the 148th and 81st Rifle Divisions.

Thus, despite their great superiority in forces on the first day of the offensive, the Germans were unable to penetrate our forces' defenses on the Central Front's right flank. At the cost of heavy losses, they pressed only 6—8 kilometers into the defense along the Ol'khovatka axis and reached 15 kilometers toward the army's second defensive belt in this sector.

On the first day of the offensive the enemy's main attack axis was precisely determined. The German command was employing its main forces west of the Orel-Kursk railroad. By attacking Maloarkhangel'sk it demonstrated the intention to dismember the Central Front's right-flank armies, thereby protecting the main German force offensive against Kursk.

Measures planned for 6 July by the Central Front commander

Having determined the German main attack axis, at 1200 hours on 5 July the Central Front commander ordered his army commanders 'to begin operations according to Variant No. 2 at first light on 6 July'. According to this variant, the 13th Army and adjacent formations of the 48th and 70th Armies as well as the 2d Tank Army were to launch a decisive counteroffensive.

In his order the *front* commander directed the 13th Army, while holding on to the Maloarkhangel'sk, Ponyri 1, and Saborovka line with the 17th Guards and 16th Rifle Corps, to launch a decisive counteroffensive from the Orlianka, Prilepy, Bitiug, and Kashara line in the direction of Ponyri 1, Ladyrevo, and Koshelevo in cooperation with the 2d Tank Army. Simultaneously with the 13th Army's attack, the 48th Army's left flank was to advance in the direction of Panskaia, Shamshin, and Zmievka, while the

70th Army's right flank was to strike toward Kromy through Probuzhdenie and Gorchakovo. The forces of the 17th Guards and 18th Rifle Corps, which were designated for the counterattack and the 2d Tank Army's formations were to begin moving immediately to jumping-off areas for the offensive. Simultaneously with instructions concerning the offensive, the 19th Tank Corps, which at first had been designated for joint operations with the 70th Army, was resubordinated operationally to the 2d Tank Army and the *front* commander ordered the 9th Tank Corps (the *front* reserve) to concentrate in the Arsen'evskii, Trubitsyn, and Sergeevskoe region in readiness for operations on the morning of 6 July along the Verkhnee Smorodnoe, Ponyri 2 and Stanovoe, and Samodurovka axes.

By the end of the first day of the operation it became clear that the enemy was delivering his main attack somewhat west of the Orel-Kursk railroad, in the general direction of Ol'khovatka. Thus the enemy's main attack axis did not completely coincide with the assumed axis of his offensive according to Variant No. 2. As a result and considering the existing situation, at 2200 hours the *front* commander assigned his forces a series of additional missions: the 2d Tank Army was to go on the defensive with the 3d Tank Corps along the (excluding) Polsela Goriannova and Gorodishche line; at dawn on 6 July it was to attack the enemy in the general direction of Step' and Butyrki with the 16th Tank Corps and the 11th Tank Brigade in cooperation with the 17th Guards Rifle Corps with the mission to restore the situation on the 13th Army's left flank; and it was to attack Saborovka and Podolian' with the 19th Tank Corps.

Exploiting the tank corps' attacks, the 13th and 70th Army commanders were to restore their armies' former positions and firmly consolidate their hold on them.

Regroupings and the preparation of the counteroffensive. Besides the 17th Guards Rifle Corps, the 13th Army commander enlisted the services of the 148th and 81st Rifle Divisions, and also of the 74th Rifle Division, which had moved forward from reserve, for the offensive.

On the night of 6 July the 16th Tank Corps occupied jumping-off positions for the counteroffensive in the Ponyri 2 and Kutyrki region and prepared for the attack. Having been subjected to repeated air strikes on 5 July, the 17th Guards Rifle Corps' march was delayed considerably *en route.* Its main forces concentrated only at 2030 hours, having occupied jumping-off positions for the offensive along the Snova and Samodurovka line. This severely hampered the organization of cooperation with tank formations and the preparation of the infantry for the offensive.

Having received orders to attack along a new axis, the 19th Tank Corps spent considerable time on reconnoitering the terrain, preparing passages through its infantry's combat formations, and through minefields and other

antitank obstacles in the depth of the defense. As a result, the corps was not ready for the offensive even by noon on 6 July, and did not participate with the 17th Guards Rifle Corps in the counterattack.

The 17th Guards Rifle and 16th Tank Corps offensive was supported by the 4th Artillery Penetration Corps and two self-propelled artillery regiments. By the end of 5 July, the artillery was completely ready to fulfill its missions.

Combat operations on 6 July. At 0350 hours on 6 July, our artillery opened heavy fire. The enemy artillery responded weakly, rarely firing on our artillery's positions. At 0400 hours the dive bombers, which were attacking enemy tanks and infantry preparing for an attack, approached the front. Soon enemy fighters appeared and heavy air combat began. At this moment the units of the 17th Guards Rifle and 16th Tank Corps launched the attack. The first to attack was the 107th Tank Brigade.

Despite the powerful fire of our artillery and our air activity, the Germans stubbornly resisted the advancing forces. Only after 0500 hours did 17th Guards Rifle Corps units succeed in pressing the enemy back and reaching the line west of Druzhovetskii, Step', and Saborovka. At this time the 148th and 74th Rifle Divisions, which were operating on the right, also assumed the offensive and fought for Trosna and Semenovka.

While continuing its attack on Butyrki from the Druzhovetskii and Step' line, the 107th Tank Brigade unexpectedly encountered an ambush along its path by German 'Tiger' tanks. Having approached near to the 107th Tank Brigade, the German tanks suddenly opened a strong crossfire against it and put 46 of our tanks out of action. The 164th Tank Brigade, which entered combat soon after, also suffered heavy losses and withdrew behind the disposition of its [supporting] infantry.

Having beaten back the attacks of the 16th Tank Corps' two brigades, the enemy launched an offensive against the 17th Guards Rifle Corps with two panzer divisions (up to 300 tanks) in the direction of Ol'khovatka and Ponyri. At first the corps units successfully repelled the German onslaught, but after the enemy had introduced a fresh infantry division with tanks into the battle at 1300 hours, they could not withstand the new attack and withdrew to the army's second defensive belt.

German attempts to burst into the positions of the second army defensive belt on the shoulders of the withdrawing forces were unsuccessful. After considering the tense situation in the 17th Guards Rifle Corps' sector, the 13th Army commander reinforced it with the 12th Artillery Division, the 378th Antitank Artillery Regiment, and the 237th Tank Regiment.

At 1830 hours the 19th Tank Corps launched an offensive in the general direction of Podolian'. However, this corps' delayed offensive was unsuccessful. By this time the 17th Guards Rifle Corps was already situated

in jumping-off positions and repelled the fierce attacks against the 13th Army's second defensive belt.

While powerful tank battles were raging on the 13th Army's left flank, the enemy attacked the 81st Rifle Division on its right flank with a force of up to two infantry divisions and one panzer division and forced it to withdraw. The Germans strove to separate the efforts of the 48th and 13th Armies, but the 307th Rifle Division and the 3d Tank Corps' 103d Tank Brigade were thrown in to meet our withdrawing units, and their joint actions stopped the enemy advance.

Thus, in spite of all of their efforts on 6 July, the forces of the Central Front's right wing were unable to restore the situation on the 13th and 70th Armies' front. The enemy was in direct contact with the second defensive belt and was preparing for new attacks.

Although they did not lead to the restoration of their lost position, the counterattacks by the 17th Guards Rifle Corps and 2d Tank Army formations on this day smashed the offensive by German forces along the Ol'khovatka axis.

Combat operations on 7 July

On this day the fighting on the 13th Army's front was particularly fierce. German forces attempted to penetrate the army's second defensive belt at any cost. Their main efforts were directed along the railroad line to Ponyri and west of Ponyri toward Ol'khovatka. The enemy flung more than 400 tanks and up to four infantry divisions along these axes.

On 6 July and the night of the 7th the command carried out the following measures to repulse the enemy attacks along these axes. The 11th Mortar and 46th Light Artillery Brigades and the 2d Separate Antitank Brigade's 12th Artillery Regiment were brought forward into the Ponyri region. The 81st Rifle Division, which had been withdrawn into reserve, occupied a defense directly behind the 17th Guards Rifle Corps. The 17th Guards Rifle Corps was reinforced by the 43d and 58th Tank Regiments. An antiaircraft artillery division was transferred from the Maloarkhangel'sk region to provide corps units with air cover. Moreover, tanks of the 16th and 19th Tank Corps, which were deployed behind the rifle formations, were ordered to dig in and conduct only a positional [in place] struggle against the enemy's heavy tanks. They were to be employed in counterattacks only against infantry and light tanks.

The most intense fighting on 7 July took place for Ponyri, which the defending 307th Rifle Division had converted into a strong defensive center. The center intersected the Orel-Kursk rail line and, by defending it, it was possible for our forces to deliver flank attacks against the enemy groupings advancing along the Maloarkhangel'sk and Ol'khovatka axes. Understand-

ing the significance of this center, the Germans decided to capture it at all costs on 7 July so that they could freely advance to the south.

The battle for Ponyri. This began at dawn on 7 July. Five times the Germans launched attacks, attempting to penetrate the 307th Division's defense, but each time they were thrown back with heavy losses. Their tanks were destroyed by artillery fire and blown up in minefields; the infantry were cut off from the tanks and delayed by the obstacles and as a result suffered heavy losses. At 1000 hours two German infantry battalions with 50 tanks succeeded in penetrating to the northwest outskirts of Ponyri; however, they were counterattacked by 307th Rifle Division reserves and thrown back to their jumping-off position.

An hour later up to two enemy battalions with 12 tanks once again attacked Ponyri from the northeast. In a fierce battle, which repeatedly turned into hand-to-hand combat, the Germans succeeded in capturing the populated village of May First [*1-e Maia]* and reached up to the northern outskirts of Ponyri. . Simultaneously, German infantry and a large tank force concentrated on the flanks of the Ponyri defensive center.

Responding to the stubborn German attacks in this area, the 307th Rifle Division's commander conducted a regrouping and, in particular, assembled all his antitank artillery in the Ponyri region. Large-caliber guns, tank destroyers, and obstacle detachments, were readied to repel the tanks. These measures made it possible to repulse the enemy infantry and tank attacks.

Having failed to achieve success in the Ponyri region, the enemy attacked the 17th Rifle Corps' right flank with two infantry regiments and 50 tanks at 1200 hours, attempting to drive a wedge between our Ol'khovatka force grouping and the Ponyri defensive center. The 6th Guards Rifle Division, which was defending in this region, stubbornly resisted, but despite this, the Germans managed to force themselves some way in, and by 1230 hours had captured the northern part of the forest west of Berezovyi Log.

At 1500 hours the 17th Rifle Corps' center and left flank were subjected to a strong air bombardment. At 1530 hours the enemy launched a decisive offensive along the corps' entire front with a force of up to two infantry divisions with 200 tanks, delivering his main attack in the Hill 257.0 and Kashara sector. This offensive was beaten back by organized fire from all types of weapon with heavy German losses.

Simultaneously, after a powerful artillery and air preparation, the Germans once again attacked Ponyri. This time, having thrown a panzer division and up to two infantry divisions into combat, the enemy delivered a simultaneous attack from three directions: from the north, the east, and the west. However, this did not produce the desired effect. In fierce battles which lasted several hours, the Germans penetrated only slightly more

deeply into our position. Despite its losses, the German command continued to commit still fresher forces into battle. At 1900 hours two new infantry regiments and around 60 tanks were thrown into the battle. After a day of continuous fighting, units of the 307th Rifle Division units were unable to withstand the attacks of superior enemy forces, and, abandoning the forward edge of the defense, withdrew to a line from Bazhenova to the southern part of Ponyri. Exploiting trenches prepared in advance, they once again consolidated and halted the advancing enemy by means of organized fire.

While struggling for possession of the Ponyri defensive center, the enemy did not cease his attacks against the 17th Guards Rifle Corps' right flank. Here, after fierce combat and at the cost of heavy losses, the Germans once again succeeded in pressing 6th Guards Rifle Division units back to the south and capturing Berezovyi Log. Exploiting this success, they quickly began to concentrate their tanks and infantry in the forest west of Berezovyi Log and at 1930 hours they were already attacking in the direction of Ponyri 2 and Hill 257.0 and the flank and rear of the 75th Guards Rifle Division, which was defending west of Snova. However, this enemy attack was also unsuccessful. The divisional junctions had been strongly reinforced in advance and were protected by fire. In addition, having swiftly regrouped its forces, the 75th Guards Rifle Division met the enemy attack with organized fire and repelled it. Having lost up to 30 tanks and a large number of infantry, the Germans withdrew to their jumping-off position. Combat along the entire corps front ceased when darkness fell.

On this day along the length of the 13th Army's front, the enemy succeeded in advancing slightly only on 17th Guards Rifle Corps' front on the Bitiug and Kashara axis. He was unsuccessful in the remaining front sectors.

By the end of the day the forces of the 13th Army had consolidated their hold on the line from Ponyri, through the southern outskirts of Berezovyi Log to Kashara.

On 7 July heavy combat also occurred on the 70th Army's right flank in the defensive sector of the 132d and 140th Rifle Divisions. The enemy delivered his strongest attacks against the 140th Rifle Division near Samodurovka.[6] Here he threw more than 200 tanks and self-propelled guns into combat. During the day of combat the division repulsed 13 enemy attacks, and only after the next attack did the exhausted divisional units begin to withdraw to the south, unable to withstand the onslaught of the masses of tanks. A large group of tanks penetrated into and captured Teploe. However, the neighboring 70th and 175th Divisions firmly held on to their positions and closed the penetration by introducing their reserves into combat in the direction of Samodurovka, cutting off the tanks and infantry which had infiltrated from the main enemy forces. German tanks in the Teploe region repeatedly attempted to link up with their forces near

Samodurovka, but they were unable to do so and were destroyed by our antitank units.

Combat operations on 8 July

Having brought more than 400 tanks and more than two infantry divisions forward to the Snova, Podsoborovka, and Saborovka region during the night, the enemy once again assumed the offensive at 0800 hours, attempting to penetrate our defense on the Ponyri 2 and Samodurovka front. Here the Germans attacked four times but, encountering all types of organized fire, each time they were forced back with heavy losses.

The fiercest combat developed on Hill 257.0, which was the 17th Guards Rifle Corps' key defensive center. Three times the enemy attacked the hill with groups of 60-100 tanks each, simultaneously, from the northeast and the north, and, in spite of the fire from defending units, the German infantry stubbornly attempted to advance behind tanks to the hill. By 1700 hours the enemy had managed to occupy it. His further advance was stopped. The enemy was completely unsuccessful in the remaining front sectors of the 17th Guards Corps.

Thus on 8 July, after fierce battles along this axis, the German forces were unable to achieve significant success. Their final attempt to penetrate to Ol'khovatka failed.

On the Ponyri axis the 307th Rifle Division regrouped its forces during the night and at 0600 hours, with tank support, it launched a counteroffensive and drove the enemy out of the northern part of Ponyri. On this day the Germans repeatedly attempted to capture the Ponyri defensive center and penetrate to the south but were unsuccessful. Here the front was stabilized.

The Germans assume the defense. Having lost during the course of four days several tens of thousands killed and wounded as well as a large quantity of tanks, the German forces found themselves unable to continue the offensive. On 9 July they still launched a few attacks in the Hill 257.0 and Ponyri region, but on the next day only reconnaissance group activities and weak skirmishing were noted along the entire front. The Germans abandoned further attacks and assumed a hasty defense along the entire front.

The front, which ran along the Trosna, Protasovo, Bazhenova, Ponyri, Hill 257.0, Samodurovka, Hill 250, and Buzova line, was temporarily stabilized. The forces of the Central Front's right wing began to prepare for the counteroffensive.

RESULTS AND CONCLUSIONS

The defensive battle at Kursk, as well as the Red Army's heroic struggle from July through November 1942 at Stalingrad, confirmed with complete clarity that a correctly organized defense with combat-capable forces and a trained officer cadre is capable of halting an offensive by superior enemy forces armed with a large quantity of the newest and most modern combat equipment. The Red Army's defensive operations and battles exhausted and wore out attacking enemy forces to such a degree that they usually lost their entire offensive capability and, as a result, favorable conditions were created for a subsequent shift by defending forces to a decisive offensive.

In the defensive battles at Kursk from 5 through 15 July 1943 enormous losses in personnel and equipment were inflicted upon the Germans. During the period of their offensive, the German Kursk-Orel and Belgorod—Khar'kov groupings lost a total of 70,000 men killed and wounded, and 2,952 tanks, 195 self-propelled guns, 844 field guns, 1,392 aircraft, with more than 5,000 motor vehicles damaged or destroyed.

Prisoners from the 3d Panzer Division indicated that, by the end of the battle, 30 tanks remained and there were 40 men in each of the division's companies. The 17th Panzer Division, introduced into combat only on 11 July, was soon thrown against our Southwestern Front with only 60 tanks. In his account the 19th Panzer Division commander General Schmidt indicated that by 11 July his division's panzer grenadier regiments had no more than 400 bayonets [combat effectives] each, and the division had a total of 17 operational tanks.

As a result of such heavy losses, the offensive capabilities of the enemy's Belgorod—Khar'kov grouping were essentially completely exhausted by 13 July and, with the exception of formations operating against the 69th Army, it had assumed the defense along the entire front. The fact that the entire offensive might of the German forces was liquidated in eight days is noteworthy for the Kursk defensive battle.

The crisis in the German Army's offensive on the Orel-Kursk axis, which resulted from the heavy losses inflicted upon it, made it possible for the forces of the Central Front to begin a counteroffensive as early as 15 July and to restore the situation by 17 July. The Voronezh Front's forces successfully conducted a similar operation from 17 through 23 July.

As a result of the defeat of the Germans' Orel and Belgorod-Khar'kov groupings during the defensive battle favorable conditions were created for the Red Army's subsequent large-scale offensive operations.

The significance of forecasting in the defensive operation

The availability of reliable intelligence information, which permits the discovery of the enemy's plan and the skillful forecasting of the possible course of the development of combat operations, is an important and often decisive factor in preparing and conducting any operation. This factor, however, acquires exceptional significance when preparing an operation on a main strategic axis. In this situation when the initiative is in enemy hands, it is important to discover his concept and promptly determine the main attack axes and the time for the beginning of the offensive - this means acquiring the ability to organize the defense purposefully and avoid the dissipation of forces and weapons along a broad front.

The wise strategic leadership of the Red Army Supreme High Command played an exceptionally important role in winning the defensive battle at Kursk. In March 1943 the *Stavka* of the Supreme High Command had already concretely determined the deployment areas for the enemy's main shock groupings and his probable attack axes. The defense of the Kursk bridgehead was organized on the basis of correct strategic forecasting. The Supreme High Command correctly and promptly oriented the *front* command concerning the time the Germans would assume the offensive and, as a result, the German command was deprived of the advantage of surprise in the operation.

The structure of a modern defense

The experience of the defensive battles at Stalingrad and Kursk indicates that, in the conditions of modern war, when an attacking grouping is composed of a large quantity of weapons which possess great penetrative strength - tanks, aviation, and artillery - the defense should be as deep as possible and echeloned so that it can successfully resist an enemy attack.

The depth of our force's defense at Stalingrad exceeded 100 kilometers, if it is calculated from 62d Army's first defensive belt to the western bank of the Don through Kletskaia, Surovikino, and Verkhniaia Kurmoiarskaia to the Stalingrad city defensive fortifications [ring]. Five defensive positions, including the so-called 'city defensive' ring, were created to cover the Stalingrad axis.

The experience of the Patriotic War teaches that a modern operational defense should be deep and capable of resisting powerful enemy tank attacks. The attack against the Kursk bridgehead from the north was delivered by a German grouping which numbered 1,450 tanks and 4,260 guns, not counting mortars. The main German grouping, which was deployed on a 32-kilometer front, had an average of up to 45 tanks and more than 70 guns per kilometer of frontage. The German's Belgorod—Khar'kov grouping,

which was deployed on a 70-kilometer front, consisted of 14 divisions, including 9 panzer divisions. This grouping had 1,700 tanks and 2,500 guns. There were up to 42 tanks and 40 guns on every kilometer of offensive frontage along the main enemy attack axes. In individual front sectors opposite the 6th Guards Army's front, where the main attack was being delivered, the density of tanks during the operation reached up to 100 tanks per kilometer. Both German groupings were supported by powerful aviation - around 2,000 combat aircraft.

Based upon a correct analysis of the enemy grouping, his forces, and the main attack axes, the Red Army Supreme High Command assigned the forces of the Central and the Voronezh Front the mission of creating a deeply echeloned defense. The overall depth of the Kursk bridgehead defense, including the army and *front* defensive lines, reached 110 kilometers. The forces of both *fronts* prepared six lines (three army and three *front).* In order to reach Kursk by attacks from the north and the south, the enemy would have had to overcome successively five defensive belts along each axis. Along the most threatened axes *front* forces occupied three or four defensive positions in advance; thus the defensive depth occupied by our forces reached 60 kilometers. As a result of the offensive, the enemy succeeded in overcoming only one defensive belt in the Central Front. In the Voronezh Front the enemy was able to overcome two army defensive belts and, in individual sectors, he reached the army rear belt. While overcoming these belts the enemy completely exhausted all his offensive resources.

The preparation of defensive belts. Each defensive belt had an extensively developed trench system and a large number of antitank strong points *\protivotankovyi opornyi punkt/PTOP],* which were prepared for all-round defense. The dense network of trenches and communication trenches facilitated the creation of a strong and stable system of fire and made it possible to maneuver fire assets and personnel extensively along the front and in the depth during combat. Moreover, by exploiting the developed trench system forces were able to protect themselves from massed fire raids by enemy artillery and air strikes. On average, each rifle division defending in the main belt had up to 60-70 kilometers of trenches.

It should also be noted that the *PTOPs* played an exceptionally important role during the defensive battles. They delayed advancing enemy tank groups and inflicted heavy losses on them by means of their fire in combination with engineer obstacles. As a rule, after a series of unsuccessful and costly attempts to liquidate the *PTOPs,* enemy tanks ceased to attack them and, instead, attempted to bypass them. Thus, owing to their stubborn resistance, *PTOPs* splintered large attacking tank groupings into separate small groups, which considerably helped further combat against them.

The stability of a modern defense depends to a considerable degree on

how much of the defending personnel and equipment have 'gone into' the ground and also on the quantity of antitank and anti-personnel obstacles covering the defense. In this regard, the defense of the Kursk bulge met the requirements for organizing a modern defense. Not only the personnel defending in the main defensive belt but also all equipment, including artillery and tanks, and the deep operational reserves deployed in the rear defensive lines as well were dug in. However, around three months of intensive work in conditions of direct contact with the enemy were necessary to bring the defense to such a state.

It is entirely natural that in a theater of active operations forces will relatively seldom have such a quantity of time at their disposal in which to prepare a defense. Therefore to protect it reliably along particularly important operationally-significant axes, regardless of the nature of developing operations, it is necessary to equip a series of defensive lines in the rear area beforehand, employing rear-area units, construction organizations, and the local population.

The grouping of forces in the defense. The distribution of forces and weapons along the entire defensive front cannot be uniform. The greatest concentration of forces which are directly occupying defensive lines and also the concentration of reserves should be created along the most operationally important and threatened axes. It is natural that such a force grouping may be achieved only as a result of continuous careful study of the enemy and especially of his regroupings.

The organization of the Kursk bridgehead defense is an example of a successful grouping of forces and weapons. The main forces and weapons of both *fronts* were concentrated on the assumed German main attack axes.

In the Central Front each division defending along a secondary axis had up to 26 kilometers of defensive front, and divisions defending along the enemy's main attack axis in the 13th Army received a defensive sector of no more than 6-8 kilometers. The 13th Army included 37 percent of all *front* artillery units, 50 percent of the separate tank brigades, 33 percent of the tank regiments, 37 percent of the mortar regiments, and 56 percent of the guards mortar regiments. The main *front* reserves were concentrated primarily in the Ol'khovatka, Gnezdilova, Berezovets, and Mikhailovo region. When the enemy offensive developed along the Orel-Kursk railroad, the *front* reserves had the opportunity to deliver counterstrokes against both flanks of the attacking enemy grouping without preliminary complex maneuvers.

As for the Voronezh Front, there were on average, up to 22 kilometers of front for each division defending along a secondary axis. In the sectors of the 6th and 7th Guards Armies, which were defending along the presumed main attack axis of the German Belgorod—Khar'kov grouping, divisions

received defensive sectors not exceeding 14 kilometers. The 6th and 7th Guards Armies included 63 percent of all reinforcing artillery regiments, 50 percent of all tank regiments and brigades, and 73 percent of all guards mortar regiments. Likewise, all *front* reserves were concentrated along the main attack axis.

Thus the greatest defensive density and the grouping of both *fronts'* reserves were created at the base of the Kursk bridgehead. Its apex was occupied by forces which were defending comparatively weakly along a broad front. To parry enemy attempts to advance from the west from the Ryl'sk and Vorozhba regions against Kursk, the reserves of both *fronts* were oriented beforehand with respect to their possible employment in the direction of the apex of the Kursk salient.

Such an operational defensive formation prevented the enemy from penetrating even the depth of the army defenses.

Maneuver in the defense. During the first stage of the defensive battle, when the attacking enemy grouping is still preserving its shock force, the command's main mission is to deprive the enemy of the opportunity to conduct maneuver in the defensive area depth. The command should undertake all measures to prevent a widening of the penetration along the flanks. To do so it is necessary to employ as extensively as possible cut-off positions prepared in advance.

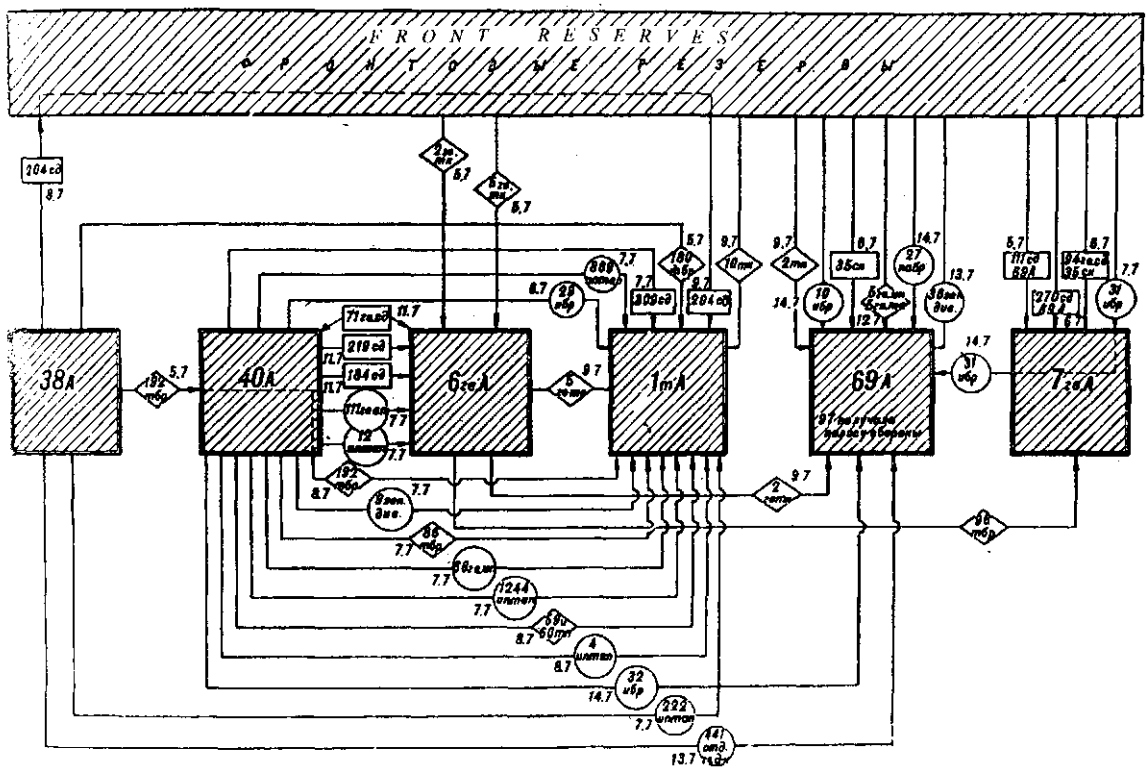
During the defensive battle at Kursk second echelons and mobile reserves of *front* first echelon formations and also units and formations which had been allocated from *front* reserve and transferred from other, less active *front* sectors were generally employed to fulfill these missions.

The regroupings carried out by the Voronezh Front commander may be cited as an example of the maneuver of reserves during a defensive battle (see Map 14).

During combat along the Oboian' axis from 5 through 9 July the 6th Guards Army received two tank corps (the 2d and 5th Guards Tank Corps) from the *front* reserve and two artillery regiments. During this same period the 1st Tank Army received two tank corps, one from the *front* reserve (the 10th Tank Corps) and one from 6th Guards Army (the 5th Guards Tank Corps), two rifle divisions, three tank brigades, one antitank brigade, four antitank regiments, one antiaircraft division, and one guards mortar regiment.

During the intense battles along the Korocha axis from 5 through 7 July the 7th Guards Army was reinforced with three rifle divisions and one antitank brigade from the *front* reserves and one tank brigade from the 6th Guards Army.

From 9 through 15 July, when fierce battles were developing in the sector of the 69th Army which was covering the Prokhorovka region from the



Map 14: **The maneuver of Voronezh** Front **reserves** , 5-10 **July** 1943

south and southwest, it was reinforced with two tank corps, one (the 2d Tank Corps) from *front* reserve and one (the 2d Guards Tank Corps) from the 6th Guards Army, one mechanized corps (the 5 th Guards Mechanized Corps), the 35th Guards Rifle Corps, three antitank brigades, one antiaircraft division, and one separate guards mortar battalion from the *front* reserves.

On 11 July, during preparations to carry out the counterstrokes against the flanks of the enemy grouping, the 6th Guards Army was reinforced with an additional three divisions, two from the 40th Army and one from the 1st Tank Army.

Map 13 provides some idea of the considerable scale of maneuver by reserves during the defensive battle of the Voronezh Front. One should also bear in mind the regrouping of forces and the maneuver of reserves within armies, which this map does not show.

Thus during the defensive battle, the Voronezh Front commander accomplished a regrouping in which seven tank and mechanized corps, ten rifle divisions, six tank brigades, five antitank brigades, nine artillery regiments, and two antiaircraft divisions took part.[7] As a result of the bold and flexible maneuvering by reserves during all stages of the defensive battle, the enemy failed to penetrate the depth of our operational defense in any sector of either *front* and failed to gain any freedom for extensive maneuver by his mobile formations. However far the enemy penetrated into our defensive dispositions, everywhere he encountered new defensive lines, which were already occupied by forces ready to repulse his attacks.

Strategic reserves, which the *Stavka* of the Supreme High Command moved forward in timely fashion, played an exceptionally important role in strengthening the firmness of the defense in the Kursk bulge. To a considerable degree the advance of the 2d and 10th Tank Corps eased the situation for the Voronezh Front's forces conducting heavy combat in the second defensive belt against the main German grouping, which was straining toward Oboian'. With the assistance of the 5th Guards and 5th Guards Tank Armies, which had joined the Voronezh Front, our forces were able to halt the enemy completely, having repelled his final attempt to penetrate the *front's* defense and reach the Prokhorovka region. On 12 July in the tank battle in the Prokhorovka region, when the 5th Guards Tank Army entered the battle against the main German grouping, the enemy's offensive strength was finally broken and he was forced to abandon the continuation of his offensive aimed at penetrating to Kursk. Finally, at the moment when the Germans were forced to abandon the offensive and to assume the defense, timely reinforcement of the Voronezh Front with formations from the *Stavka* of the Supreme High Command's reserve made it possible for *front* forces to shift immediately and without a significant pause to a counteroffensive aimed at restoring their position. The Central Front also halted

the enemy offensive and restored its position without the assistance or participation of strategic reserves.

The ability of commands and staffs to determine the immediate intentions of the enemy command and also the high tempos of regrouping are exceptionally significant when fighting against an enemy which possesses high mobility. During the defensive battle the struggle against the large German penetrating tank groupings was successful, not only thanks to the presence of large mobile reserves but also because the *front* commanders and a majority of army commanders promptly and correctly determined the enemy's planned main attack axes and quickly carried out the necessary regroupings.

The development of the attack by the enemy main tank grouping from the south against Kursk was opposed by a powerful screen in the form of the 1st Tank Army and the 5th Guards Tank Corps, which, by the end of 6 July, had already occupied the second defensive belt behind the 6th Guards Army's second echelon.

The final German attack along the highway to Oboian' on 9 July was met by the 10th Tank Corps and the 309th Rifle Division, which had been brought forward in timely fashion to the Kruglik, Melovoe woods and Ol'khovatka line. These formations formed a second defensive echelon along this axis.

The enemy's attempt on 11 July to penetrate our defensive front on the Vengerovka axis was repulsed by the 184th Rifle Division, which had also been promptly brought forward as a second echelon on the Chapaev and (excluding) Kruglik line. Enemy attacks against Prokhorovka on 11 and 12 July were repelled by formations of the 5th Guards Tank Army and part of 5th Guards Army's forces, which had been brought forward along this axis.

The enemy's attempt on 12 July to penetrate to Prokhorovka through Rzhevets failed since his formations along this axis encountered tank detachments from the 5th Guards Tank Army and strong mobile artillery reserves, which had been moved forward to the Avdeevka region.

All these regroupings during the defensive battle attest to the high level of troop control and merit careful study.

Counterstrokes in the defense. The experience of the two largest defensive battles (Stalingrad and Kursk) reveal that the successful conduct of a defense is unthinkable without a high degree of defensive activity [*aktivnost'*].[8] During the defensive battle at Stalingrad, the offensive of the German grouping on the western bank of the Don was held up for an entire month as a result of counterstrokes by formations of the 1st and 4th Tank Armies. In September and October 1942, attempts by the German command to deliver a crippling blow against the 62d Army with the entire might of its main grouping and to capture Stalingrad were, to a significant degree, thwarted owing to active

operations by the right flank of the Stalingrad (later Don) Front, which was suspended above [north of] the flank and rear of the main German grouping.

The counterstrokes launched in the Voronezh and Central Fronts during the defensive battle for the Kursk bridgehead did not achieve decisive success. To a considerable degree, however, they did contribute to the stability of the defense. Thus the offensive operations of Voronezh Front forces against the flanks of the main enemy grouping forced the German command to transfer considerable forces to protect them, which excluded the possibility of employing these forces on the main attack axis. The offensive operations of the 40th Army's left flank from 8 through 10 July forced the enemy to keep up to two infantry and one panzer division in this front sector.

The counterstrokes by the 2d and 5th Guards Tank Corps against Kalinin and Nechaevka on 8 July forced the enemy, at a critical moment in the fighting on the main attack axis along the Oboian' Highway, to send up to 100 tanks from his main shock group to parry the counterstroke by the 5th Guards Tank Corps alone, and a sizable tank group was also thrown against the 2d Guards Tank Corps.

The counterstrokes by the 6th Guards, 1st Tank, 5th Guards, and 5th Guards Tank Armies formations on 12 July, the day of the final decisive German attempt to penetrate the Voronezh Front's defense on the Prokhorovka axis, forced the German command not only to halt the offensive but also to abandon generally further attempts to penetrate to Kursk from the south. It should be noted, however, that the 5th Guards Tank Army's attack fell on the main attacking German tank group, which consisted of at least 600 tanks; as a result, while halting the German offensive against Prokhorovka, the 5th Guards Tank Army suffered heavy losses.

Infantry in the defensive battle.[9] The experience of the Battle of Kursk reveals that, despite the presence of vast [amounts] of combat weaponry, modern infantry which has been equipped with antitank weapons and is cooperating with other combat arms is capable of struggling successfully against attacking enemy tanks, even when they are employed massively.

Owing to the unavoidable losses which the infantry often sustain, the ability of the soldiers to employ the few types of weapon with which they are armed acquires special significance. This problem was resolved satisfactorily in both *fronts.* The experience of the defensive operation showed that, even in the most serious conditions of combat against enemy tanks and aviation which are delivering massed attacks, by extensively exploiting trenches and skillfully maneuvering in them, infantry are capable of preserving their combat effectiveness for an extended period.

Not one of the Central or Voronezh Fronts' divisions completely lost its combat effectiveness during the entire course of the defensive battle and all proved to be able to take part in subsequent offensive combat without a

lengthy pause. Even first-echelon divisions, which absorbed the main shock of the attacking tank masses, lost no more than 50 percent of their strength during the entire defensive battle.

The experience of combat operations revealed that a necessary condition for the successful employment of infantry in a modern defensive operation is their ability, employing all types of weapon, to struggle against enemy tanks. In the Battle of Kursk these requirements were fulfilled as a result of the skillful organization of combat training during the period preceding the German offensive.

NOTES

1. **See the three preceding chapters.**
2. **Zhadov commanded 5th Guards Army, Malinovsky, the Southwestern Front, and Rotmistrov, 5th Guards Tank Army.**
3. **The details of 5th Guards Tank Army's combat operations in the Prokhorovka region are contained in Ch. 8, 'Tank Forces in the Defense of the Kursk Bulge.'**
4. **[Editor] The 17th Panzer Division did not participate in the fighting at Prokhorovka.**
5. **[Editor] These figures are erroneous. The actual number of tanks and self-propelled (assault guns) engaged in the immediate vicinity of Prokhorovka was around 850, including 600 Soviet (from the engaged corps of 5th Guards Tank Army) and about 250 in the three divisions of the II SS Panzer Corps. In their figures, the Soviets count III Panzer Corps and the 17th Panzer Division, in addition to Soviet armor struggling along the distant flanks. Soviet tank losses were around 400 and German losses around 70. For details see David M. Glantz and Jonathan House,** *The End of the Blitzkrieg: The Battle of Kursk, July-August 1943* **(Lawrence, KS: Kansas University Press, 1999).**
6. **The division was transferred here on 6 July from the left sector of the army second defensive line.**
7. **This number does not include the formations of the 1st Tank Army which on 5 July moved in full order from the** *front* **reserve into the second defensive line, and also three divisions of the 69th Army.**
8. **[Editor] The term** *aktivnost'* **translates poorly into English. While it literally means 'activity', it also denotes general dynamism.**
9. **Conclusions regarding the types of force are provided in [other] appropriate [chapters], which clarify their operations during the defensive battle.**

5

Troop Control during the Defensive Battle in the Kursk Bridgehead

Command and staff work at all levels during the defensive battle for the Kursk bridgehead were divided into three periods, sharply defined with respect to time and content:

1. Preparatory (April, May, and June); this period was characterized by the command's purposeful activity to create a defense capable of opposing a large-scale enemy tank attack.

2. The period of the defensive battle from the beginning to the middle of July during which command and staff work were done under conditions of an exceptionally tense and complex situation. At this time the principal mission was to facilitate uninterrupted troop control and to implement numerous regroupings and rapid maneuver by antitank units.

3. The period of the Central and Voronezh Front counteroffensive to re-establish positions being defended before the German offensive and to prepare for subsequent offensive operations to reach the Dnepr River line.

It would be desirable to discuss questions of troop control during the largest battle of the 1943 summer campaign in detail. However, extremely limited materials on these issues permit only an incomplete review of only some events, while the question of troop control within the dynamics of a defensive battle remains the least elucidated. As for the third period of *front* operations, which immediately followed the period of the defensive battle in the Kursk bridgehead, its operational essence is cited only as an illustration of continuous communications in command and staff work while organizing the shift from a stubborn defense to a decisive offensive.

It is possible to characterize briefly in what appears below (according to materials mainly from the Central Front) only a few of the numerous questions associated with troop control, namely operational planning, executive

control, the organization of communications and command posts, and methods of troop control during an operation.

Despite the incompleteness of the material, individual features of troop control based on the experience of the Battle of Kursk are of undoubted interest for generals and officer cadres of large combined-arms staffs.

Before the defensive battle in the Kursk bridgehead the Central and Voronezh Front headquarters developed defensive plans, which served as the basis for troop control. All preparation of forces and the bridgehead were conducted in accordance with the concept of the main and the *front* command. The concept consisted of repelling possible enemy attacks, defeating his penetrating groupings, and subsequently, by employing reserves, launching a decisive offensive.

OPERATIONAL PLANNING

After careful study of the terrain and the enemy grouping, the Central Front command determined the three most probable enemy attack axes: 1. Alekseevka, Droskovo, and Livny; 2. along the rail line to Kursk; and 3. Ol'khovatka and Fatezh (see Map 2).

Counterstrokes were prepared to oppose the expected German offensive. Each variant of the plan envisioned which formations would participate in the counterstrokes, their missions and deployment regions, the line of deployment for the offensive, march routes, and the time for occupying each jumping-off position.

As a result of the careful operational planning for each formation and a precise calculation of time and space, the principal troop mass was able to be ready for each operational variant from the morning of the second day after the enemy offensive; this ensured the timely commitment of forces into combat.

Despite the fact that the use of a large number of units and formations was planned for the delivery of the counterstrokes, the *front* defensive plan was characterized by its conceptual simplicity and the absence of complex maneuvers; moreover, units were to deliver exclusively frontal attacks, during which complete operational initiative was left to the army commanders. A legend with a detailed account of missions and the nature of the troop operations according to each variant of the counterstroke was attached to the plan, with a sketch map depicting the probable enemy attack axes, our force deployments up to and including brigade level, and their missions.

Beside the principal operational plan, the *front* staff developed and prepared in advance all necessary documentation for each variant, including orders, battle tables for the plan, movement sketches, and procedure tables.

Plans for combat support and a plan for the organization of rear services were also developed and passed on to the forces. The rear service organization plan precisely determined troop ammunition requirements and other types of logistical support, indicated routes and delivery and evacuation priorities, and specified deployment regions for rear service installations.

Army staffs developed corresponding plans on the basis of the *front* plan.

Work on planning the defensive operation was conducted with sufficient time to work out all necessary details and documents under the direct monitoring of *front* and army command and staffs, whose purposeful work during the preparatory period significantly facilitated troop control during the defensive battle.

Decisions made on the organizing of the defense and, in particular, in preparing counterstrokes were reported to their executors.

Army (formation) commanders were summoned to higher headquarters, where the *front* (army) commander personally assigned missions on a map. The dispatch of corresponding commanders to subordinate headquarters was done for this same purpose.

Front (army) staffs sent to the executors excerpts of the defensive plan with a map on which missions for the given army (formation) were plotted. Special orders and instructions covering the defensive plan were reported to the executors by liaison officers and by the command.

Commanders periodically traveled to subordinate headquarters to assist in the correct understanding of the defensive concept, the proper disposition of forces, and the correct organization of work.

Front commanders reported their decisions on organizing the defense beforehand to the executors, which provided them with the necessary time for reaching their own decisions and for preparing the troops and the bridgehead.

The system of instruction on the theme of the forthcoming combat actions with commanders, staffs, and troops fully justified itself as one of the most effective methods of reporting decisions by the senior chief to the executors and as an example of the thorough study of all variants of the operational plan.

The command took the following measures (in sequence) so that the executors would achieve *unity of understanding* of the operational concept, the plan for the forthcoming battle, and their concrete missions:

Executors	*Instructional Goal*	*Work Methods*
1. Combat arms subordinate commands	**1. Clarify the defensive plan and missions for executors** **2. Work out counterstroke variants and associated questions**	**1. Personal contact** **2. War games** **3. Resolution of missions on the terrain** **4 Operational-tactical reconnaissance**

Executors	*Instructional Goal*	*Work Methods*
2. Combined arms and combat arms staffs	**As above, plus** **1. Troop control** **2. Force regrouping** **3. Ensuring combat arms cooperation**	**As above, plus** **1. Staff games** **2. Command-staff exercises**
3. Troops	**Achieve defensive stubbornness and stability exploiting all terrain conditions and a powerful fire system with counterattacks**	**A series of planning exercises on the terrain for combat arms units and subunits**

In conformity with the cited plan, measures were carried out in *fronts,* armies, and formations to prepare the command, troops, and staffs for defense. This work produced the best results where all types of exercise were conducted purposefully under conditions intended to reflect the forthcoming battle, and with good leadership and proper organization.

War games were conducted in a realistic situation, taking into account the actual correlation of forces. In particular, all three counterstroke variants were gamed with army commanders and their staffs at the Central Front's headquarters. As a result of these games, each army commander ultimately formulated a decision which was approved by the *front* commander. Army staffs also conducted appropriate war games. The frequent presence of war game participants at staging positions for deployment and the reconnaissance of proposed attack sectors made it possible for the *front* commander to refine his plans and provide detailed missions on the terrain for each formation.

In sum, it should be stated that personal contact between command authorities and staffs and purposeful preparatory exercises were the principal methods for conveying decisions to the troops, clarifying the defense plan, and preparing the troops for forthcoming combat operations.

The maintenance of military secrecy

To ensure operational *surprise* a series of measures were carried out to maintain the strict secrecy of the plan for forthcoming operations, in particular:

- a narrow circle of people, approved by higher headquarters, was enlisted to develop the plans in *front* and army headquarters;
- defense plans and all graphical materials were written by hand, and existed in a single copy;
- the issuing of general orders and directives was forbidden and all necessary instructions were given either personally, by extracts from the plan, or in the form of partial orders and instructions to the individual executors;

- all instructions with respect to the operational plan were sent to subordinate headquarters in code and only by special messengers;
- all combat documents on defense matters were distributed only to staff operational sections, from which the remaining sections and directorates received only the necessary information;
- strict rules for observing secrecy were established in war games and field exercises, and all documents, personal notes of the gamers, and maps with the plotted situation were held only in the classified area of the operational sections; and
- telegraph and telephone conversations on questions of organizing the defense were permitted only according to established routines, and the on-duty communications officer was authorized to break off conversations if established rules were violated.

These strictly observed rules, together with a general plan for *maskirovka* [deception] measures, ensured the complete secrecy of the grouping being created and surprise maneuver.

CONTROL OF EXECUTION AND PRACTICAL ASSISTANCE FOR FORCES

Control of troop actions in organizing the defense, conducting defensive work, and preparing for the planned counterstrokes were carried out according to a strictly designed system. The system of control and practical assistance for forces encompassed all levels of command; principal attention was centered on preparing a stable, deeply echeloned defense.

Control was implemented by the following methods:

- attachment to formations (mainly divisions) of staff officers who were located with the forces for a considerable time and who would conduct inspections on order of the chief of staff or on the initiative of the chief of the operational section;
- personal on-site appearance by army commanders and their chiefs of staff or their inquiries and conversations with appropriate formation commanders;
- study of instructions given by subordinate commanders and cooperating commanders and their staffs;
- assignment and dispatch to forces of authoritative commissions to check locally on the quality and course of defensive work and the suitability of established positions for tactical requirements; and
- supervision of exercises with officers and staffs on developing, in practice, variants of counterstrokes on the ground and preparing forces to conduct defensive combat.

It should be noted that Red Army General Staff officer-representatives played an important role in controlling the execution of command decisions and in providing practical assistance to forces in preparing the defense.

Higher level headquarters verified the execution of issued orders and instructions in advance and repeatedly so as to prevent the possibility of imprecision in their execution or their being thwarted. The first verification established how the order was understood and what was undertaken for its timely execution, and subsequent verifications clarified how the order was being carried out and what assistance was necessary for its precise and timely execution.

For greater efficiency in control, staff officers, upon their arrival in the units received precise instructions from the chiefs of staff specifically on what they were to check, what instructions they had the authority to issue locally, if necessary, what they were obliged to report, and in what way. In addition to control, they rendered practical assistance to subordinate staffs on the basis of received instructions, mainly on questions of organizing fire, *maskirovka,* and command and control. Upon any discovery of incorrectly understood instructions or a threat to their timely execution by the chiefs of staff, they immediately undertook measures to eliminate misunderstandings and to provide assistance.

The presence of strict and efficient control always made it possible for the command to be involved in defensive work and the preparation of counterstrokes, to know the real needs of the forces, and to render timely assistance. In particular, during the time of the intensive delivery of engineer materials, the Central Front headquarters sent its representatives to *front* warehouses. These representatives assisted locally in organizing the transporting of the materials and monitored motor vehicle traffic on roads, thereby ensuring the timely delivery of supplies to the units.

Command posts [komandnyi punkt]

During the defensive battle troop control relied on a broadly deployed network of command and observation posts. In addition to the main command post, *front* commanders had auxiliary control posts *[vspomogatel'nyi punkt upravleniia, VPU],* depending on the width of the front and the importance of individual axes. In particular, the Voronezh Front command had three while the Central Front command had one auxiliary control post.

In addition to the main command post, army commanders had one reserve command post, two or three auxiliary control posts, and three or four observation posts each.

Corps and divisions organized and set up one main and one reserve command post and one observation post each.

Regimental and battalion commanders had one main command post and one observation post.

Main *front* and army command posts were usually located behind the center of their troop combat formations, which considerably facilitated troop control. *Front* command posts were located within the boundaries of *front* defensive lines, 50-55 kilometers from the forward edge of the defense. Army command posts were usually located between the army second and the rear defensive belt, 11-25 kilometers from the forward edge, with the exception of the 13th Army's command post which was located 28 kilometers behind the rear defensive belt. This may be explained by the army's deep defensive echeloning (as much as 35 kilometers).

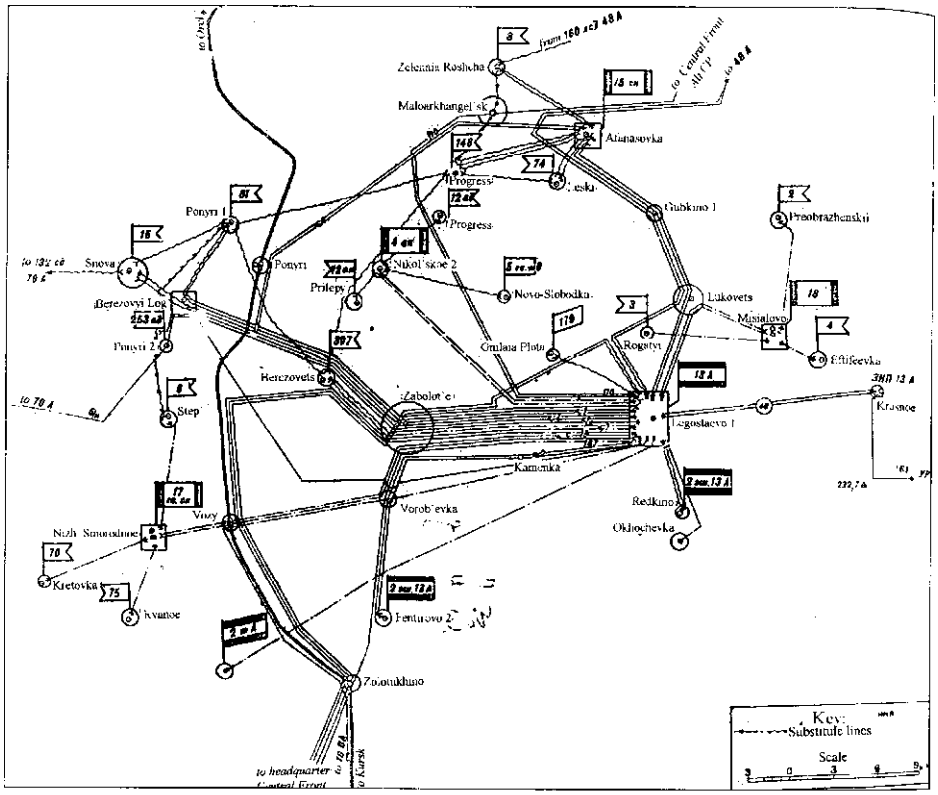
All command posts were located in forests, ravines, or other natural shelters, maintaining the strictest *maskirovka* measures.

When selecting deployment areas for command posts and their engineer fitting out, special attention was focused on both careful *maskirovka* and on ensuring the survivability of important command post elements, such as communications centers. These, as well as command post operational groups, were provided with the most solidly built trenches.

Measures for ensuring *maskirovka* and order in command post deployment areas were well thought-out and included the following:

- the location of command posts in or in the vicinity of populated points was categorically forbidden;
- staff sections were deployed in dispersed fashion and often a considerable distance from one another, in constructed trenches and dug-outs, carefully camouflaged, and with reliable cover;
- the movement of motor vehicles within the command post area was prohibited day and night, and all who arrived at headquarters left their vehicles in areas specially designated for this purpose a considerable distance (2-3 kilometers) from headquarters and proceeded further on foot; and
- entry into the headquarters area was permitted only with established passes; strict security of the most important headquarters installations was organized by permanent posts to avoid the infiltration of outsiders.

As a result of considerable work conducted in this area, *maskirovka* measures and strictly established and observed procedures at command posts made it easier to achieve complete secrecy with respect to their locations, which was attested by the fact that not a single post was subjected to enemy air bombing during the period of preparing for the defense and the repelling of enemy attacks. At the same time, good engineer preparation of command posts and, in particular, communications centers ensured their adequate survivability after bombing attacks.

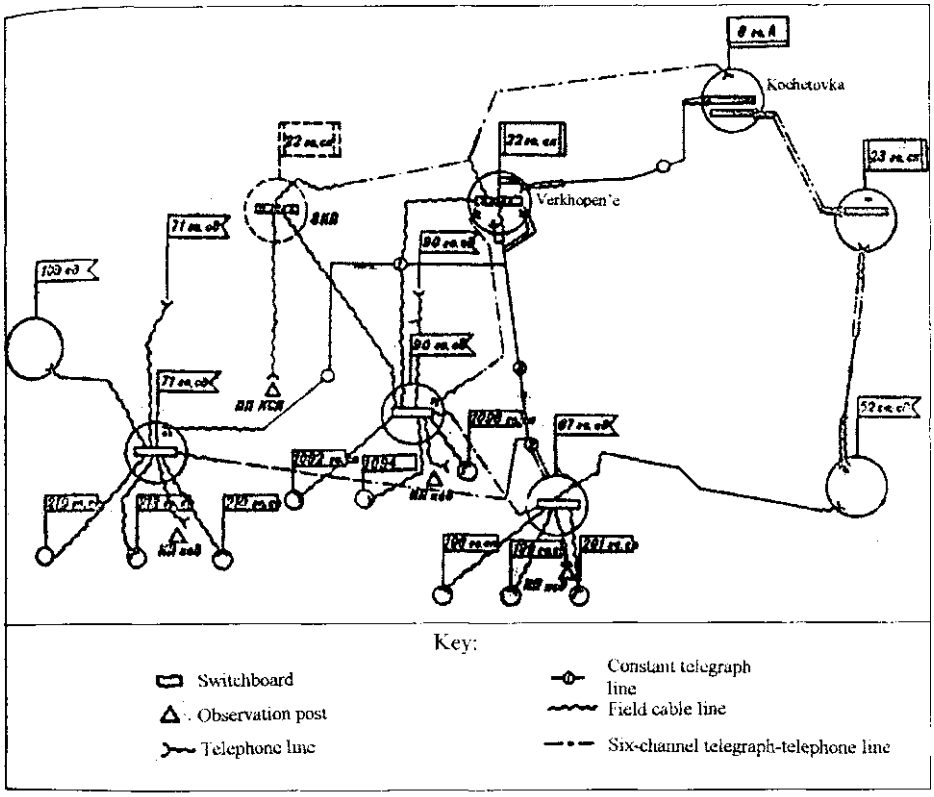


Map 15: The telephone communications of the 13th Army, 30 June 1943

The organization of communications

The chief means of communication were *wire* (telegraph and telephone), duplicated by mobile means (aircraft and motor vehicles). Radio, which duplicated wire means, was used mainly for communications with aircraft and tank formations; radio stations were fully exploited only at the beginning of the defensive battle, that is 5 and 6 July, after the enemy launched the offensive.

Wire communications were set up according to the following scheme. They were organized within army headquarters on the axis principle, with the employment of communications centers, making it possible to have communications with each formation on several channels, while at the same time economizing communications means and avoiding the laying of a large number of separate lines. Reserve army and corps command posts, set up beforehand, had direct communications with main command posts, which



Map 16: The organization of communications in 22d Guards Rifle Corps, 20 May 1943

ensured uninterrupted communications when shifting control from the principal command post to reserve command posts.

Wire communications in divisions were laid along lines; regiments did not have direct communications with one another, but rather through division communications centers.

Five communications axes and more than 10 centers were established in accordance with the adopted system (in the Central Front's 13th Army, for example), which ensured communications with each formation on two or three channels and avoided the necessity of laying 16 separate lines (see Map 15).

In the 22d Guards Rifle Corps (of the Voronezh Front's 6th Guards Army), wire means made it possible to have communications from both the main and reserve command posts, which had telegraph and telephone communications between them. In addition, communications from the reserve command post with divisions were carried out by wire included in the 90th Guards Rifle Division's communications center (see Map 16).

The timely laying of primary lines and the well thought-out system for organizing and equipping communications centers ensured a high degree of stability in wire communications.Thus, for example, during the most intense fighting the 13th Army had no incidents of interruption for more than 15-20 minutes despite the fact that permanent cable and pole lines were often destroyed by enemy bombing and artillery fire. During the fighting from 5 through 12 July, there were incidents when individual permanent line sectors were completely destroyed, and the usual breaks in the cable and pole lines were fixed from 15 to 18 times during the day and two or three times at night. An average of 14—18 minutes were required each time to eliminate these breaks, which was achieved by organizing communications well and providing communications forces with the necessary equipment.

Army *radio communications* were part of the command net and also the net for cooperating with armored mechanized forces and artillery, *front* headquarters, and the Red Army General Staff. Special radio station groups were created on two or three motor vehicles, predominantly on all-terrain vehicles, to serve army commanders wherever they might be located. With the help of these groups, an army commander could establish communications from any point with *front*, corps, and division headquarters (see Map 17).

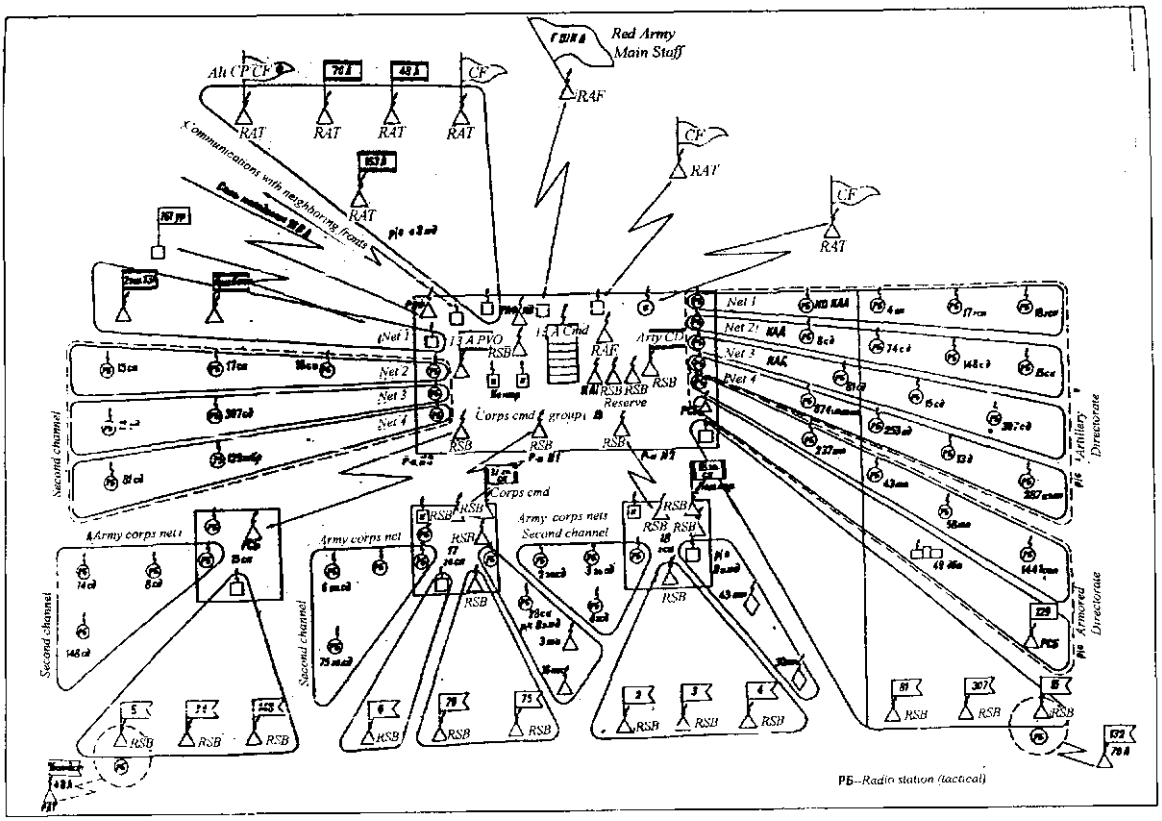
During the preparatory period for the defensive operation, radio stations operated within extremely restricted ranges and operational conversations were categorically prohibited. Full use of radio communications was permitted only on 5 July (only at 2000 hours on 6 July in the 6th Guards Army), and in addition to their normal work, corps and division headquarters radio stations worked to fulfill missions assigned to them by the air-liaison officers.

Mobile equipment was assigned by axes and utilized through field postal stations. However, the major part of army mobile means (automobiles and motorcycles) were conserved until the beginning of combat operations, during which this equipment was used with maximum intensity.

The maneuvering of communications equipment was achieved thanks to the existence of a reserve of radio stations and wire equipment that ensured communications with two new formations when they joined a given army or corps. Each army headquarters had at its disposal one RAF radio station and two or three RSB radio stations for maneuvering its radio stations, and each corps had one or two RSB stations for that purpose.

ORGANIZATION OF TROOP COMMAND AND CONTROL

Staffs at all levels ensured continuous command and control for their commands as a result of their careful preparations for the defense and



Map 17: **The organization of radio communications in the 13th Army, 30 June 1943**

well-thought-out organization of communications. The appropriate distribution of combat-arms staffs and attached reinforcements (formation and units) significantly facilitated stable troop command and control during the defensive battle.

As a rule, command and control organs for artillery, aviation, and tank forces were located within the confines of the combined-arms command post, and the commanders themselves were in direct contact with the *front* (army) commander.

The deputy commander of the 16th Air Army, together with a small operational group, was constantly located at the command post of the 13th Army, which was operating along the Central Front's main axis. The operational group maintained communications with the air army and air divisions and, together with the 13 th Army, resolved all questions of organizing coop - eration and the combat use of aviation on the spot.

Representatives of the 16th Air Army were located at all divisional headquarters of the Central Front's 13th, 48th, and 70th Armies to ensure communications between aviation and ground forces. They had direct communications with airfields and, upon request of the divisional commanders, called on the air forces, directing them to enemy targets.

Communications between aviation and Voronezh Front ground forces were considerably poorer. At the beginning of the battle the 2d Air Army headquarters had not assigned representatives to combined-arms formation headquarters and, as a result, the air army's headquarters summoned aviation direct to the battlefield, which resulted in delay of air strikes. During the defensive battle (9—10 July) attempts were made to improve communications with commanders of combined-arms formations by dispatching air representatives to them, but this did not result in good cooperation.

Responsible representatives of tank formations and *front* artillery operating on a given axis were also located at the army headquarters.

Such a control system greatly facilitated the organization of cooperation and excluded the necessity for written requests to air headquarters and other combat arms headquarters.

The liaison-officer service played an important role in the troop control system. The organization of this service envisioned the augmenting of the authorized composition of groups (corps headquarters and above) with well-trained reserve officers. Small liaison officer groups were also created at divisional headquarters from unit officer cadres, which were reinforced by operational sections.

In the operational sections of the army headquarters a liaison officer with mobile means was designated from each formation, and the basic cadres of these personnel were permanent which ensured the most correct use of this type of communications.

During the preparatory period of the defensive battle, when staff work

basically consisted of monitoring preparation of forces for the defense, officers from *front*, army, corps, and division staffs and, in particular, liaison officers thoroughly studied the terrain, the defensive system, the location of command posts, and march routes. Subsequently this was exceptionally important for transmitting orders rapidly to subordinate commanders during the battle.

During the preparatory period commands and staffs at all levels had sufficient time to prepare troop control carefully. The anticipated operations by large enemy tank groupings required that staffs be completely prepared to ensure exceptional mobility and flexibility in their work. On the whole, the majority of the staffs were prepared for this complex and intense activity.

Control methods during combat

The defensive battles on the Orel-Kursk and the Belgorod-Kursk axis from 5 through 15 July were exceptionally intense and fierce.

A feature of troop control during the defensive combat was the numerous regroupings of reserves, antitank artillery and engineer means, and tank formations and units.

Thus, for example, during only the first three days of the defensive battle, the Voronezh Front command issued the following instructions concerning large-scale operational regroupings:

Date	*Hour*	*To Whom*	*Concerning*
5 July	**1635**	**2d and 5th Guards Tank Corps commanders**	**2d Guards Tank Corps to move to the Sazhnoe Motor Tractor Station, Novye Lizy region by 2400, 5 July; 5th Guards Tank Corps to reach the Luchki, Teterevino, Malinovka region by the same time**
5 July	**2210**	**38th and 40th Army commanders**	**Transfer 38th Army's 192d Tank Brigade to 40th Army; 38th Army's 180th Tank Brigade to concentrate in 1st Tank Army's reserve in the Oboian' region**
6 July	**2300**	**40th Army commander**	**Transfer 28th Antitank Artillery Brigade to 1st Tank Army bv 0300 7 July**
6 July	**2400**	**2d and 10th Tank Corps commanders**	**Concentrate 2d Tank Corps in the Klimanovka, Alekseevka, Setnoe region and 10th Tank Corps in the Petrovka, Pravorot, Aleksandrovka (Prokhorovka) region by close of 7 July**

Date	*Hour*	*To Whom*	*Concerning*
7 July	**1750**	**6th Guards Army commander**	**Transfer 96th Tank Brigade to 35th Guards Rifle Corps**
7 July	**1840**	**40th Army commander**	**Transfer 111th Guards Artillery Regiment and 12th Antitank Artillery Regiment to 6th Guards Army and 9th Antiaircraft Artillery Division to 1st Tank Army**
7 July	**1955**	**40th Army commander**	**Transfer 86th Tank Brigade, 309th Rifle Division, and 66th Guards Mortar Regiment to 1st Tank Army**

During combat there were also many regroupings within the armies. Staffs were charged with the responsibility for monitoring the execution of orders concerning these regroupings and transmitting these to the troops, mainly using liaison officers.

The intense combat conditions made it possible to issue only brief written orders, often together with sketches or maps with a brief text.

The majority of instructions were issued direct by *front* commanders, mainly by military units, which considerably accelerated the reporting of instructions to those who were to carry them out. It should be noted that staff coordination was necessary to employ this communication method, which ensured secrecy of conversations and rapidity of transmission. As the organizer of command and control, the chief of staff was obliged to make known instructions issued by the commander or by himself personally to responsible staff officers. In practice, there were frequent instances when operational section officers were not aware of individual instructions. Therefore they did not always know precisely what formation was carrying out which mission at a given time.

Only in exceptional cases were formation and unit commanders summoned to higher headquarters, when the course of operations required that there be no misunderstanding about the missions, to clarify questions of cooperation, and to plan the course of forthcoming operations.

Staffs primarily employed wire means when transmitting orders and reports, since these had great stability and permitted the use of alternate channels in case of the loss of direct communication. Upon the commencement of the defensive operation they were supplemented by radio communications, which were the principal means of troop control in divisional and regimental networks.

During combat, when the situation was not entirely clear, a staff officer was sent to the specific area and, after accurately assessing the situation, quickly returned to headquarters with a report to the chief of staff. Liaison officers attached to formations were also used for this; the extensive use of liaison officers and command representatives was possible because of the

presence of a sufficient quantity of mobile means (aircraft, motor vehicles, and motorcycles) which had been placed in reserve before the defensive battle began.

Personal contact still remained the principal means of control. *Front* and army commanders sent necessary instructions to forces operating on the main axes and issued such instructions on the spot direct; they often remained at subordinate headquarters or immediately with the forces until the outcome of the battle was clear. This made it possible for them not only to have a correct idea about the course of the battle but also to affect it direct on the given axis by means of their forces and means.

During the defensive battle responsible command representatives were sent to the most important *front* sectors where the situation was more intense and complex, and this practice proved to be justified. For example, Comrade Khrushchev, a member of the Voronezh Front Military Council, was with the 6th Guards Army during the fighting along the Oboian' axis. Lieutenant-General Ivanov, the *front* chief of staff, was sent to the 69th Army headquarters during the fiercest fighting against the German grouping trying to penetrate to Prokhorovka from the south.

Stavka and General Staff officers were also located on the crucial axes of decisive combat.

There were 16 radio stations on motor vehicles at the disposal of the Voronezh Front headquarters to maintain continuous communications with the command representatives sent to the forces and with liaison officers. These radios played a very great role in informing the command about the situation during the most intense periods of the battle.

CONCLUSIONS

The experience of the defensive battle in the Kursk bridgehead provides a basis for reaching the following conclusions regarding troop control matters:

1- Troop control is carried out primarily from main command posts without the special use of auxiliary control points. This is explained by the exceptional stability of wire communications, the adequate quantity of mobile means, and the proximity of headquarters to the forward edge of the defending forces. This control system makes it possible to avoid the dissipating of control means and always to have an adequate reserve of these means.

2. Stability of troop control in the case of an unforeseen change in the situation or an enemy air attack should be ensured by the availability of reserve command posts, at which reserve communication nodes and equipment have been prepared beforehand, with a reduced staffing of signalers. Chiefs

of staff should be particularly concerned that the communications nodes be established properly as regards their engineering.

For example, a reserve communications node in the 13th Army was set up 1 kilometer from the principal node and was designated as an emergency node in case of a large-scale air raid. A second reserve node was set up 10 kilometers from the main one. All lines provided to reserve command posts were well insulated and were laid well away from the region of the main command post.

3. Wire communications should be set up in accordance with the variants of the defensive battle. The communications system should meet the following requirements:

- they should be deeply echeloned, ensuring reliable operation, even if the enemy succeeds in reaching the intermediate or even the rear army defensive line;
- there should be forward communications centers on probable enemy attack axes, ensuring the establishment of communications with newly arrived formations and mobile units arriving in the area of operations; and
- in case of a probable shift to the offensive, they should be developed into the depth for defensive requirements, while simultaneously aimed at the forward development (of frontal lines) to provide forces with communications when shifting to the offensive.

The presence of adequate reserve means ready for use on any axis in accordance with the existing situation is a necessary requirement for the organization of communications.

4. The reliable operation of wire communications, which ensures normal troop control, eliminates the necessity for the extensive use of radio communications, thereby keeping our force groupings and movements secret from the enemy.

5. The creation of independent radio networks for the artillery commander and the commander of tank and artillery forces, used for the control of special units and the organization of cooperation with infantry, has fully justified itself. To ensure the maneuverability and flexibility of radio networks, it is expedient to have networks with the fewest number of radio stations. In general, formations operating on the main axis should not be included in the radio network; it is necessary to communicate with them on separate radio links, while maneuvering communications equipment from secondary axes.

A shift to the full use of radio communications is done on the decision of higher headquarters. Delayed permission for the 6th Guards Army (only at 2000 hours on 6 July) negatively affected the course of army combat opera-

tions; by this time the Army was already fighting for the army second defensive belt.

6. As experience has shown, the timely development of a defensive battle plan which envisions several variants of probable force operations is necessary and useful from the point of view of force preparation, the preparation of defensive lines, the grouping of reserves, the deployment of communications, and the assessment and establishment of march routes.

During the defensive battle, however, the actual situation may not coincide with the situation which was imagined when developing the planning variants. Therefore, in addition to the principal variants, it is also desirable to have a number of additional variants which envision, first and foremost, the possibility of maneuvering reserves along several axes.

7. Any change in the mission of large formations, even an insignificant one which has not been included in the plan, sometimes requires considerable time in order to prepare forces to carry out the new mission. Thus the change in the mission assigned to the Central Front's 19th Tank Corps, which saw its use on 6 July along the Samodurovka axis rather than in the defense ofMolotychi and Iasenov as envisioned by the plan, resulted in a 10 hour delay in the corps' start of the execution of this mission, since a number of unexpected obstacles were encountered on the way to carrying out this new mission. Time was required not only to organize the offensive but also to prepare passages through the minefield sectors which covered the second defensive belt.

8. During the defensive battle a number of varied units and formations were concentrated along lines and in separate sectors because part of the forces from the first defensive lines withdrew to deeper lines, because reserves were brought up from the rear, and because of other regroupings,. This phenomenon would be common and routine for the defensive battle.

To coordinate better the operations of all units and formations designated for fighting along some specific axis or *front* sector, it is expedient to amalgamate their control in the person of one senior chief. If, because of conditions, this amalgamation cannot be implemented by instructions from the high commander then it should be implemented on the initiative of the senior one of those commanders of formations in the given *front* sector.

9. Imprecise execution of the senior command's directives results in serious disruption of the operational plan. Thus, as a result of the 40th Army commander's untimely transfer of the 184th and 219th Rifle Divisions and the 1st Tank Army commander's untimely transfer of the 309th Rifle Division to the 6th Guards Army, the former two divisions were unable to take part in the 6th Guards Army's offensive on 12 July, and were then thrown into battle from the march, without preliminary preparation.

10. Cooperation between air and ground forces requires more improvement. Practice demonstrates that where work with air representatives was properly organized and supported by communications means in a combined-arms command, necessary cooperation between air and ground forces was achieved.

As combat experience demonstrated, it is necessary to focus greater attention on the issue of the marking of the front line by ground forces. Because the battlefield was clouded with smoke and dust during the fighting, rockets alone were the singularly reliable means for marking, since identification panels were not then visible from the air.

Finally, it should be said that careful operational planning, well thought-out organization of communications, efficient troop control, and constant guidance of their operations made it possible to organize continuous and stable control during the defensive battle, which concluded with the utter defeat of the enemy grouping.

6

Protecting Junctions in the Defense: From the Experience of the Voronezh Front

The experience of the Great Patriotic War confirms that flanks and junctions in our defense were the favorite axes for enemy attacks. Furthermore, the organization of defense at junctions is complicated by a number of circumstances and, above all, by the fact that each contiguous unit and each formation is subordinated to its own command. In the event of an enemy penetration of the defense, the commanders of these units and formations operate, first and foremost, in their own interests and, during combat, unity and coordination of control at junctions are achieved with great difficulty. In a number of instances undesirable friction occurs and intervention by higher authorities during combat is often delayed, inevitably resulting in greater complication of the situation along the flanks. The massed employment of aviation, tanks, and mechanized forces in modern offensive operations and, in this regard, an acceleration of operational tempos make junctions in the defense even more vulnerable.

To avoid weakening the defense at junctions, it is necessary to develop beforehand and in adequate detail appropriate measures to protect them. Two methods of protecting junctions in the defense have been developed in combat practice. The first is the development of coordinated operational plans only among units and formations forming the junction; the second is the assignment to the junctions of units or formations (depending on the importance of the junction) directly subordinated to the higher command. In the second case the unit or formation commander is responsible for compiling the plan for the defense of the junction.

When organizing the defense of a junction in which contiguous division, corps, army, and *front* reserves are participating, all measures must be coordinated. These should comprise a single, well thought-out and verified system. Junction defense must be structured with sufficient depth, with the strongest and most active junction security envisioned for particularly

important axes. Practice shows that careful organization of junction defenses in advance significantly facilitates the conduct of defensive combat and creates great defensive stability on the whole.

While preparing for an offensive operation, the enemy usually conducts active reconnaissance to determine the junctions in our defense. It is precisely here that he expects to encounter the least staunch resistance and to achieve rapid disruption of cooperation between defending formations. Therefore the ability of troops and commanders at all levels to conceal the location of the junction and the plan for its defense acquires special significance.

As war experience demonstrated, the designation in advance of commanders responsible for organizing and defending a junction is very important. In this regard the command and staff organizing the defense must assign complete responsibility for junction defense to one person regardless of the number of units and subunits involved. This, of course, in no way lessens the responsibility of higher chiefs for the defense of the junction. The *front* commander is fully responsible for a junction between armies, the army commander for a junction between corps, the corps commander for a junction between divisions, and so on.

Experience in the Great Patriotic War confirms the propriety of assigning missions for the protection of junctions and flanks in general combat orders. Usually the formulation of these missions was included in those points of the general combat order which assigned immediate and subsequent missions to units (see page 76 of the 1943 *Field- Regulations).* The essence of the matter, however, is not only where and how missions for protecting junctions are formulated but rather mainly how these missions are explained, how all measures ensuring solid junction defense are organized and verified on the terrain by appropriate commanders and staffs, and how forces and means assigned to carry out the assigned mission are trained.

During the preparation of the defense of the Kursk bridgehead, the Central and the Voronezh Front commands devoted particular attention to protecting junctions between the *fronts*, armies, and formations. All measures necessary for protecting junctions were carefully planned beforehand. The plans (acts [*aktt]*) stipulated the person responsible for the junction (the formation commander), the organization of an antitank defense, the system of artillery and rifle fire, the axis of counterattacks and counterstrokes of contiguous formations, the system of engineer obstacles, and the organization of control.

All organizational work for protecting junctions was carried out under the direction of special commissions. These commissions for coordinating cooperation at *front* junctions were appointed by an order from the *front* commanders, and those for coordinating cooperation at army junctions were assigned by the appropriate army commanders, with the approval of the

front commander's commission. These commissions included representatives of artillery, tank, and engineer forces.

The designated commissions, together with the formation and unit commanders who were entrusted with the mission of protecting the junction, selected the forward edge of the defense, subsequent lines, cut-off positions, and deployment areas for reserves, artillery, and guards mortar units and also determined missions for reinforcing weaponry. Special attention was focused on organizing the system of fire, selecting locations for minefields and antitank engineer obstacles, and selecting axes for counterattacks and counterstrokes by reserves. Upon completion of the commissions' work, a detailed 'act' [*akt*] was compiled, to which was attached a map of the deployment and missions of the combat arms, a plan of engineer obstacles, a sketch of the organization of communications in the junction, and a table of the signals established for the forces.

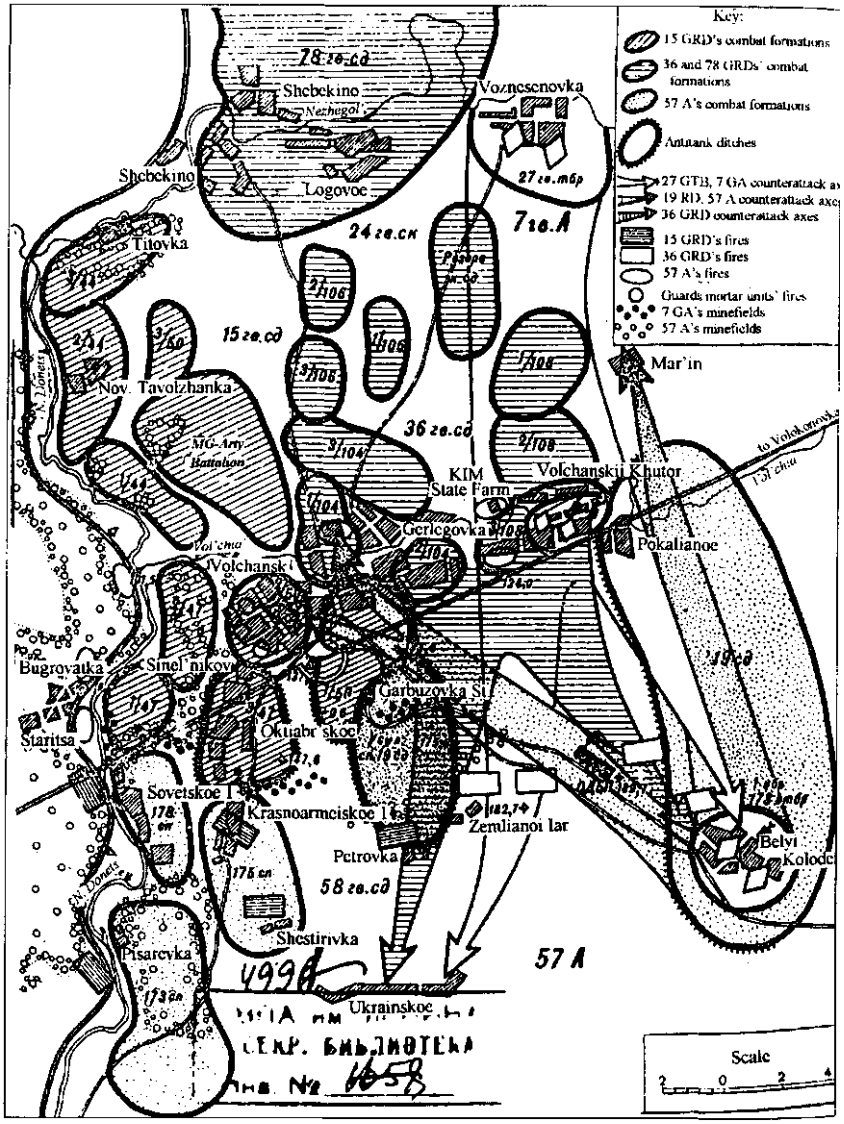
Powerful artillery and mortar fire, engineer-mine obstacles, and tank and infantry counterstrokes were the main protection for each junction. The best-trained and most combat-capable combat units and troop formations, to which were assigned considerable reinforcements, were assigned to protect the junctions.

The composition of the commission, which included responsible (although not mutually subordinated) officers, ensured immediate decision-making, mutual agreement on the terrain with respect to all questions concerning joint operations in the junction, and the assignment of missions concerning junction defense to subordinate and cooperating commanders. In addition, inclusion in the commission of representatives from combat arms and officers from combined-arms (army) headquarters ensured that special problems concerning junction defense and problems in the organization of combat command and control during operations in the junction would be worked out in detail.

The working methods of such a commission are instructive and of undoubted interest. The commission's work, with respect to its organization and methods, was similar to that of officers on operational-tactical battlefield tours. The commission conducted all its work on protecting junctions in roughly the following sequence: the reconnoitering of lines, positions, and dangerous tank axes; the organization of a system of fire and cooperation on the ground; the decisions of 'short meetings' on various variants of our and the enemy's operations at the junction; and, in some instances, also tactical exercises with forces on the verification of specific decisions.

As a result of the complex and diverse work carried out in the forces by mixed commissions, the junctions between *fronts* and armies were adequately protected.

The situation, forces, weaponry, and concept of the defensive operation will always have decisive importance in organizing a defense, including a



Map 18: **The protection of the junction between the Voronezh and the Southwestern Fronts, 10 May 1943**

junction defense. The struggle for junctions is one of the most complex types of command, staff, and troop combat activity. Therefore every positive experience in this matter obtained during the Great Patriotic War is of great interest and practical value in training the Red Army command cadres.

Below two examples are cited of the organizing of junction protection from the experience of the Voronezh Front during the preparatory period for the defense of the Belgorod-Kursk axis. Beforehand, it should be noted that the methods used for protecting junctions in the Voronezh Front should not serve as a template for other, similar operations.

ORGANIZATION OF JUNCTION DEFENSE BETWEEN THE VORONEZH AND THE SOUTHWESTERN FRONTS

The junction between the Voronezh Front's 7th Guards Army and the Southwestern Front's 57th Army ran along the Volchansk-Volokonovka line (see Map 18). At the beginning of May 1943 the 15th Guards Rifle Division (of the 7th Guards Army) was defending on the Voronezh Front's left flank, and the 58th Guards Rifle Division (of the 57th Army) was defending on the Southwestern Front's right flank.

A mixed commission was created during the first half of May 1943 to organize reliable junction protection between the *fronts*. The commission included the commanders of the 7th Guards Army (of the Voronezh Front) and the 57th Army (of the Southwestern Front), the deputy chief of staff of the Voronezh Front, both armies' artillery commanders, the chiefs of engineer forces, the 7th Guards Army's deputy commander for tank and mechanized forces, and the chiefs of individual departments in both armies. As a result of the commission's work, a detailed act [*akt*] was compiled on protecting the junction between the Voronezh and Southwestern Fronts. According to this, the 15th and 36th Guards Rifle Divisions, the 27th Guards Tank Brigade, four artillery regiments, a separate armored train battalion, and a mobile antitank reserve consisting of one tank regiment, one antitank [destroyer] artillery regiment, and one engineer company were assigned from the 7th Guards Army to secure the junction between the *fronts*. Formations and units designated for junction protection were assigned the following missions:

1- The 15th Guards Rifle Division:

* by employing the fire of no fewer than two battalions, prevent the enemy from assembling on the western bank of the Northern Donets River at crossings opposite Sovetskoe 1 and Pisarevka;
* by artillery and mortar fire, destroy enemy tanks and infantry when they

attempt to cross the Northern Donets River in the Sovetskoe 1 and Pisarevka sector;

- prepare fire from two battalions against Sovetskoe 1 and Krasnoarmeiskoe 1 and fire from two battalions against the northern outskirts of Shestirivka and Petrovka;
- by employing fire from two heavy artillery battalions, support the second echelon (the 36th Guards Rifle Division) and tank counterattack against Ukrainskoe;
- move forward two rifle battalions, reinforced with antitank guns and rifles, to defend the southwestern and southern approaches to Volchansk (in the 57th Army's defensive belt);
- employ one reinforced rifle battalion to prepare the Sinel'nikovo, Oktiabr'skoe, and Height Marker 147.6 region for antitank defense; and
- use one reinforced rifle battalion to occupy the (excluding) bridge across the Vol'chia River, Height Marker 137.2, Height Marker +0.6, and Height Marker 133.6 region for antitank defense.

2. The 36th Guards Rifle Division and the tank regiment located in the army's second echelon:

- prepare a counterattack along two axes: Kim State Farm and Ukrainskoe, and Volchanskie Khutor [Farm] and Belyi Kolodez'; and
- prepare fire by the division's artillery regiment against the northern exits from Zemlianoi Iar village and the northern slopes of Hills 182.7 and 189.7.

3. The 27th Guards Tank Brigade (located in the Voznesenovka region): be prepared to counterattack along the Volchanskie Farm and Ukrainskoe, and Pokalianoe and Belyi Kolodez' axes.

4. The armored train battalion (in case of an enemy penetration on the 57th Army's right flank): reliably cover the Belyi Kolodez' and Volchansk line, and support the deployment and counterstrokes of the 36th Guards Rifle Division and the 27th Guards Tank Brigade by fire and maneuver.

The 7th Guards Army's deputy commander for engineer forces was assigned the mission to organize mining in the regions of the northern outskirts of Sovetskoe 1, the southern outskirts of Oktiabr'skoe, the southern slopes of Height Marker 147.6, and south of Garbuzovka Station.

A mobile antitank reserve, consisting of one tank regiment, one antitank regiment, and a sapper company, under the command of the tank regiment commander, was deployed in the Volchanskie Farm region. This reserve was assigned the mission of destroying enemy tanks if they penetrated in the 57th Army's sector south of Volchansk.

JUNCTION PROTECTION

To protect the junction reliably, the 57th Army's right-flank 58th Guards and 19th Rifle Divisions were assigned the following missions:

. cover the approaches to Volchansk, Height Marker 101.5, Bugrovatka, and Staritsa with the fire of no fewer than two artillery regiments;

- prepare the fire of no fewer than two artillery battalions against the Height Marker 124.0, Kim State Farm, Gerlegovka, and Hill 137.2 region;
- prepare the fire of no fewer than two guards mortar battalions against the western and southwestern outskirts of Volchansk;
- retain one regiment of the right-flank division (defending in the first echelon) in the Krasnoarmeiskoe 1 and Shestirivka region;
- occupy the Garbuzovka Station and Petrovka region for defense using one reinforced rifle regiment (from a second-echelon division);
- occupy the Poklanoe and Belyi Kolodez' line for defense with units of the 19th Rifle Division, which are located in the second echelon;
- prepare counterattacks on the Belyi Kolodez' and Volchansk, and Belyi Kolodez' and Mar'in axes by the forces of one rifle division and one antitank [destroyer] brigade;
- prepare to mine the sector north of Petrovka, north of Zemlianoi Iar, and individual sectors along the Volchansk and Belyi Kolodez' road; and
- create a mobile antitank reserve consisting of one antitank brigade and the 173d Tank Brigade in the Belyi Kolodez' region, with the mission to destroy enemy tanks if they penetrate to Volchansk and further to Volchanskie Farm.

The act determined that troop control should be organized as follows. Stable radio and telephone communications were established in the junction between neighboring divisions of the 7th Guards and the 57th Armies and between both armies' artillery commanders. The artillery commanders of adjacent divisions (of the neighboring armies) had common observation posts on Hill 137.2 and burial mound +0.6. Uniform coding of the terrain and a common fire plan were established to summon artillery fire on the junction. The document fixed the time that all measures to protect the junctions were to be ready. Overall responsibility for the defense of the junction between the Voronezh and the Southwestern Front was given to the 24th Guards Rifle Corps commander. Subsequently, during defensive work, the implementation of all measures set out in the act was carefully monitored.

The junction between the Voronezh and the Southwestern Front (not counting the *front* reserves) was covered by four rifle divisions, two tank brigades, one antitank brigade, several artillery regiments, and an armored train battalion. More than 50 percent of these forces were intended for use in counterstrokes. All possible Northern Donets crossings and approaches

from the forest on the river's western bank were under artillery and mortar fire. Dangerous tank axes were reliably protected by minefields. Both divisions prepared strong antitank regions at the junction south of Volchansk. By anchoring themselves on these regions, forces would be able to deliver successful counterstrokes against the enemy who were penetrating into the depth of our defenses.

Thus, as a result of painstaking work by the commands and staffs, the army junction was solidly protected and ensured a stable defense on the flanks of both *fronts*.

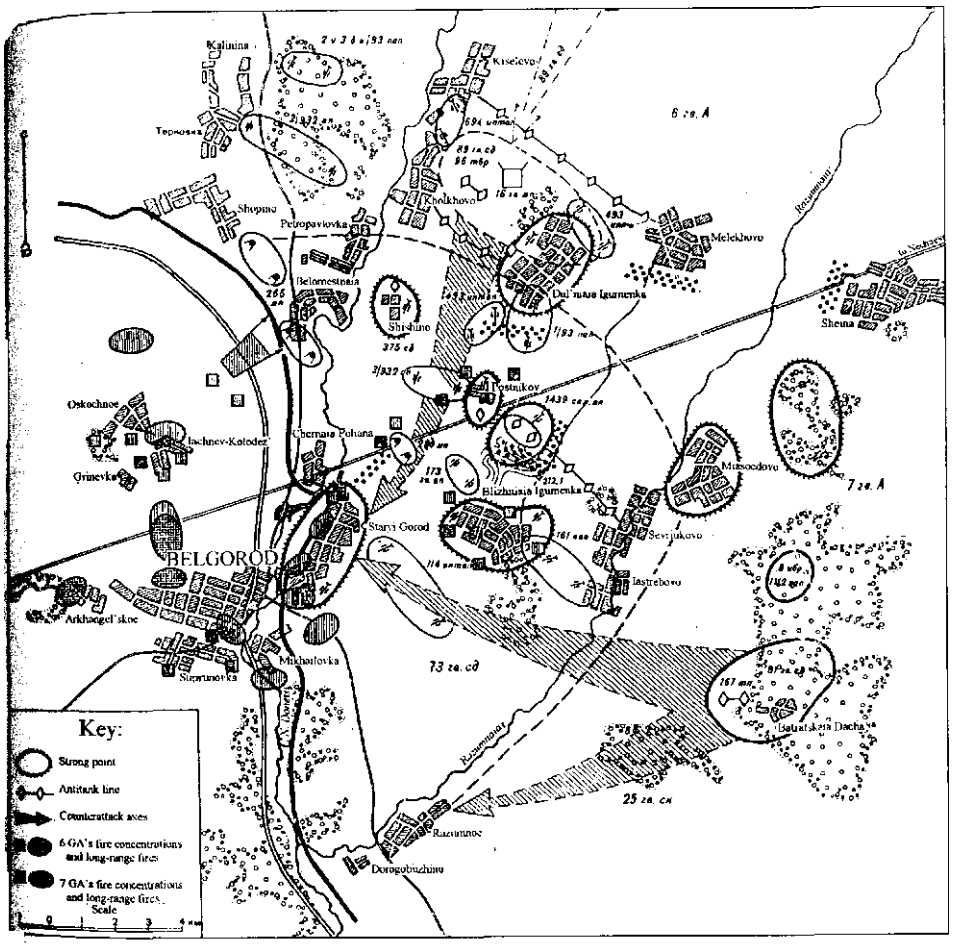
PROTECTING THE JUNCTION BETWEEN THE 6TH AND 7TH GUARDS ARMIES

The junction between the 6th and 7th Guards Armies passed 3 kilometers north of Belgorod and further along the Sheina and Nechaevo line (see Map 19). During the first half of May the 375th Rifle Division occupied a defense on the 6th Guards Army's left flank, and the 73d Guards Rifle Division did likewise on the 7th Guards Army's right flank. The terrain in the junction was favorable for maneuver operations of all ground combat arms. The Northern Donets, which flowed along the forward edge, did not serve as a major obstacle to an offensive. The commanders of the neighboring divisions, which occupied the main defensive belt, had already begun to organize the protection of the junction between the 6th and 7th Guards Armies at the end of March, that is, soon after assuming the defense along this line.

At first, this important matter was not accorded adequate attention. The organization of junction protection was entrusted to secondary and tertiary (lower-ranking) persons, the allocated means were clearly inadequate, and the necessary measures to protect the junction had not been carefully thought-out. In particular, artillery support of the junction between the 6th and the 7th Guards Army was organized without consideration of tank and infantry unit operations; artillery and mortar fire were not combined with heavy weapons fire; artillery designated to protect the junction had been moved back 5—7 kilometers from the junction line, and there was no observation, communications, nor signals system.

A special commission, which consisted of the deputy commander of the 6th Guards Army, this army's artillery commander, the chief of staff of the 25th Guards Rifle Corps (of the 7th Guards Army), the commanders of the neighboring armies, corps and division artillery commanders, division engineers, and others, was created to eliminate all these shortcomings and to organize reliable protection of this junction.

In accordance with this commission's decision, the 93d Gun Artillery Regiment, the 493d Antitank Regiment, the 932d Artillery Regiment, and



Map 19: **The protection of the junction between the 6th and 7th Guards Armies**

the 16th Guards and 265th Mortar Regiments from the 6th Guards Army, and the 173d Guards Artillery Regiment, the 114th Antitank Regiment, the 161st Gun Artillery Regiment, and the 290th Mortar Regiment from the 7th Guards Army were assigned to protect the junction.

In addition, all fire assets located in antitank strong points (at Shishino, Dal'niaia Igumenka, Blizhniaia Igumenka, Postinkov Farm, Staryi Gorod, and others) were enlisted in the effort.

A considerable quantity of weaponry was located in the 6th Guards Army's strong points. Thus a battery from the 493d Antitank Regiment and 10 T-34 tanks were located in the Shishino region, 1 battery and 14 T-34s

were in the Postinkov region, and 3 of the 493d Antitank Regiment's batteries and 10 T-34s were in Dal'niaia Igumenka.

At the same time, all these enumerated antitank assets comprised a mobile antitank reserve for the 375th Rifle Division commander. This reserve was entrusted with the following missions:

- when enemy tanks penetrated from the Staryi Gorod region to Khokhlovo, the antitank reserve was to move to the Khokhlovo, Dal'niaia Igumenka or Kiselevo, and Melekhovo line to repel the tank attack;
- when enemy tanks penetrated along the Staryi Gorod and Dal'niaia Igumenka main road all antitank forces were to struggle from their firing positions (in the Dal'niaia Igumenka region), and it was intended that two of the 694th Antitank Artillery Regiment's batteries would be used to maneuver to Staryi Gorod; and
- when enemy tanks penetrated along the Blizhniaia Igumenka and Sevriukovo axis, the antitank reserve was to move to the Postinkov and Sevriukovo line.

A considerable quantity of antitank weapons was also located in the 7th Guards Army's antitank regions (at Staryi Gorod, Blizhniaia Igumenka, and others). Thus 18 antitank guns and 8 37mm guns were located in the Blizhniaia Igumenka antitank region, as many as 10 guns in Staryi Gorod, and 10 T-34 tanks and the 1439th Self-Propelled Artillery Regiment (18 guns) in the Postinkov region.

The commission also worked out in detail the measures for employing army second echelons. In the event of an enemy infantry and tank penetration at the junction between the armies, the 73d Guards and 375th Rifle Divisions were to use fire and counterattacks to contain it at the Petropavlovka, Dal'niaia Igumenka, Miasoedovo, Iastrebovo, and Razumnoe line. After concentrating in the Khokhlovo and Dal'niaia Igumenka region, the 6th Guards Army's 89th Guards Rifle Division (with two regiments) and the 96th Tank Brigade were to counterattack along the Staryi Gorod axis. The division was supported by the 16th Guards Mortar Regiment and two artillery battalions. After concentrating in the region of the Batratskaia Dacha State Farm, the 7th Guards Army's 81st Guards Rifle Division had orders, in case of an enemy penetration at the junction, of counterattacking against the Germans along the Staryi Gorod and Batratskaia Dacha State Farm, and Razumnoe axis. The division was supported by the 167th Tank Regiment, the 8th Antitank Brigade, the 1112th Gun Artillery Regiment, and the 1439th Self-Propelled Artillery Regiment. Thus concentric attacks by the 89th and 81st Guards Rifle Divisions with attached reinforcements, in cooperation with first-echelon divisions, were to encircle and destroy the enemy who had penetrated at the junction and restore the situation for the adjacent flank armies.

JUNCTION PROTECTION

Engineer units were entrusted with the mission to organize mining in the following regions: the approaches to Dal'niaia Igumenka, the southern outskirts of Melekhovo, the western outskirts of Sheina, the highway in the sector from Staryi Gorod to the grove to the north, the ravine northwest of Height Marker 212.1, and the road north of this marker. Communications were established using radio, telephone, and liaison officers for cooperation between the armies.

While examining the entire system of junction protection between the 6th and 7th Guards Armies, one should note the well-thought-out organization of maneuver for encircling and destroying the penetrating enemy. In the event of an enemy penetration at the junction of the armies, four rifle divisions (two contiguous divisions in the army's first echelon and two from the second echelon), a strong tank group, and several artillery and mortar regiments would oppose him. These forces were adequate not only to stop a strong enemy grouping but also to destroy it in case it penetrated into the defensive depth.

Analogous work to protect junctions was also carried out in other *front* armies. It should be pointed out that all this work on junction protection applies to the first half of May 1943. Subsequently some changes were introduced. A number of divisions, which at first occupied defenses in the main belt (the 7th Guards Army's 73d and 15th Guards Rifle Divisions, and the 57th Army's 58th Guards Rifle Division), were withdrawn into the second echelon. New divisions were committed in their place. By the beginning of July some changes in the artillery grouping at the junctions had also taken place. The operational plan had also been partially changed. Nevertheless, despite all these and other changes, which were prompted by time and the situation, the overriding desire of the Voronezh Front and army command to protect junctions reliably in all sections of the front remained unchanged. *Front* and army commanders personally, as well as their representatives, visited the troops several times and checked the organization and course of defensive work at the junctions.

These examples far from fully reflect the strength of the defense at junctions. The *front* reserve grouping and counterstroke axes should also be considered. While junctions in armies were protected essentially only to the tactical depth of the defense, the *front* command protected junctions in the operational depth. The 270th Rifle Division was situated in the 7th Guards Army's army rear defensive belt (at the junction with the Southwestern Front). The 305th and 107th Rifle Divisions (of the 69th Army) occupied defenses in the armies' rear defensive belts on the axes at the junctions between the 6th and 7th Guards Armies, and the 92d Guards Rifle Division was located further in the rear, in the first *front* line (see Map 3).

According to the Voronezh Front commander's defense plan, in the event

of an enemy penetration of our defense at the junctions, the *front* reserves were intended for use along the following axes: the 69th Army and the 2d and 5th Guards Tank Corps - toward Volchansk; the 1st Tank and 69th Armies, and also the 2d Guards Tank Corps - toward Belgorod; and the 1st Tank Army - toward Rakitnoe (see Map 2). As may be seen from Map 2, all of these counterstroke axes coincided with the *front* (Volchansk) and army (Belgorod and Rakitnoe) junctions.

Thus, thanks to the presence of adequate forces and weaponry and as a result of enormous preliminary work, the Voronezh Front's army junctions were solidly protected both in the tactical and the operational depth. The reliability of junction protection was tested during the fighting and fully justified itself.

SOME CONCLUSIONS

1. As Great Patriotic War experience demonstrates, when organizing the defense of a junction, it is necessary to create a great concentration of firing means, first and foremost of artillery, with extensive employment of flanking and oblique fire, a reliable antitank defense, and a developed system of engineer obstacles, and it is profitable to deploy second echelons and reserves in order to attack the flank and rear of a penetrating enemy grouping and to ensure reliable control of units and formations.

2. From the examples investigated above, it is apparent that the responsibility for the defense of a junction rests mainly on the command of adjacent armies, corps, and divisions. Practice indicates that along particularly important axes it is expedient to assign separate units and formations for junction protection. This method has its advantages. In the event of a penetration of an army or *front* junction, it makes it possible for the *front* command to influence the course of events rapidly and effectively. When there is dual subordination and responsibility by adjacent formations, friction is possible as a result of the desires of individual commanders to act, above all, in their own interests.

3. In the Voronezh Front mixed commissions planned all measures for protecting junctions. The basic document was the commission's act *akt*\. The practicability of measures which were planned in it was, in some cases, verified on the terrain (a penetration situation was created and several units operated according to the plan). This made it possible to verify the troop control system, study the terrain, and check the arrival time for units and formations at their counterattack positions. This method of verification was, in principle, permissible, but it could reveal the plan for junction defense.

Therefore it was necessary to use this plan carefully, while taking all measures to ensure secrecy.

Instead of this act *akt*\ a junction defense plan could be recommended as the main document in which it was necessary to work out in detail all basic questions in several variants. It was obligatory to have army staffs take part in the compilation of this plan. In view of this matter's importance, the army chief of staff was personally in charge of the plan's development.

4. The experience of the Great Patriotic War demonstrates that, for the protection of army junctions, it was necessary for the *front* headquarters to make provisions for operations by its own air forces well in advance. Beforehand, all flight personnel were obliged to study the terrain, the dispositions of their own forces at the junctions, and also the signals for cooperation with the ground forces which were defending the junction. It should be noted that, in the Voronezh Front, acts *[akti]* did not envision the protection of junctions by air power.

5. For reliable junction protection, it was necessary to pay particular attention to the careful organization of the system of fire and engineer obstacles. In the Voronezh Front almost all the artillery of adjacent divisions, the attached and supporting artillery, and a considerable quantity of mortars and engineer means were employed for junction protection. Junction protection along the forward edge was carried out by the creation in front of the forward edge of flanking and crossing rifle and machine-gun fire, by the preparation of various types of concentrated and obstacle artillery fire (defensive fire in the depth, concentrated fire, stationary barrage fire, and mobile [creeping] barrage fire), and by reinforcement of the terrain with engineer means along the flanks of units and formations.

6. The antitank defense of flanks and junctions had to be organized particularly carefully. In the Voronezh Front the stability of the antitank defense at junctions was achieved by a strong artillery grouping and the presence of a considerable quantity of antitank regions and antitank strong points, engineer obstacles, and mobile antitank reserves along dangerous tank axes.

7. As is clear from the examples cited above, army junctions in the Voronezh Front were reliably protected not only to the tactical but also to the operational depth of the defense. On an army scale it was intended that army reserves supported by strong self-propelled and antitank artillery, and also tank brigades and tank regiments, should deliver brief attacks against the penetrating enemy. On a *front* scale counterstrokes by entire armies were planned in the direction of the junctions.

8. Fire cooperation at the junction was ensured by close communications (by telephone, most often by radio, and sometimes by both) between

neighbors and by the organization of common observation posts. Unified map coding, exchange of fire plans, and control over fire requests by neighboring forces were established in the junctions between armies and formations. All these measures justified themselves completely.

9. The junctions at the divisional and regimental level were protected primarily by fire from machine-guns, mortars, and antitank guns assigned for this purpose. These assets were concentrated at the junction between divisions or regiments, and created a continuous crossfire zone before the front and in depth. Subunits defending in the junction maintained close contact with one another. One or two divisional artillery batteries were assigned to protect the junction between regiments.

10. Experience shows that junctions must be protected above all in front of the forward edge, the approaches to which must be covered by particularly dense artillery, mortar, and machine-gun fire. The density of fire is increased by using artillery fire from neighboring sectors and by moving antitank artillery reserves forward from the rear at the proper moment.

The use of artillery from neighboring sectors for junction protection requires the appropriate preparation of firing positions to turn the battery frontage 90 or more degrees, the organization of control (additional observation posts, communications, and signals), the planning of the greatest possible maneuver by artillery units, and the planning of operations by mobile antitank reserves, engineer units and subunits.

It is obvious from the examples cited above based on the experience of the Kursk bridgehead defense that commanders at all levels, their staffs, and the chiefs of combat arms and services must focus serious attention on junction defense. The obvious complexity of matters of mutual agreement, foresight, and the precise and concrete planning of variants for combat operations by all combat arms on the terrain becomes very clear.

Junction protection must constitute one of the most important sections of the operational plan and the combat plan. The situation with respect to time is not always as favorable as it was when the Kursk bridgehead defense was organized. Under any conditions, however, combined-arms commanders should spare neither forces, nor weaponry, nor time to ensure reliable junction defense.

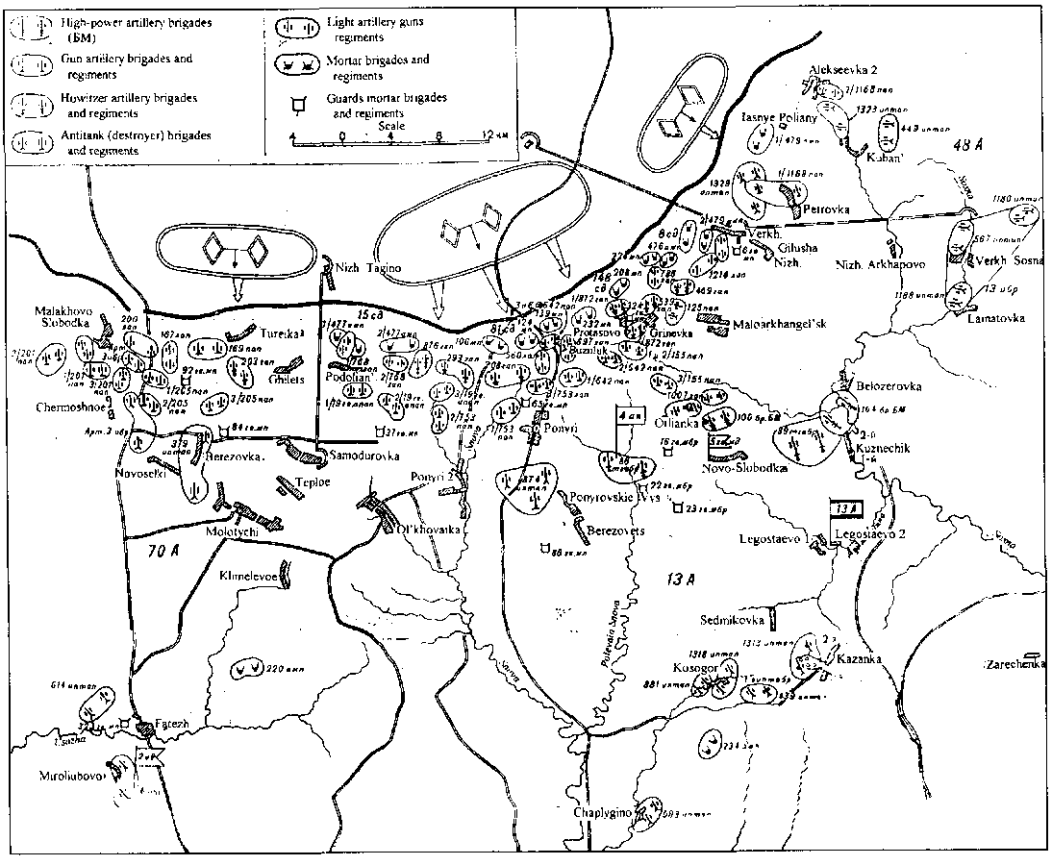
7

Artillery Support of the Kursk Bridgehead Defense[1]

In the July offensive the enemy counted mainly on the large-scale employment of tanks and air power. In the opinion of the German command, strong tank attacks from the directions of Orel and Belgorod would smash our defense to its entire depth and pave the way to Kursk for motorized forces. Consequently, the main efforts of all calibers of the Central and Voronezh Fronts' artillery were directed, first and foremost, toward the struggle against enemy tanks. During the defensive combat not only special antitank units and formations but also all types of artillery, up to guards mortar units, participated in the struggle against enemy tanks.

During the organization of the Kursk bulge defense the overall artillery grouping was determined by the assumed large-scale use of enemy tanks and also by the nature of our defense, whose purpose was to exhaust and bleed dry the enemy's large, advancing forces in order to shift subsequently to a decisive offensive by exploiting the introduction of fresh reserves. These features of the defense had decisive importance not only in the creation of artillery groupings but also in the entire operational-combat force structure.

This chapter illuminates only the basic questions related to the employment of artillery in the July defensive operation. It includes the grouping of artillery in the light of the enemy's probable attacks, the preparation and planning of artillery support, the organization of antitank and anti-air defense, artillery maneuver during the defensive battle, and several other issues. The study of these questions within the context of the specific conditions of the July defensive operation has great practical value in preparing Red Army command cadres. The experience of artillery support for the largest of the Great Patriotic War's battles, taking into consideration the actual situation, may be usefully employed when organizing and conducting any defensive operation or battle.



Map 20: **The grouping of reinforcing artillery on the right flank of the Central Front, 5 July 1943**

GROUPING OF ARTILLERY

The Central Front

The *front* consisted of a large quantity of reinforcing artillery weapons, which were distributed among the armies, depending on the importance of the operational axes (see Map 20). Table 14 shows the saturation of armies with artillery.

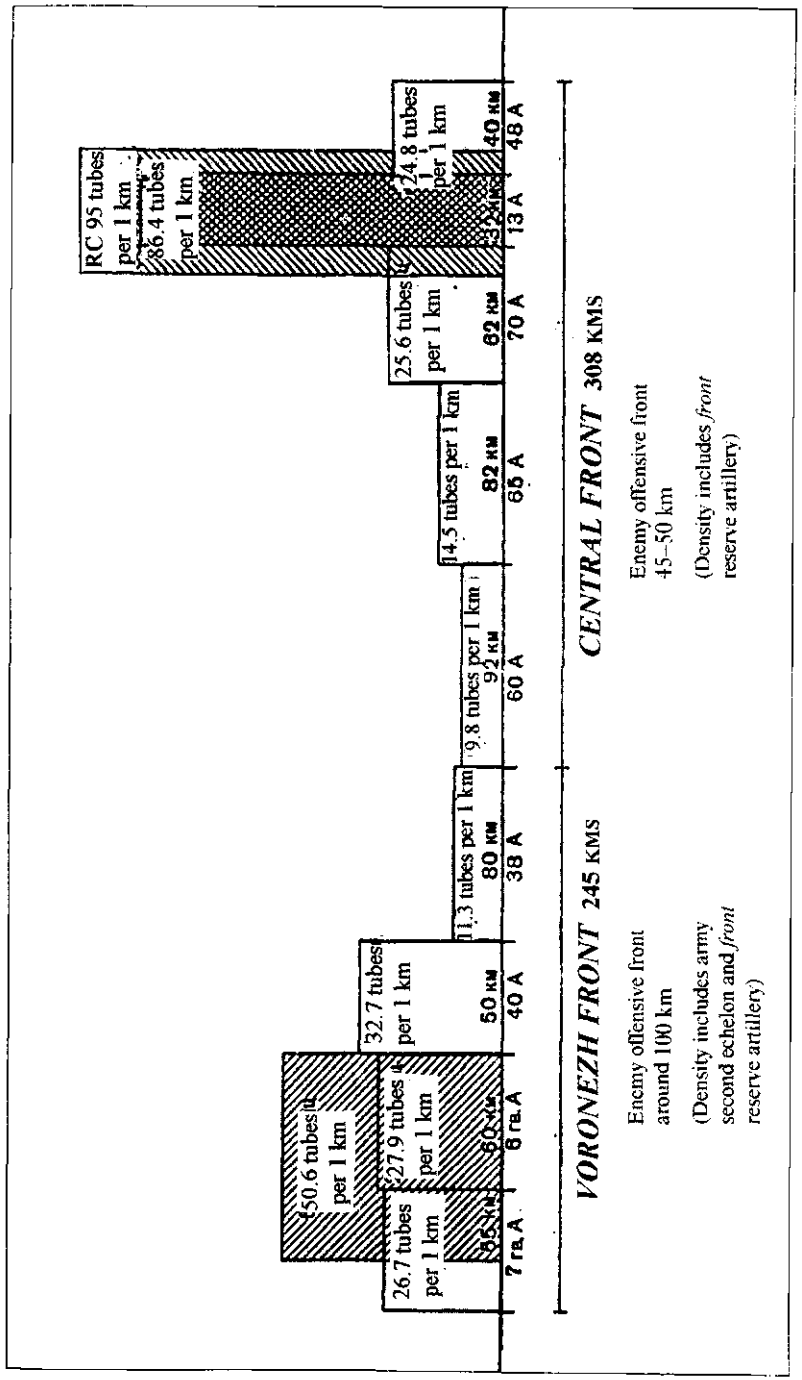
TABLE 14: DISTRIBUTION OF ARTILLERY BY ARMY

Component Armies	*Numbers*
48th Army	
Rifle division artillery regiments	**6**
Reinforcing gun artillery regiments	**1**
Reinforcing antitank artillery regiments	**1**
Reinforcing destroyer brigades	**1**
Army mortar regiments	**1**
13th Army	
Rifle division artillery regiments	**12**
Reinforcing gun artillery regiments	**5**
Reinforcing light artillery regiments	**6**
Reinforcing howitzer artillery regiments	**6**
Reinforcing heavy and high-power howitzer brigades	**4**
Reinforcing antitank artillery regiments	**1**
Army mortar regiments	**8**
Heavy guards mortar brigades	**3**
Guards mortar regiments	**5**
Guards mortar battalions	**1**
70th Army	
Rifle division artillery regiments	**8**
Reinforcing gun artillery regiments	**2**
Reinforcing light artillery regiments	**3**
Reinforcing howitzer artillery regiments	**3**
Reinforcing antitank artillery regiments	**1**
Reinforcing destroyer brigades	**1**
Army mortar regiments	**1**
Guards mortar regiments	**2**
65th Army	
Rifle division artillery regiments	**9**
Reinforcing antitank artillery regiments	**2**
Army mortar regiments	**3**
Guards mortar regiments	**1**
60th Army	
Rifle division artillery regiments	**4**
Reinforcing gun artillery regiments	**1**
Reinforcing antitank artillery regiments	**1**
Reinforcing destroyer brigades	**1**

Army mortar regiments	3
Guards mortar regiments	1
Guards mortar battalions	1
2d Tank Army	
Reinforcing antitank artillery regiments	2
Army mortar regiments	2
Front *reserve*	
Rifle division artillery regiments	2
Reinforcing gun artillery regiments	2
Reinforcing antitank artillery regiments	2
Reinforcing destroyer brigades	3
Mortar brigades	1
Guards mortar regiments	1
Guards mortar battalions	1
Totals	
Rifle division artillery regiments	41
Reinforcing gun artillery regiments	11
Reinforcing light artillery regiments	9
Reinforcing howitzer artillery regiments	9
Reinforcing heavy and high-power howitzer brigades	4
Reinforcing antitank artillery regiments	10
Reinforcing destroyer brigades	6
Army mortar regiments	18
Mortar brigades	1
Heavy guards mortar brigades	3
Guards mortar regiments	10
Guards mortar battalions	3

Table 14 shows that the Central Front's principal artillery grouping was located in the 13th and 70th Armies' defensive belts, that is, on the axes of the assumed enemy offensive. The *front* command reinforced these armies with large artillery formations. Thus the 13th Army was reinforced by the 4th Artillery Penetration Corps (consisting of two artillery divisions and a mortar division), and the 70th Army was reinforced by the 1st Guards Artillery Division.[2]

Thus the most dangerous axis, extending 45-50 kilometers along the front, was reliably covered by artillery weaponry which was echeloned to a depth of up to 30 kilometers. Table 15 shows the artillery density by army which was achieved by this grouping (see Map 21).



Map 21: The density of artillery in the armies of the Central and Voronezh Fronts, 4 July 1943

TABLE 15: ARTILLERY DENSITY BY ARMY

Component Armies	*Front width (km)*	*Quantity*	*Density per km of front*	*Overall Density per km of front*
48th Army	**40**			
82 and 120mm mortars:		**487**	**12.2**	
45, 57, and 76mm AA and AT guns:		**321**	**8.0**	
Divisional artillery and reinforcing (76, 122, 152, and 203mm) guns:		**183**	**4.6**	
Total guns and mortars:		**991**		**24.8**
13th Army	**32**			
82 and 120mm mortars:		**1,325**	**41.4**	
45, 57, and 76mm AA and AT guns:		**587**	**18.3**	
Divisional artillery and reinforcing (76, 122, 152, and 203mm) guns:		**854**	**26.7**	
Total guns and mortars:		**2,766**		**86.4**
70th Army	**62**			
82 and 120mm mortars:		**768**	**12.4**	
45, 57, and 76mm AA and AT guns:		**411**	**6.6**	
Divisional artillery and reinforcing (76, 122, 152, and 203mm) guns:		**406**	**6.6**	
Total guns and mortars:		**1,585**		**25.6**
65th Army	**82**			
82 and 120mm mortars:		**544**	**6.6**	
45, 57, and 76mm AA and AT guns:		**392**	**4.8**	
Divisional artillery and reinforcing (76, 122, 152, and 203mm) guns:		**251**	**3.1**	
Total guns and mortars:		**1,187**		**14.5**
60th Army	**92**			
82 and 120mm mortars:		**508**	**5.5**	
45, 57, and 76mm AA and AT guns:		**219**	**2.4**	
Divisional artillery and reinforcing (76, 122, 152, and 203mm) guns:		**178**	**1.9**	
Total guns and mortars:		**905**		**9.8**
Front *reserve*				
82- and 120mm mortars:		**155**		
45, 57, and 76mm AA and AT guns:		**152**		
Reinforcing (76, 122, 152, and 203mm) guns:		**36**		
Total guns and mortars:		**343**		
Totals	**308**			
82 and 120mm mortars:		**3,787**	**12.3**	
45, 57, and 76mm AA and AA guns:		**2,082**	**6.7**	
Divisional artillery and reinforcing (76, 122, 152, and 203mm) guns:		**1,908**	**6.2**	
Total guns and mortars:		**7,777**		**25.2**

Regarding the attachment of *front* reserves in 13th Army's defensive sector and on the 48th and 70th Armies' flanks adjacent to the 13th Army, the density of artillery weapons along this axis was more than 90 pieces per kilometer of front. This density was exceptional for a defensive operation.

The 4th Artillery Corps, which came under the control of the 13th Army's artillery commander, supported first-echelon divisions. The corps was divided into two groups: a right-sector artillery group, consisting of the 12th Artillery Division, to support the 8th and 148th Rifle Divisions; and a left-sector artillery group, consisting of the 5th Artillery Division, to support the 81st and 15th Rifle Divisions. Each artillery division was divided into a long-range artillery sub-group and infantry-support reinforcing artillery groups. The long-range artillery sub-group consisted of a gun artillery brigade of the division. Reinforcing groups were created according to the number of rifle divisions from light-gun, howitzer, and mortar brigades from artillery divisions. The heavy howitzer artillery brigades and the high-powered artillery brigades were deployed in the second and rear defensive belts in readiness to support second-echelon corps. The 4th Artillery Penetration Corps' 5th Guards Mortar Division (the 16th, 22d, and 23d M-30 Brigades) were deployed at firing positions in the region of the army's second echelon, and also supported first-echelon divisions.

As a result of this distribution of artillery, the 13th Army's first-echelon rifle divisions (including their authorized artillery regiments) were supported as shown in Table 16.

TABLE 16: SUPPORT FOR 13TH ARMY'S RIFLE DIVISIONS

	Rifle Divisions			
Regiments	*8th*	*148th*	*81st*	*15th*
Artillery and mortar regiments	**5**	**6**	**8**	**5**
Guards mortar regiments	**1**	**1**	**1**	**1**

In addition to the regimental and antitank artillery and mortars from rifle regiments, the artillery and mortar regiments shown in Table 16 had 790 guns and mortars, which provided the following density per kilometer of frontage: the 8th Rifle Division - up to 45, the 148th Rifle Division - up to 58, the 81st Rifle Division - up to 37, and the 15th Rifle Division - up to 36 guns and mortars.

Second-echelon rifle divisions and rifle corps deployed in the army rear defensive belt had no means of reinforcement. There were a guards mortar (M-13) and an antitank artillery regiment in the army artillery commander's reserve.

Over the army's entire depth the saturation of artillery and mortar weapons amounted to 86.4 pieces per kilometer of front and, if the strong

front mobile antitank reserve is added to this, then the density increases to 95 pieces. This density was a decisive factor on the 13th Army's front, ensuring the successful repulse of the offensive by the enemy's large mass of tanks.

The distribution of antitank [tank destroyer] artillery brigades and regiments in the Central Front's artillery grouping is noteworthy. Of the ten regiments and six brigades, more than one-third were located in the *front* artillery commander's reserve. This strong, mobile, antitank reserve was earmarked for strengthening the most threatened sector once the enemy's main attack axis became known. These reserves were deployed closer to the principal dangerous tank, which ensured their timely commitment to combat.

It should be noted that in distributing antitank brigades and regiments among the armies the presence of light gun artillery regiments in them was taken into account. Thus the 13th Army, which was operating on the most important axis, was reinforced with only one regiment, while the 48th, 70th, and 60th Armies were each assigned one brigade and one regiment. This distribution of antitank means is explained by the presence of the 4th Penetration Artillery Corps' light gun artillery brigades in the 13th Army.

The Voronezh Front

Considering the enemy's probable main attack axis (from Tomarovka and Belgorod toward Oboian'), the main grouping of forces and weapons [means] was deployed on the *front's* left wing (see Map 22). This also resulted in the deep echelonment of artillery weapons on the most important axis.

Table 17 shows the artillery density in the armies.

As is evident from Table 17, the density in the 6th and 7th Guards Armies reached 27.3 guns and mortars per kilometer of front. Taking into account the second-echelon armies and *front* reserve formation (the 69th Army, the 1st Tank Army, the 35th Guards Rifle Corps, and the 2d and 5th Guards Tank Corps), the density rose to 50.6 guns and mortars per kilometer of front.

Thus in the struggle against the advancing enemy our resistance gradually intensified as he penetrated into the defensive depth. As distinct from the Central Front, the Voronezh Front's main mass of antitank artillery units and formations were passed to first-echelon armies (the 6th Guards Army was reinforced with ten regiments and two brigades). Only one brigade and five regiments of the 31 antitank regiments and six antitank brigades were left in the *front* reserve.

TABLE 17: ARTILLERY DENSITY BY ARMY

Component Armies	*Front width (km)*	*Quantity*	*Density per km of front*	*Overall Density per km affront*
38th Army	**80**			
82 and 120mm mortars:		**551**	**6.9**	
45, 57, and 76mm AA and AT guns:		**159**	**2.0**	
Divisional artillery and reinforcing (76, 122, 152, and 203mm) guns:		**194**	**2.4**	
Total guns and mortars:		**904**		**11.3**
40th Army				
Front width (km)	**50**			
82 and 120mm mortars:		**869**	**17.4**	
45, 57, and 76mm AA and AT guns:		**393**	**7.9**	
Divisional artillery and reinforcing (76, 122, 152, and 203mm) guns:		**371**	**7.4**	
Total guns and mortars:		**1,633**		**32.7**
6th Guards Army				
Front width (km)	**60**			
82 and 120mm mortars:		**779**	**13.0**	
45, 57, and 76mm AA and AT guns:		**418**	**7.0**	
Divisional artillery and reinforcing (76, 122, 152, and 203mm) guns:		**477**	**7.9**	
Total guns and mortars:		**1,674**		**27.9**
7th Guards Army				
Front width (km)	**55**			
82 and 120mm mortars:		**653**	**11.9**	
45, 57, and 76mm AA and AT guns:		**426**	**7.7**	
Divisional artillery and reinforcing (76, 122, 152, and 203mm) guns:		**391**	**7.1**	
Total guns and mortars:		**1,470**		**26.7**
Totals				
Front width (km)	**245**			
82 and 120mm mortars:		**2,852**	**11.6**	
45, 57, and 76mm AA and AT guns:		**1,396**	**5.7**	
Divisional artillery and reinforcing (76, 122, 152, and 203mm) guns:		**1,433**	**5.9**	
Total guns and mortars:		**5,681**		**23.2**
of which:				
On 38th and 40th Armies' front				
Front width (km)	**130**			
82 and 120mm mortars:		**1,420**	11.0	
45, 57, and 76mm AA and AT guns:		**552**	**4.2**	
Divisional artillery and reinforcing (76, 122, 152, and 203mm) guns:		**565**	**4.3**	
Total guns and mortars:		**2,537**		**19.5**

Table 17 contd.

Component Armies	*Front width (km)*	*Quantity*	*Density per km of front*	*Overall Density per km offront*
On 6th and 7th Guards Armies 'front	*115*			
82 and 120mm mortars:		**1,432**	**12.5**	
45, 57, and 76mm AA and AT guns:		**844**	**7.3**	
Divisional artillery and reinforcing (76, 122, 152, and 203mm) guns:		**868**	**7.5**	
Total guns and mortars:		*3,144*		*27.3*
In addition				
69th Army				
82 and 120mm mortars:		**590**		
45, 57, and 76mm AA and AT guns:		**309**		
Divisional artillery and reinforcing (76, 122, 152, and 203mm) guns:		**155**		
Total guns and mortars:		**1,054**		
1st Tank Army				
82 and 120mm mortars:		**249**		
45, 57, and 76mm AA and AT guns:		20		
Reinforcing (76-, 122-, 152-, and 203mm) guns:		**68**		
Total guns and mortars:		**337**		
2d and 5th Guards Tank Corps				
82 and 120mm mortars:		**190**		
45, 57, and 76mm AA and AT guns:		**40**		
Reinforcing (76-, 122-, 152-, and 203mm) guns:		**48**		
Total guns and mortars:		**278**		
35th Guards Rifle Corps				
82 and 120mm mortars:		**362**		
45, 57, and 76mm AA and AT guns:		**184**		
Divisional artillery and reinforcing (76-, 122-, 152-, and 203mm) guns		112		
Total guns and mortars:		**658**		
Reserve				
82 and 120mm mortars:		180		
45, 57, and 76mm AA and AT guns:		**40**		
Reinforcing (76-, 122-, 152-, and 203mm) guns:		128		
Total guns and mortars:		**348**		
Grand Totals	**245**			
82 and 120mm mortars:		**4,423**	18.1	
45, 57, and 76mm AA and AT guns:		**1,989**	8.1	
Divisional artillery and reinforcing (76-, 122-, 152-, and 203mm) guns		**1,944**	**7.9**	
Total guns and mortars:		**8,356**		**34.1**

Table 17 contd. *Component Armies*	*Front width (km)*	*Quantity*	*Density per km of front*	*Overall Density per km offront*
On the front of 6th and 7th Guards Armies (taking into account second-echelon units and **front** *reserve)*	**115**			
82 and 120mm mortars:		**3,003**	**26.1**	
45, 57, and 76mm AA and AT guns:		**1,437**	**12.5**	
Divisional artillery and reinforcing (76-, 122-, 152-, and 203mm) guns		**1,379**	**12.0**	
Total Guns and Mortars:		**5,819**		**50.6**

The 6th Guards Army, which was defending on a 60-kilometer front, had four rifle divisions in first echelon and three in the second. The army was reinforced with five gun artillery regiments, two army mortar regiments, ten antitank artillery regiments, two antitank artillery brigades, and five separate antitank rifle battalions.

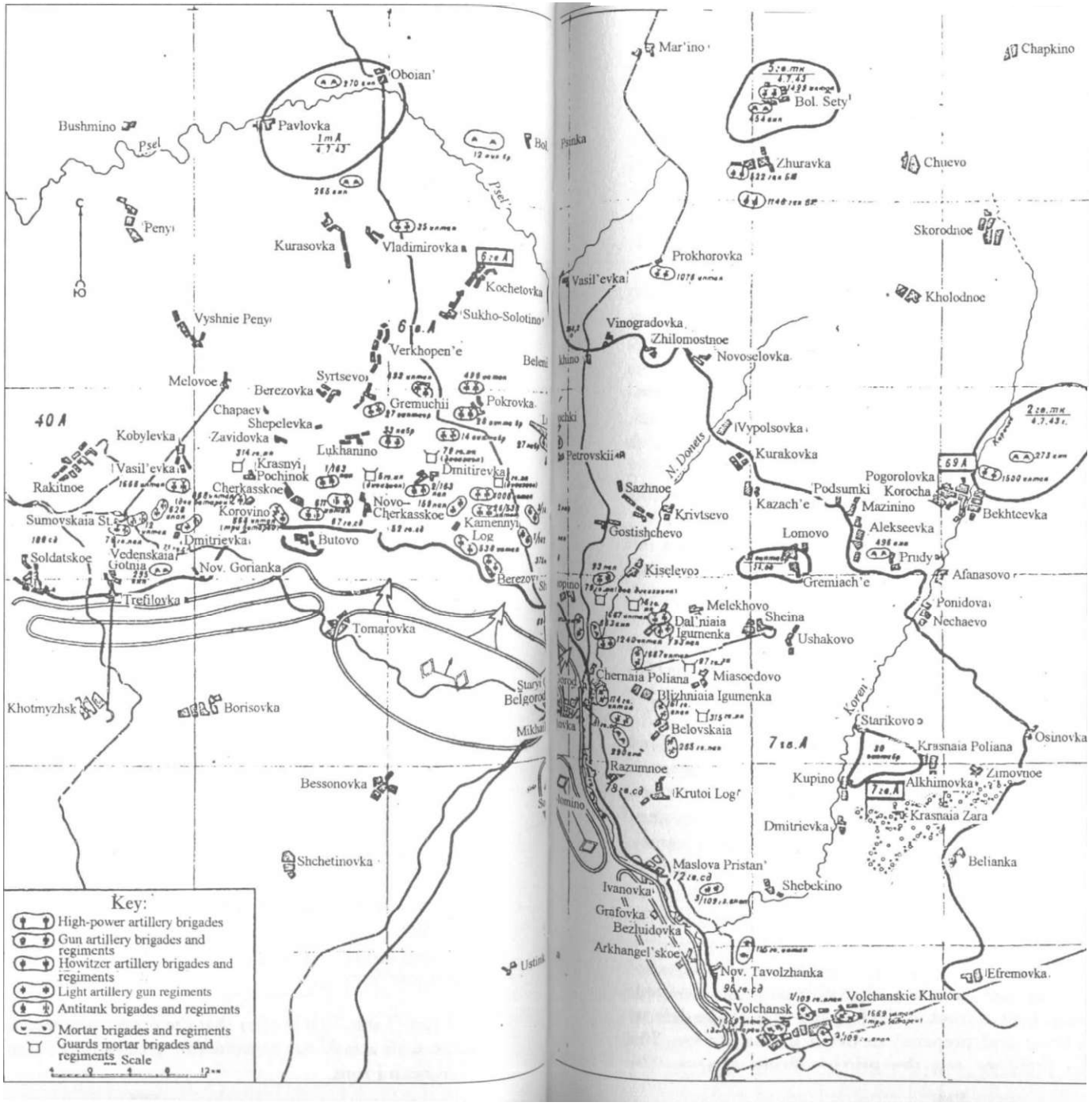
The density of artillery and mortar weapons per kilometer of front in first-echelon divisions was 17 in the 71st Guards Rifle Division, around 15 in the 67th Guards Rifle Division, around 14 in the 52d Guards Rifle Division, and around 24 in the 375th Rifle Division. The second-echelon divisions had no reinforcing weapons. Units and formations of the army's mobile antitank reserve (the 27th and 28th Separate Antitank Artillery Brigades, the 493d and 496th Antitank Artillery Regiments, and the 136th Separate Antitank Rifle Battalion) were deployed in their [the second-echelon divisions'] defensive belts.

Table 18 shows the comparative density of artillery weapons per kilometer of front in first-echelon divisions of the Central and Voronezh Front armies which absorbed the main enemy tank attacks.

TABLE 18: COMPARATIVE DENSITY OF ARTILLERY WEAPONS AMONG FIRST-ECHELON DIVISIONS OF THE CENTRAL AND VORONEZH FRONTS (PER KM OF FRONTAGE)

Army first-echelon divisions	*Antitank artillery guns*	*Division and reinforcing artillery guns*	*Mortars*	*Weapons per km of Front*
Central Front's 13 th Army	**More than 4**	**More than 15**	**Around 21**	**More than 40**
Voronezh Front's 6th Guards Army	**Around 6**	**Around 3.5**	**More than 8**	**Around 17.5**

From Table 18 it is clear that the degree of resistance to the enemy's first large-scale attack was considerably greater in the Central Front than in the Voronezh Front.



Map 22:
The grouping of attached artillery on the Voronezh Front's left flank, 4 July 1943

The 7th Guards Army, which was defending on a 55-kilometer front, also had four rifle divisions in its first echelon and three in the second. The density of artillery weapons in first-echelon rifle divisions amounted to 4.7 antitank guns, 5.2 division and reinforcing artillery [$iV], and 6.9 mortars per kilometer of front. Taking into account army second-echelon artillery divisions, the artillery density increased. Thus in the 81st Guards Rifle Division's sector the density reached 30.7 guns and mortars per kilometer of frontage, that is, almost twice as great as that of the average first-echelon division density. The density in the neighboring 78th Guards Rifle Division was 17.7 guns and mortars per kilometer of frontage, and that of the left-flank divisions was 12.2 and 13.3, respectively.

Thus a great concentration of artillery was created at the junction between the 6th and 7th Guards Armies, since the 6th Guards Army was covering the axis to Oboian' and the 7th Guards Army was covering that to Korocha.

The divisions located in the army's second echelon had no means of reinforcement. Their artillery regiments reinforced the first-echelon divisions. The following were located in the army's mobile antitank reserve: the 30th Separate Antitank Brigade (two regiments), the 1669th Antitank Artillery Regiment, and the 1670th Antitank Artillery Regiment, which had only one battery at the beginning of the operation.

As with the 6th Guards Army, the average artillery density of the 7th Guards Army's first-echelon divisions was less than half the density created in the defensive belt of the Central Front's 13th Army.

PREPARATION AND PLANNING OF ARTILLERY SUPPORT

The maximum massing of fire on the main and most crucial axes and fire power against the enemy on any axis and throughout the entire duration of his offensive constituted the basis of the system of artillery and mortar fire. This was ensured by a number of carefully planned and detailed measures, and, above all, by the appropriate grouping of artillery in *fronts*, armies, corps, and divisions and also by the planning of fire with the extensive use of maneuver.

The planning and control of fire

A system of fire (fixed barrage fire, mobile [creeping] barrage fire, fire concentrations, and long-range fire) in front of the forward edge of the defense and in depth was developed and prepared in detail in the armies. The artillery of first-echelon divisions was the primary firing system. The

artillery of second-echelon divisions remained within these divisions and prepared fire concentrations in front of the forward edge of the main defensive belt and against possible tank and infantry concentrations in the defensive depth and barrage fire (creeping barrage and fixed barrage fire) in the defensive depth and in front of the forward edge of the second belt and intermediate defensive lines. In separate instances, for example, in the 7th Guards Army the artillery of rifle divisions in second-echelon rifle corps and armies reinforced the first-echelon divisions.

The plan envisioned the concentration of the fire of 5-7 artillery battalions on main axes. All planned fires were ranged by artillery units.

Particularly serious attention was devoted to the accuracy and rapidity of the opening of fire. This was ensured by ranging, control, and verification of the readiness of artillery units to carry out the planned fire. The army and formation artillery commanders and their staffs usually carried out the verification. As a result of these checks and subsequent work on correcting problems, the opening of fire, which at first continued for 10-15 minutes and sometimes for as much as 40 minutes, was brought down to 40-90 seconds in a number of units. As a rule, prepared fire was opened 1.5-3 minutes after it was called for and the opening of unplanned fire took 4-7 minutes.

The organization of an extensive network of observation points provided fire direction and observation. Centralized control of artillery in the rifle divisions was disrupted in a number of instances because of the rapidly changing situation and the comparative limitations of the means of communication. However, the constant striving for continuous centralization of fire during combat ensured the rapid restoration of disrupted control.

It should be noted that several rifle corps artillery headquarters, the majority of which were formed a few days before the beginning of the enemy offensive and therefore still had no experience in controlling artillery on a corps scale, were weak links in artillery control during combat. In a number of instances the army artillery commanders had to control artillery through the rifle division artillery commanders, while bypassing the corps artillery headquarters. Operational groups, which were headed by army artillery staff officers, were assigned to assist direct and to reinforce corps artillery staffs. In particular, this measure was implemented by the 69th Army's artillery headquarters with respect to the 48th Rifle Corps.

During preparation great attention was also devoted to the reconnoitering of the enemy's defense. The main reconnaissance method in artillery units was reconnaissance from observation posts, including forward and temporary posts. Some of the observation posts moved forward into combat outposts to reconnoiter objectives and sectors in the enemy defense which were difficult to see.

Temporary observation posts were organized to study individual objec-

tives and were usually occupied for one or two days by officers and soldiers and, sometimes, by individual scouts. Scout-observers and officers established around-the-clock duty at these observation posts. Separate scout-artillery men were included in the operations of combined arms reconnaissance groups, whose mission was to detect and define precisely the enemy's firing system. The most careful observation of the enemy's probable concentration areas was organized when it was established that he had begun to prepare his offensive. Air and artillery reconnaissance were also used extensively, providing valuable information about enemy batteries.

Artillery maneuver

Artillery headquarters focused serious attention on organizing artillery maneuver by fire (shifting the direction of fire) and on wheels. Maneuver by fire was achieved by preparations to shift decisively the front not only of artillery battalions but also of entire artillery regiments. Thus the 161st Guards Gun Artillery Regiment (the regiment reinforcing the 7th Guards Army's right-flank 81st Guards Rifle Division) prepared to shift its front more than 90 degrees to the south to support the division's neighbor to the left. In addition, the regiment prepared to shift its front to the north to protect the junction with the 6th Guards Army. Maneuver by fire was supported by the appropriate organization of observation and communications and by the setting up of firing positions, and artillery commanders and their staffs carried out control and verification. As a result all of these measures entire artillery regiments were able to achieve a rapid shift of their front during combat.

Wheeled maneuver was planned not only by the movement of antitank reserves and guards mortar units from the rear but also by the appropriate regrouping of artillery in army operational sectors. Thus, according to the plan, the 7th Guards Army's 97th Guards Mortar Regiment, while reinforcing the right-flank 81st Guards Rifle Divisions, reinforced the sector of all first-echelon divisions. The 114th and 115th Guards Antitank Regiments, each reinforcing one of the 7th Guards Army's flank divisions, were prepared for maneuver to the army's opposite flank. Wheeled maneuver was ensured by reconnoitering march routes, selecting and establishing firing positions and observation posts in these regions, and preparing observation, communications, and data for conducting fire.

The counterpreparation[3]

During the preparation of the operation, the *front* command devoted necessary attention to the counterpreparation.

The *fronts* approached the determination of the aims and missions of the counterpreparation in different ways. On the Central Front the counter-battery struggle which was directed at the disruption of the enemy artillery preparation and the artillery support of his offensive was offered as the basis of the counterpreparation. Striking the concentration of enemy forces which was preparing for the offensive was a secondary mission. On the Voronezh Front the principal mission of the counterpreparation was the destruction of the concentration of enemy infantry and tanks, which had occupied jumping-off positions for the offensive. The suppression of active artillery and mortar batteries was an incidental mission. To a great degree the availability of comparatively precise data concerning the enemy artillery grouping, and also the great saturation of artillery in the defensive belt of the 13 th Army and the adjacent flanks of the 48th and 70th Armies had an influence on such basic distinctions in determining the targets and missions of the counterpreparation.

In the armies the counterpreparation was carefully planned in advance. The plans included several variants, depending on the enemy's possible concentration for the offensive. The attachment of artillery located in a given sector and, in part, the artillery of neighbors, which was maneuvered by trajectories to exploit fully the range of fire, were planned according to each variant. Wheeled maneuver was not envisioned. Individual variants were relied upon during the conduct of the counterpreparation in the event of a simultaneous offensive by the enemy along several main axes or along the army's entire front.

The scale of the counterpreparation was determined depending on the availability of artillery. In the defensive sector of the Central Front's 13th Army the counterpreparation was planned along the army's entire front, in the 48th and 70th Armies - on the flanks adjacent to the 13th Army, in the 65th Army - in individual division sectors, and in the 60th Army - only at the army junctions.

All artillery of first-echelon divisions, reinforcing artillery, and 82mm and 120mm mortars participated in the counterpreparation. The 82mm mortar fire was planned in PP [infantry support] groups on the most crucial axes. High-powered artillery and antitank artillery did not participate in the counterpreparation. Because of the limited time interval between the decision to conduct the counterpreparation and its commencement the artillery was forced to conduct fire from its primary firing positions. A shift in firing positions in these circumstances did not guarantee artillery readiness at the moment of the enemy attack. To camouflage artillery dispositions during the counterpreparation TNT canisters were exploded, and rockets were launched, for instance. The counterpreparation was planned beforehand with respect to concrete targets and objectives, which were refined as intelligence data were gathered.

The organization of the antitank defense

The stability of the Kursk bulge defense was also achieved by the organization of a strong, deeply-echeloned antitank defense (which reached up to 30-35 kilometers). The antitank defense on dangerous tank axes was a uniform, well-thought-out, and well-organized system for exploiting the fire of all types of artillery and engineer combat weaponry. The basis of the antitank defense system was the skillful grouping of antitank weaponry along the main dangerous tank axes, the deep echeloning of these weapons by lines and on the lines themselves, and maneuver by mobile antitank weaponry during the defensive operation.

The system of antitank artillery fire foresaw three methods for fighting enemy tanks:

1. direct fire by stationary firing points (guns from open firing positions) in antitank strong points;
2. direct fire by artillery moving, when necessary, from the rear to meet the enemy tanks; and
3. massed artillery fire from indirect firing positions against tank concentrations and defensive fire against the formations of attacking tanks.

Direct fire by stationary guns was conducted from antitank strong points *(protivotankovyi opornyi punkt/PTOP).* Artillery formed the basis of the *PTOPs'* defense. All other antitank defense weaponry (antitank rifles, mining, and several types of engineer obstacle and barrier) only supplemented artillery fire. All other means were distributed in coordination with artillery officers and, in a number of cases, based upon their orders.

PTOPs were constructed so as to provide all-round defense and special attention was focused on the cooperation of all firing means within the *PTOPs* (guns, antitank rifles, and mortars), their cooperation with artillery and mortar fire being conducted from indirect firing positions.

PTOPs on the Central Front were combined into antitank regions (usually the sectors of rifle regiments). The chief of this region was the rifle regiment commander, and the artillery officers were his assistants. Each PTOP consisted of no fewer than four guns of varied caliber and two or three antitank rifle squads. *PTOPs* were located in close fire cooperation with each other. Guns and antitank rifles within the *PTOPs* themselves were positioned so as to provide all-round defense.

The antitank defense system was structured so that fire from guns of several calibers could be conducted simultaneously in one direction. During large-scale tank attacks this made it possible to repel the several tank types by guns with the appropriate caliber. Thus small-caliber artillery fired against light tanks and medium-caliber artillery against heavy tanks.

The PTOP commander on the Voronezh Front was an artillery officer.

The *PTOPs'* composition and strength were determined by the importance of the axis, the nature of the terrain, and the availability of artillery. There were *PTOPs* with a strength of 3-4 guns and 4—6 antitank rifles; there were *PTOPs* with only antitank rifles; and there were others which had more than 10 guns and 20—30 antitank rifles.

Eight dangerous tank axes were specified in the 6th Guards Army's sector and 28 *PTOPs* were established along them, 18 in the first defensive line and 10 in the second. Along dangerous tank axes in the 7th Guards Army, 12 *PTOPs* were set up in the first line and 15 *PTOPs* were established in defensive depth.

Thus the grouping of *PTOPs* along dangerous tank axes and their echeloning into the rear excluded the cordoned deployment of artillery along the front and ensured sufficient fire density, depending on the importance of the tank axes. Thus, for example, the density of direct-fire guns along the 6th Guards Army's four primary dangerous tank axes was up to 11 guns per kilometer of frontage. At the same time the average density of antitank guns in this army's first-echelon divisions was only around six.

In 13th Army the density of antitank artillery constituted 7.5 guns in the first line, 3.2 guns in the second line, and 12.2 guns in the third line, in all about 23 guns per kilometer of front. On individual axes the concentration of antitank guns exceeded this average density.

The *PTOPs* played a positive role during the July defensive battles. The first powerful attacks by large masses of tanks were smashed in the *PTOPs* in the 6th and 7th Guards Armies' first defensive belt. On 5 July the *PTOP* in the Krutoi Log region (7th Guards Army) repelled several attacks during the day, simultaneously throwing back as many as 100 tanks. The *PTOPs* in the Korovino and Cherkasskoe regions (6th Guards Army) repelled several attacks by large tank and infantry forces supported by bombers.

The fire of individual *PTOPs* cooperated with the fire of divisional artillery and reinforcing artillery. The fire of all divisional artillery and High Command reserve artillery was prepared beforehand against regions of possible enemy tank concentrations along probable axes of their movement.

Massed artillery fire from indirect firing positions was prepared on the flanks of *PTOPs*, in the gaps between them, and throughout the defensive depth. Guards mortar units also prepared fire on likely dangerous tank axes. The participation of division artillery and reinforcing artillery in the struggle against tanks also envisioned the employment of direct fire. To do so the artillery which was firing from indirect positions was deployed chiefly on dangerous tank axes. Its firing positions were selected and set up so as to conduct direct fire against enemy tanks when they reached the firing positions of this artillery. The distance between the firing positions provided mutual coverage by direct-fire batteries in the event of an enemy tank penetration into the area of the artillery positions.

The course of combat operations fully justified these measures. The artillery assisted the antitank guns located at *PTOPs* by firing from indirect-firing positions. When enemy tanks penetrated into the defensive depth, this artillery inflicted heavy losses on them by direct fire from the areas of their indirect firing positions.

In some instances antiaircraft artillery units also participated in repelling tank attacks in our defensive depth. These units had prepared firing positions for direct fire in advance. In addition to prepared defensive fires, guards mortar units had prepared firing positions along dangerous tank axes to conduct direct fire against enemy tanks. The artillery's struggle against enemy tanks took place with the extensive cooperation with our tanks, some of which were used as antitank guns in *PTOPs*.

Mobile antitank artillery reserves, which were located in the defensive depth closer to dangerous tank axes, were tasked to complete the destruction of tank groups which had penetrated into the depth. The maneuver of these reserves was planned beforehand and, accordingly, their deployment regions and lines were prepared, march routes were reconnoitered, and call signals were established. The strength and composition of mobile antitank reserves were varied: in an army — from a regiment to two or three brigades; and in divisions - one or two batteries (45mm or 76mm guns) and up to a company of antitank rifles. Divisional antitank reserves were deployed along the probable axes of their employment, usually in the vicinity of the division commanders' observation posts.

Divisional mobile antitank reserves were reinforced by an automatic weapons company and 10—15 sappers [combat engineers] with an appropriate reserve of antitank mines and explosives. In some cases army antitank reserves also had similar reinforcements when they were used in cooperation with mobile obstacle detachments.

Mobile antitank reserves played a significant role in the defeat of enemy tanks.[4] During combat antitank artillery demonstrated that it was completely prepared for the struggle against large tank forces. New, flexible procedures for fighting against tanks came into being during combat and, as a result, the enemy suffered heavy losses. Combat evidenced a number of examples of skillful cooperation between tanks and guards mortar units and mortars and artillery conducting fire from indirect firing positions.

The organization of air defense[5]

The threat of the impending German summer offensive and, in this regard, the concentration of a great number of German aircraft required the strengthening of the air defense with all available means. By 5 July the Central Front had the following antiaircraft assets: 5 *R{V)GK* [High Command reserve] antiaircraft divisions, 23 small-caliber antiaircraft

artillery regiments, 4 antiaircraft defense battalions, and 12 antiaircraft machine-gun companies.

The following were concentrated on the Voronezh Front: 4 *R(V)GK* antiaircraft artillery divisions, 6 army antiaircraft artillery regiments, 2 antiaircraft artillery regiments in tank formations, 3 airfield antiaircraft artillery regiments, 2 separate *R{V)GK*antiaircraft battalions, 1 antiaircraft artillery battalion from a tank unit, and 5 antiaircraft batteries of tank units.

Air defense weapons of the country's air defense [*PVO* Strany] were used for antiaircraft defense of the Kursk railroad junction and the Kursk-Kastornoe rail line. By 10 July these consisted of 2 mixed antiaircraft regiments, 1 small-caliber antiaircraft artillery regiment, 6 medium-caliber antiaircraft artillery battalions, 10 antiaircraft armored trains, 10 antiaircraft machine-gun companies, and 2 fighter aviation divisions.[6]

Front antiaircraft units were assigned the mission of protecting infantry combat formations and areas of tank and artillery concentration along probable enemy main attack axes. Based on this mission, as a rule, two-thirds of all antiaircraft artillery in armies protected troop combat formations. Thus of the five antaircraft regiments in the 6th Guards Army three covered troop combat formations, a fourth covered the supply station and army warehouses, and a fifth covered the airfields and, of the six antiaircraft regiments in the 7th Guards Army, five covered army combat formations, and one covered the supply station.

Infantry combat formations were covered by two- or three-layered antiaircraft artillery fire, mainly small caliber, while the artillery grouping and tank concentration regions were, in addition, covered by a single layer of medium-caliber fire. When combat operations began and when the enemy's main attack axes from the south and north and the areas where enemy aviation was concentrating its effort were revealed, antiaircraft forces were significantly regrouped and, as a result, the combat formations of individual formations began to be covered by four-layered fire from all antiaircraft artillery systems.

The force antiaircraft defense system was structured according to plans developed by *front* artillery headquarters. In addition to air defense measures, these plans also outlined several variants for the use of antiaircraft artillery, depending on the axis of the enemy attacks. Army artillery headquarters compiled all necessary combat documents for each variant.

The principal mass of the Central Front's antiaircraft weaponry was concentrated on probable enemy attack axes. Four *R{V)GK* antiaircraft divisions were located there. On the remaining extent of the front (the 60th and 65th Armies), troop operations were covered from the air by only two antiaircraft artillery regiments.

On the Voronezh Front the combat formations of the 40th Army and 6th and 7th Guards Armies were covered by three antiaircraft divisions. The

remaining front was protected from the air by only two antiaircraft regiments. The Belgorod-Oboian' axis and the Belgorod-Kursk rail line were covered most thoroughly. The Prokhorovka Station region was protected by one antiaircraft artillery regiment, the junction at Rzhava Station by an antiaircraft battalion, and the Solntsevo Station region also by one antiaircraft artillery regiment. Thus the probable enemy main attack axis on the Voronezh Front was reliably covered by antiaircraft weapons along the *front* and into the rear. Enemy aircraft, especially during flights in the direction of Oboian', were continuously under pressure from our antiaircraft artillery lire along a front of more than 30 kilometers.

Each antiaircraft division was assigned a belt 15-20 kilometers wide and 5-7 kilometers deep, within whose confines divisional assets were to protect ground forces against enemy air attacks. To maintain fire communications among antiaircraft divisions and reliable fire cover for the most important defensive objectives, they were reinforced with batteries and, in some cases, with small-caliber artillery battalions, which occupied positions in the gaps between divisional combat formations. Antiaircraft divisions most often had at their disposal small-caliber antiaircraft artillery regiments in one line or, less frequently, in two lines with one of the regiments in the second line. As a rule, batteries from these regiments were deployed in three lines, which resulted in fire support in a *defensive belt with a depth of 7—8* kilometers.

Antiaircraft artillery firing positions were selected taking into account direct firing against tanks with an all-round field of fire to a distance of 800-1,000 meters. Each battery received a field of fire sector in accordance with the general antitank defense plan. All antiaircraft gun systems were supplied with an adequate number of armor-piercing shells for the struggle against tanks. Tank destroyer teams armed with antitank grenades, clusters of hand grenades, and Molotov cocktails were created in all batteries from administrative platoon personnel.

The deputy artillery commander was in charge of the operations of all antiaircraft defensive assets at army level, and his command post was located in the vicinity of the army artillery commander's command post.

In addition to establishment [TO&E] antiaircraft weapons, a large quantity of infantry fire weapons were allocated and prepared to fight against enemy aviation. On the Central Front 581 heavy machine-guns, 992 light machine-guns, 1,302 antitank rifles and 60 guns were prepared.

With regard to the Voronezh Front, 2,132 rifle groups, 1,551 light machine-guns, 829 heavy machine-guns, 2,169 antitank rifles, and 50 field guns were prepared to fire against enemy aircraft. The extensive use of infantry weapons for air defense fully justified itself. In the sector of the Central Front's 48th, 13th, and 70th Armies alone, from 5 through 10 July infantry fire brought down 35 enemy aircraft.

The *front* command paid great attention to the organizing of cooperation

between antiaircraft artillery and fighter aviation. The boundaries of the areas supported by medium-caliber antiaircraft artillery and the principal areas supported by small-caliber antiaircraft artillery fire were pointed out to all air personnel, especially fighter pilots. In case of pursuit by enemy fighters, this made it possible for our bombers to bring them under antiaircraft artillery fire and to protect themselves. Meanwhile fighters, knowing these boundaries well, were able to halt an attack on enemy vehicles promptly and to resume it after the target had moved out of the range of antiaircraft artillery.

For the rapid identification of their own aircraft, all antiaircraft artillery units were issued with models depicting their silhouettes and a description of their identifying marks. Special surveillance of their own air operations was organized at all antiaircraft division, regimental, and battery command posts. The Air Observation, Warning, and Communications (*VNOS - Vozdushnoe nabliudenie, opoveshenie i sviaz')* service was structured according to a system of continuous surveillance. Each rifle regiment was allocated a non-establishment *VNOS* post and there were two such posts in divisions, which were formed from the army *VNOS* company, one of which was located on the forward edge and the other in the region of divisional headquarters. Army *VNOS* company posts were set up near the headquarters of rifle corps, at airfields, with air ambushes, and near army headquarters. *Front VNOS* company posts carried out a notification service between army and *front* headquarters, at airfields, and at objectives of *front* significance. Regimental and divisional *VNOS* posts were used to warn forces about the danger if air attacks by means of military telephones. Company *VNOS* posts were joined by radio direct to fighter aviation airfields, and immediately notified airfields about the appearance of enemy aircraft.

Specially allocated radio receivers tuned to the notification frequency were set up at all fighter aviation airfields to receive reports from *VNOS* posts. In addition to radio communications, individual company *VNOS* posts also had telephone communications with airfields.

The painstaking antiaircraft defense training *of* the Central and Voronezh Fronts' forces made it possible to inflict serious losses upon the enemy air during the July defensive battle and considerably weakened his activity from the first days of combat.

The preparation of firing positions and observation posts

Before the beginning of the enemy offensive, artillery fired from temporary positions. If the enemy detected the main firing positions, they were shifted, with dummy guns being left at the old positions. All firing positions and observation posts were carefully fitted out and camouflaged. Observation posts were covered with four to six timber layers, equipment was dug into

the ground, and there were habitation dugouts at firing positions for gun teams. Shelters were dug out for antitank guns, where they were placed during intervals between firing. *Maskirovka* [camouflage] discipline at firing positions was checked from the air.

Firing positions were prepared so that fire could be shifted by as much as 180 degrees. Batteries had main [primary] and reserve firing positions. In those regions where direct fire was impossible from the main positions because of terrain conditions, special antitank firing positions were prepared.

On the 6th Guards Army's front, the terrain in front of the forward edge concealed the enemy's deployment. Special towers were built to observe his rear.

Plans for fire *maskirovka,* which envisioned the organization of a system of false firing positions, observation posts, antitank guns, mortar positions, and roving gun actions, were compiled in the armies. To camouflage junctions false firing positions and positions for roving guns were selected in several instances at the junction of rifle divisions. Exercises were conducted in these regions and false concentrations and movement of artillery were organized to deceive the enemy.

ARTILLERY OPERATIONS DURING THE DEFENSIVE BATTLE

During the July 1943 defensive battle the main shock force of the advancing enemy was made up of tanks, which were hurled forward in large groups to smash our defense and reach the operational depths. In view of this, our artillery operations were aimed primarily at struggling against the tanks, in whose destruction all artillery participated regardless of caliber or principal combat designation. Not only special antitank units and formations but also gun artillery regiments armed with 122mm guns or 152mm gun-howitzers were engaged in the struggle. Weapons such as guards mortars, with their new method of conducting fire, were also used in the antitank battle.

A characteristic feature of the defensive combat was also the extensive maneuverability of artillery. The enemy's use of massed tanks, which swiftly altered the axis of their attack, required the same rapid and extremely extensive maneuver of artillery by fire, and especially by wheels. The creation of powerful artillery groupings by means of maneuver during combat along the axes of enemy tank attacks was a most important mission for artillery, one with which it coped completely satisfactorily.

Finally, yet another characteristic feature of the combat was the cooperation between artillery and other arms and mortars, as well as among the artillery units.

The artillery's struggle against enemy tanks

On the morning of 5 July, the first attacks of large tank groups, which consisted of 50-150 vehicles and infantry moving behind them, were repelled by fire from guns at antitank strong points and by massed artillery and mortar fire from indirect [covered] firing positions. The enemy tanks were forced to withdraw, while suffering considerable losses. During this period, on some axes part of the artillery had already begun to move from indirect to open firing positions. Thus, on the 13th Army's front, the 12th Artillery Division's light artillery regiments were used to conduct direct fire and the same was true of the 1st Guards Artillery Division's light gun artillery regiment on the 70th Army's right flank. During combat on this day all the artillery corps' light guns regiments, all division artillery gun batteries and part of the howitzer batteries, and part of the howitzer and gun batteries of other artillery regiments were moved for direct fire on the 13th Army's front to repel the massive tank attack.

Incessant attacks by huge numbers of tanks forced army and *front* commands to propose that all artillery units should increasingly employ direct fire. While struggling with the immense enemy tank forces the artillery inflicted heavy losses on them.

A group of 50 tanks attacked the 642d Gun Artillery Regiment (13th Army) in the Buzuluk region. Operating in isolation from the infantry, the regiment destroyed 17 tanks by direct fire and repelled the attack. After the infantry withdrawal, the 872d Howitzer Artillery Regiment (13th Army), located at a firing position on the eastern outskirts of Protasovo, continued to defend the populated area for six hours. While conducting direct fire from guns and the personal weapons of the headquarters platoons, the artillerymen repulsed all enemy tank and infantry attacks and saved Protasovo.

The following examples indicate how extensively direct fire was employed. During combat on 7 July in the 13th Army's defensive belt, 250 guns of all calibers were set up to conduct direct fire. On 6 July in the 307th Rifle Division's sector, 52 guns, including 20 76mm division guns and six 122mm howitzers, were brought forward for direct fire to repel enemy attacks against the Ponyri center of resistance in the second defensive belt.

On 9 July in the Verkhopen'e and Kochetovka region (Voronezh Front), an artillery grouping consisting of three antitank artillery regiments, two antitank battalions, and an antitank artillery brigade was created to repel an attack of up to 200 tanks. All of this artillery fought against the enemy tanks exclusively by direct fire, while cooperating with its own tanks.

On 10 and 11 July in the Prokhorovka region, the 6th Guards Army suffered considerable losses and was unable to hold off the onslaught of the tank mass. On the orders of the *front* commander, all gun artillery

was moved forward into open firing positions in the region south of Prokhorovka, with the mission to keep enemy tanks out of this population center. Cooperating with our tanks, the artillery repelled all enemy tank attacks and saved Prokhorovka.

Massed artillery fire from indirect firing positions also produced positive results. On 6 and 7 July, while firing from indirect fire positions, the 27th Gun Artillery Brigade's 93d Artillery Regiment (Voronezh Front) knocked out eleven tanks and repulsed eight enemy attacks. In the Sukho-Solotino region on 11 July, ten guns from the *RGK's* 111th Guards Howitzer Artillery Regiment (Voronezh Front) knocked out four enemy tanks (from a 12-tank group) by fire from indirect firing positions (from a range of 4,800 meters). On 12 July this same regiment, while firing at a range of 3,500 meters and expending 386 shells, knocked out three tanks and destroyed up to two companies of submachine-gunners. Artillery also inflicted heavy losses on the enemy several times by means of creeping barrages. On 5 July up to 50 tanks attacked Zavidovka (6th Guards Army). During the fighting 12 tanks were burned by creeping barrage fire. On the same day in the Razmunoe region (7th Guards Army) the enemy began an offensive with a group of 60 tanks and infantry. Falling under creeping barrage fire, this group lost 27 tanks and was forced to halt its attack.

Artillery maneuver during combat

During the initial hours of combat on the Central Front, three light artillery regiments from the 13th Army and two light artillery regiments from the 70th Army had already moved forward from indirect firing positions to open ones; subsequently they were thrown in several times to fire on other enemy tank attack axes. Thus the 1007th and 1214th Regiments, which had moved forward into the Maloarkhangel'sk region (13th Army) on 5 July, were moved to the army's left flank on 8 July and, once again, on 11 July they returned to cover the axis from Grinevka to Maloarkhangel'sk. The maneuver conducted by the 11th Mortar Brigade of 4th Artillery Corps' 12th Artillery Division is a similar example.

Particularly extensive maneuver by the artillery was carried out in the Voronezh Front, where the lesser concentration of artillery, a wider enemy offensive front, and the greater strength of the advancing enemy increased the necessity for artillery mobility to a significant degree. Maneuver by artillery weaponry within the 6th and 7th Guards Armies, which absorbed the enemy's first attack, was restricted and especially in the 6th Guards Army by the fact that the enemy was attacking on a number of axes. Therefore artillery maneuver on a *frontal*-scale was more clearly exhibited on the Voronezh Front. During the initial days of the battle the *front* commander reinforced the 6th and 7th Guards Armies and the 1st Tank Army,

which were engaged in heavy combat, with artillery weapons from the 38th and 40th Armies and the *front* reserve. Subsequently, with the 69th Army's introduction into the fighting and changes in the enemy tank attack axes, together with the removal of artillery from the 38th and 40th Armies, artillery was regrouped at the expense of armies conducting combat operations, mainly by weakening the 7th Guards Army and reinforcing the 69th Army.

On 6 July the 6th Guards Army had already been reinforced with one antitank brigade and one guards mortar regiment from the *front* reserve. In addition, the 29th Separate Antitank Brigade had been transferred from the 40th Army to the 1st Tank Army. Subsequent reinforcement of these armies continued on 7 and 8 July.

In all, from 6 through 8 July three antitank brigades, up to eight antitank regiments, two antitank rifle battalions, one heavy gun artillery brigade, two howitzer artillery regiments, one mortar brigade, and four guards mortar regiments, not to mention artillery which was part of rifle divisions which had arrived to reinforce the armies, had been transferred from the 38th and 40th Armies and the *front* reserve to reinforce the 6th Guards and 1st Tank Armies. Subsequently, in connection with the enemy's penetration north and northeast of Belgorod, a gun artillery brigade, an antitank brigade, a guards antitank regiment, a mortar regiment, and a guards mortar regiment, not to mention artillery units received from the *front* reserve, were transferred from the 7th Guards Army to 69th Army.

Maneuver on a *front* and army scale made it possible to create powerful artillery groupings on the most threatened axes, whose fire, in cooperation with other combat arms, inflicted heavy losses on the advancing enemy.

In the sector of the 307th Rifle Division (13th Army), which, with the support of units from the 5th Artillery Division and the 2d Tank Army, had successfully repelled attacks by large forces that were attacking the Ponyri center of resistance, an artillery grouping was created with a strength of twelve artillery and mortar regiments and one heavy howitzer brigade. The total number of weapons amounted to 329 guns in indirect firing positions and 52 in open positions. A grouping of 120 pieces and 13 guards mortar launchers from indirect firing positions and 78 direct-fire guns was created in this army's other sector.

During the defensive fighting there was also extensive maneuver by trajectory, involving a shift in the front of 90 or more degrees. Thus on 5 July on the 7th Guards Army's front almost two full artillery regiments from the 81st Guards Rifle Division's sector were shifted 90 degrees to reinforce units of the 78th Guards Rifle Division. On 6 July the 161st Guards Army Gun Artillery Regiment (7th Guards Army) turned its front 90 degrees to support the 265th Guards Gun Artillery Regiment, which was repelling a tank attack by direct fire, and supported the withdrawal of the 265th

Regiment by means of intensive fire. On 11 July the 163d Gun Artillery Regiment (1st Tank Army) also exhibited high maneuverability in battle, shifting its front 180 degrees and supporting the withdrawal of our infantry and tanks.

Entire artillery formations also demonstrated considerable maneuverability. Thus on 6 July on the 13th Army's front the 12th Artillery Division was able to shift fire from the right sector to the left sector (5th Artillery Division).

Artillery cooperation during combat

All artillery operations during defensive combat proceeded in close cooperation with other combat arms, especially tanks. During the early stages artillery cooperated with tank regiments and brigades which had reinforced rifle divisions and, later on, with tank formations. Usually these joint operations were reduced to fighting against enemy tanks using direct fire from tanks and antitank guns from suitably prepared positions. At this period artillery and mortars located in indirect firing positions fought with the enemy infantry. Thus on 9 July in the Syrtsevo region (Voronezh Front) the enemy launched an attack against the 112th Tank Brigade's right flank with a force of around 50 tanks with motorized infantry. By means of a 5-minute fire raid, the 270th Army Mortar Regiment's 2d Battalion inflicted considerable losses on the attacking enemy infantry and, at this time, our tanks destroyed enemy tanks by positional fire.

Many times during combat artillery units provided examples of close fire cooperation. Thus on 6 July on the 7th Guards Army's Front, having introduced the 19th Panzer Division into combat, the enemy occupied Krutoi Log at the cost of great losses and reached the 265th Guards Gun Artillery Regiment's firing positions in an attempt to cut the regiment off from the infantry units. The commander of the 161st Guards Army Gun Artillery Regiment, which was occupying firing positions in the Blizhniaia Igumenka region, saw the course of the fighting from his observation post and, on his personal initiative, turned the regiment's front 90 degrees and opened fire against the tanks. The enemy's enveloping tank maneuver was thwarted by the 161st Guards Army Artillery Regiment's fire, making it possible for the 265th Guards Gun Artillery Regiment to withdraw to the next position. During this battle the fire from both regiments knocked out 14 enemy tanks.

The cooperation of antitank artillery with mortar regiments and guards mortar units was also effective in repelling tank and infantry attacks. Artillery destroyed tanks by direct fire, and the mortars cut the infantry off from the tanks and destroyed the tanks by fire from indirect firing positions.

The use of82mm and 120mm mortars

The 82mm mortars were the battalion commander's principal means for fighting infantry and enemy weapons. The 120mm mortars participated most extensively in establishing blocking fire against infantry and tanks. Thus, while supporting the 17th Guards Rifle Corps (Central Front) in combat on 10 July, the 21st Separate Mortar Brigade set up continuous, fixed, blocking fires along a 2-kilometer front, thereby repelling the attack by 50 enemy tanks and infantry up to regimental strength.

Artillery Units

Artillery divisions' light gun artillery regiments as a rule fought against enemy tanks with direct fire, while performing the mission of antitank artillery. This sort of employment from the first moments of combat resulted from the great power of enemy tank attacks and the restricted number of mobile antitank weapons in the Central Front's armies, especially the 13th Army, which totaled only one antitank artillery regiment. Light gun artillery regiments displayed a high degree of maneuverability.

Howitzer and gun artillery regiments were the first to fire against enemy infantry and tank combat formations. While conducting massed fire (fire concentrations, fixed barrage fire, and mobile barrage fire) from indirect firing positions, they repulsed, thwarted, and considerably weakened enemy infantry and tank attacks.

Antitank artillery [destroyer-antitank] regiments and brigades, which were specially armed with medium-caliber guns, demonstrated that they were the principal and most effective means of fighting enemy tanks. In combat they exhibited a high degree of maneuverability, flexibility in the use of various methods of fighting tanks, and good results from their own fire. Thus in combat from 5 through 12 July the 13th Separate Antitank Brigade knocked out and destroyed 105 tanks, 22 self-propelled guns, 18 field guns, 20 machine guns, 17 mortars, and up to 8 infantry battalions.

Guards mortar units, which were used in cooperation with artillery and other combat arms, employed extensive maneuver and repelled enemy tank attacks with salvo fire, while inflicting serious personnel and equipment losses. During this combat direct M-13 fire was used extensively against tanks from ramps prepared beforehand along probable routes of enemy tank movement. Guards mortar subunits were either positioned in advance on the ramps or moved forward to them during the fighting.

In the course of several minutes on 7 July and while under tank fire, the

84th Guards Mortar Regiment (70th Army) employed fire from individual mortars to set fire to four tanks and knock out two others, without suffering any losses itself. Guards mortar firing positions supplemented the total antitank defense system. Each battalion prepared 3-7 firing positions and routes for leaving waiting areas, antitank fire ranging cards, and initial firing data. On-call subunits were located at firing positions: a battery from a battalion and a battalion from a regiment.

The principal method of conducting guards mortar fire was still salvo fire from indirect firing positions against areas of infantry concentration and tank groups. Belts of mobile barrier fire were assigned to guards mortar regiments and probable enemy concentration regions were designated for salvo fire. In the latter instance, guards mortar fire not only broke up the tank formations and struck the tanks but also isolated and destroyed enemy infantry following behind or on the tanks.

The experience in the July battles of using M-13s to fight enemy tanks was extraordinarily valuable. The successful use of guards mortars for direct fire and the good results achieved by salvo fire against tanks expanded the possibilities of using guards mortars as a means for fighting not only enemy personnel but also tanks.

On the Central Front the 4th Artillery Penetration Corps' 6th Guards Mortar Division, which consisted of three M-30 mortar brigades, participated in repelling tank attacks with salvo fire. While participating in the fighting from 7 through 12 July, this division burned and knocked out 58 tanks.

On 6 July the 23d Guards Mortar Brigade's 544th Battalion (Central Front) repelled a German attack by a salvo against attacking tanks and infantry. The enemy began to regroup for a new attack to the left of the former attack sector. It should have required no fewer than 2-3 hours to prepare such a shift in order to deliver a new salvo. While subjected to artillery and mortar fire and enemy air strikes, the battalion carried out this shift in 45 minutes and was able to deliver a new powerful salvo promptly against the enemy, who was attempting to attack in a new direction.

The M-30 guards mortar units were moved forward to dangerous tank axes in advance, but there were also instances of their movement to regions of prepared firing positions during combat. Guards mortar units displayed excellent preparation and valor in combat. Nevertheless, as combat experience demonstrated, M-30 units were rarely used in the defense because of their low mobility, the necessity for extended fire preparation, and the impossibility of rapidly turning the launchers for a salvo in a new direction.

During the July battles guards mortar units in the Central Front repelled 27 enemy tank attacks, knocked out 118 tanks, and burned 178 tanks and self-propelled guns.

The results of artillery fire

Artillery, cooperating with infantry and tanks, played a decisive role in the enemy defeat. The stability of our defense in all sectors depended mainly on artillery fire and antitank rifle fire. During the first three days of its offensive, the enemy's 19th Panzer Division, which was attacking in the junction between the 6th and 7th Guards Armies, lost up to 60 percent of its tanks due to artillery fire. A lieutenant from 19th Panzer Division's 27th Panzer Regiment, who was taken prisoner, indicated that the Division's offensive was unsuccessful mainly because it encountered great resistance from antitank defensive weaponry and continuous artillery and mortar fire.

During the defensive combat artillery fire recorded excellent results. During the seven days of fighting (5 through 12 July) the Central Front's artillery knocked out and destroyed around 700 tanks and self-propelled guns and suppressed 60 enemy artillery and 56 enemy mortar batteries. From 4 through 15 July the Voronezh Front's artillery put out of action and destroyed 1,049 tanks and self-propelled guns and suppressed 383 artillery and 14 mortar batteries.

Ammunition expenditure

The relative quiet for several months in the Central and Voronezh Fronts made it possible to create a considerable ammunition reserve. This made it possible for artillery units to use their fire with maximum intensity during the initial days of the battle.

Primary attention to the provision of ammunition in the Central Front was focused on the 48th, 13th, and 70th Armies. The units of these armies were divided into two groups with respect to the level of ammunition supply. The first group, consisting of the 13th Army with the attached 4th Artillery Penetration Corps, the 2d Tank Army, the 9th and 19th Tank Corps (in the *front* reserve), and up to 50 percent of the 48th and 70th Armies' formations, were provided with 3-5 combat loads of ammunition for all types of weapon. The second group, consisting of the 48th and 70th Armies' units in the second echelon, were provided with 2-3 combat loads of ammunition. Units from the 65th and 60th Armies were supplied with 1.5-2 combat loads.

Taking into account the expected nature of combat against massed tanks, all artillery units, and primarily *RGK* antitank regiments, were supplied with special shells (sub-caliber and hollow-charge), with an average of 10—25 shells per gun.

A *front* ammunition reserve was created at army storage depots for the distribution and continuous resupplying of ammunition to units and formations. These reserves were concentrated at the 48th, 13th, and 70th Armies'

forward army warehouses and a smaller proportion of them at the 2d Tank, 65th, and 60th Armies' forward warehouses.

The expenditure of artillery shells in the Central Front was extremely high. For the period of 5 through 12 July 1943, this amounted to 1,198 wagon loads, of which the 13th Army's artillery consumed 913 wagon loads.[7] This expenditure is expressed in the following absolute numbers: 268,000 76mm battalion shells (0.8 combat loads [units]), 89,000 122mm howitzer shells (1.4 combat loads), and 41,000 152mm howitzer and cannon shells (5.8 combat loads).

The 13 th Army's shell expenditure (in combat loads) is shown by Table 19.

TABLE 19: 13TH ARMY'S SHELL EXPENDITURE (COMBAT LOADS)

Guns							*Mortars*	
45mm	**76mm Rgt Arty**	**76mm Div Arty**	**122mm howtizer**	**122mm gun**	**152mm howitzer**	**152mm gun**	**82mm**	**120mm**
1.05	**2.0**	**2.3**	**2.4**	**4.4**	**4.2**	**3.8**	**1.3**	**3.0**

As a result of the continuous supply of ammunition to artillery units, no lack was experienced. The transfer of ammunition from one army to another was practiced extensively during the operation. Thus 7,000 122mm howitzer shells were removed from the 60th Army, and 120mm mortar shells were removed from the 65th Army. On days of particularly intense fighting ammunition was also transferred from unthreatened or less threatened axes within armies.

The supply of ammunition (in combat loads) to the Voronezh Front's 6th and 7th Guards and 69th Armies by 4 July in shown in Table 20.

TABLE 20: SUPPLY OF AMMUNITION TO VORONEZH FRONT'S ARMIES (COMBAT LOADS)

Army	*Guns*						*Mortars*	
	45mm	**76mm Rgt Arty**	**76mm Div Arty**	**122mm**	**152mm**	**203mm**	**82mm**	**120mm**
6th Guards	**3.6**	**2.2**	**2.0**	**0.7**	**1.0**		**3.7**	**1.5**
7th Guards	**2.1**	**2.0**	**2.3**	**1.3**	**1.9**		**2.2**	**1.6**
69th	**1.9**	**1.6**	**1.3**	**3.0**			**3.3**	**2.2**

Around 70 percent of the ammunition available in the Voronezh Front's armies was located with the troops, and around 30 percent was at divisional exchange points. These points were located 15—20 kilometers from the forward edge of the battle, while army depots were 80—100 kilometers from the

forward edge. Mobile detachments served as intermediate links between ammunition concentration points, and their mission was to ensure the delivery of ammunition to the forces, especially during intense periods of operations when expenditures sharply increased.

In only 11 days the 6th Guards Army consumed 236 wagon loads of ammunition. During the defensive battles fought by the 6th and 7th Guards Armies, 69th Army, and 1st Tank Army a total of 1,314,900 shells and mortar rounds were expended; in addition, it is necessary to take into account the expenditure of ammunition in *front* reserve antitank units and in separate formations which, at the beginning of the fighting, were not part of armies. The total expenditure then amounts to 1,500,000 shells and mortar rounds.

The Voronezh Front's expenditures (in combat loads of ammunition) are shown in Table 21.

TABLE 21: VORONEZH FRONT'S EXPENDITURES (COMBAT LOADS)

Army	*Guns*					*Mortars*	
	45mm	**76mm Rgt Arty**	**76mm Div Arty**	**122mm**	**152mm**	**82mm**	**120mm**
38th	**0.2**	**0.06**	**0.05**	**0.1**	**0.2**	**0.05**	**0.05**
40th	**0.2**	**0.4**	**0.2**	**0.6**	**0.8**	**0.3**	**0.4**
6th Guards	**1.0**	**1.9**	**1.9**	**1.5**	**1.8**	**1.6**	**2.0**
7th Guards	**1.1**	**1.6**	**2.5**	**0.7**	-	**1.7**	**1.4**
69th	**1.2**	**1.6**	**2.5**	**0.7**	-	**1.7**	**1.4**

On the whole, the units of the Central and Voronezh Fronts' armies were supplied continuously with ammunition and felt no lack thereof.

BRIEF GENERAL CONCLUSIONS

The following conclusions may be reached concerning artillery combat operations during the July defensive operation.

1- Artillery was the main force which accepted battle with enemy tank attacks.

The correct grouping of artillery on probable attack axes, the presence of powerful mobile antitank reserves, and skillful maneuvering of all types of artillery by fire and wheels during the battle had decisive importance in the defeat of the enemy's massed tank attacks.

The success of the struggle against the enemy's tanks and personnel was a result of the qualitative and quantitative superiority of our artillery. During

combat heavy mortars and guards mortar units also achieved good results in fighting enemy tanks.

2. Experience demonstrated that a multi-echeloned, deep antitank defense, which was structured to exploit all antitank weapons and artillery of all calibers, was capable of opposing powerful attacks by massed enemy tanks. The skillful distribution of antitank weapons along the front permitted the creation of strong antitank groupings on dangerous tank axes. The deployment of artillery of all calibers along these axes and its participation in the struggle against tanks through the use of massed fire from indirect firing positions and direct fire created continuous pressure on attacking tanks and reinforced the system of fire of antitank guns.

3. The attempt to mass these weapons on the most crucial axes was clearly expressed in the Central and Voronezh Fronts' grouping of artillery weapons. This was expressed particularly sharply in the defensive sector of the Central Front's 13th Army and in the 81st Guards Rifle Division's sector in the Voronezh Front's 7th Guards Army. In essence, a density of offensive artillery weapons was created in the defensive sector of Central Front's 13th Army which ensured the enemy's defeat. In the Voronezh Front a concentration of artillery which was capable of opposing the enemy's massed tank attack was achieved by the deep echeloning of artillery weapons and by the presence in the armies of strong mobile antitank artillery reserves.

4. Given the attacking enemy's large tank forces, all artillery and mortars had to participate in the struggle against them, while extensively employing massed fire from indirect firing positions and direct fire. Combat practice demonstrated that the principal method of artillery fire in the struggle against tanks was direct fire by antitank artillery units. Massed artillery fire from indirect positions only supplemented the fire of direct fire guns. Crews of all types of artillery and especially gun artillery had to be trained to conduct direct fire.

5. The artillery's fight against the attacking enemy could be successful only if it occurred in cooperation with other combat arms and with engineer fortifications and obstacles, rather than in isolation. Cooperation between direct fire and artillery fire from indirect firing positions, mortar fire, and guards mortar units was exceptionally important in the struggle against tank-borne infantry. It was also necessary to devote special attention to the organization of cooperation between artillery units.

6. Strong mobile antitank reserves played a decisive role in defeating penetrating enemy tank groupings. Maneuver by artillery weapons during combat assured the creation of artillery groupings with the necessary

strength along threatened axes. In combat against tanks artillery had to use several forms of maneuver while striving to create flanking fire.

7. The counterpreparation was an important stage in the defensive operation. When correctly organized, experience showed that it inflicted considerable losses on the enemy even when he was still located in his jumping-off positions; it disrupted his offensive planning; and it lowered his morale. The primary mission of a counterpreparation must be the disruption of the enemy offensive with the main objective of the action - the accumulation of his forces, which have concentrated to assume the offensive. To disorganize the enemy's command and control system it was expedient to deliver powerful, massed artillery strikes against command and observation posts. One must not consider the suppression of enemy batteries to be the primary mission of the counterpreparation. This is only one of its elements and it must be conducted against the individual batteries which are the most harmful. The maximum quantity of artillery, including second-echelon divisional artillery from temporary firing positions, is tasked to take part in the counterpreparation.

NOTES

1. **This chapter is based upon material prepared by the Red Army artillery staff.**
2. **A corps artillery penetration division consisted of the following brigades: light artillery, howitzer, gun, heavy howitzer, high-powered howitzer, and mortar.**
3. **Questions of the counterpreparation based on the experiences of the July defensive operation are covered in detail in** *Sbornik materialov po izychemu opyta voiny, No. 9* **and also in the collection** *Boevoi opyt artillerii v Otechestvennoi boine,* **No. 3 (by the artillery staff of the Red Army).**
4. **The operations of mobile artillery antitank reserves are detailed in** *Manevr podvizhnymi protivotankovymi reservami v oboronitel'noi operatsii (Sbornik materialov po izucheniu opyta voiny,* **No. 10).**
5. **For details see the special account from the Central Front,** *Boevoi opyt artillerii,* **No. 4, 1943.**
6. **Air defense of the railroad junction and Central and Voronezh Front communications are covered in a separate article in a future issue of** *Sbornik materialov po izucheniu opyta voiny.*
7. **A wagonload is an actual measurement equal to .038 cubic meters.**

8

Tank Forces in the Defense of the Kursk Bridgehead

Mass employment of tanks on the battlefield was one of the characteristic features of the July defensive battle. Suffice it to say that, in two narrow, diametrically opposed sectors of the Orel-Kursk and the Belgorod-Kursk axis with an overall length of around 100 kilometers, both sides concentrated more than 4,000 combat vehicles of various types and makes. With respect to the number of participating tanks and their quality, the battle for the Kursk bridgehead has no equal during the entire period of the existence of tank forces.

During this largest-scale battle new forms appeared for the use of large tank formations in a modern defense. This is the first attempt to generalize the acquired combat experience. This survey of tank force combat operations mainly investigates the problems of the operational use of large tank formations. Tactical tank actions are discussed only in general outline.

The defense of the Kursk bulge was carried out by the forces of two *fronts* and, accordingly, the operations of the Central Front's 2d Tank Army and the Voronezh Front's 5th Guards and 1st Tank Armies are examined below in succession.

COMBAT OPERATIONS OF THE 2D TANK ARMY

The overall situation and army missions[1]

By the beginning of the July defensive operation the Germans had concentrated eight infantry, six panzer, and two panzer grenadier divisions with a large number of reinforcing artillery units and Supreme High Command Reserve [*RGK*] panzer battalions opposite the front and flanks of the 13th Army, in whose sector and army rear area the 2d Tank Army was operating (see Maps 3 and 23).

Of the 1,450 tanks and assault guns located in front of the Central Front, the Germans concentrated more than 1,000 in front of the 13th Army and

the 70th Army's right flank. The following enemy panzer divisions were deployed there: the 2d, 4th, 9th, 18th (XXXXI Panzer Corps); the 20th (XXXXVI Panzer Corps); and the 12th (XXXXVII Panzer Corps). Furthermore, the forces which were operating along this axis were reinforced with 3 'Tiger' panzer battalions (with 50 tanks per battalion) and one 'Ferdinand' self-propelled gun regiment (with 90 guns).

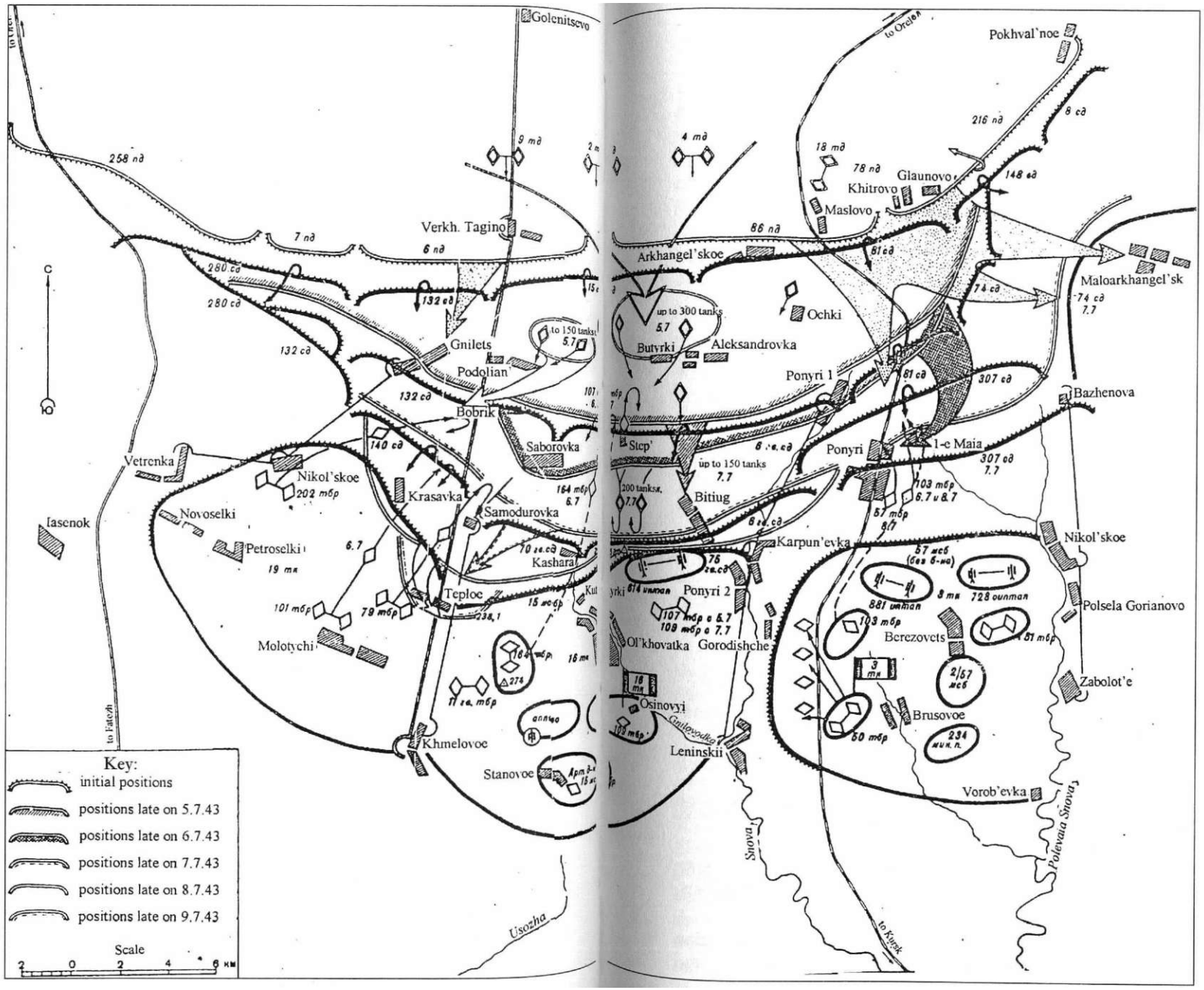
The principal mass of the Central Front's tank forces was concentrated on the expected main enemy attack axis, that is in the 13th Army's sector and on the 70th Army's right flank. In addition to the 129th Tank Brigade and eight tank regiments attached to the armies, *front* reserves were positioned here, namely the 2d Tank Army, consisting of the 3d and 16th Tank Corps and the 11th Guards Tank Brigade in the Kondrino, Khmelevoe, Banino, and Kocheva region; the 19th Tank Corps (the 79th, 101st, and 202d Tank Brigades) in the Verkhnii Liubazh and Staryi Buzets region; and the 9th Tank Corps (the 23d, 95th, and 108th Tank Brigades and the 8th Motorized Rifle Brigade) in the Tsvetovo region. The total number of tanks in the sector of the impending German offensive reached 1,150.

Thus our forces had some superiority in numbers of tanks in the 13 th Army's sector and on the 70th Army's right flank. The enemy, however, had much heavier tanks and, furthermore, he created a denser grouping of these weapons along the main attack axis, where he succeeded in concentrating up to 45 tanks per kilometer of front.

The 2d Tank Army, which was reinforced by the 130th and 563d Antitank Artillery Regiments, the 226th and 234th Mortar Regiments, and the 121st Antiaircraft Artillery Regiment, was to conduct combat operations, depending on the enemy offensive axis, in accordance with variants set out in by the Central Front's operational plan.[2]

According to the first variant of the plan, that is, during a German offensive in the direction of Alekseevka, Droskovo, and Livny, the 3d and 16th Tank Corps were to reach the Verkhniaia Sosna, Ivan', and Andreevka region and, on the second or third day of the operation, attack in cooperation with the 17th Guards Rifle Corps in the general direction of Panskaia, that is, against the base of the enemy's penetration sector (see Maps 2 and 23).

According to the second variant, when the enemy delivered his main attack in the direction of Ponyri, Zolotukhino, and Kursk, the 2d Tank Army was to reach the Berezovets and Ol'khovatka region on the night of the second day of the operation and occupy the following jumping-off positions to launch the counterstrokes: the 3d Tank Corps - east of the Orel—Kursk railroad; and the 16th Tank Corps — to the west of it. Depending on the axis of the enemy offensive, one of the corps would absorb the German attack while the second would occupy a flank position with respect to the main enemy grouping and deliver a flank attack against



2J: The combat operations of the 2d Tank Army, 5-10 July 1943

it. The Snova River, which was impassable for tanks, hindered the implementation of the above variant and, therefore, bridges were built on the river and existing ones were also strengthened

According to a third variant, when the main attack was delivered in the direction of Fatezh and Kursk, the 16th and 3d Tank Corps were to reach the Samodurovka region with the mission to deliver a counterstroke in the direction of Trosna.

In all of the variants the jumping-off areas for corps deployment were located 25-40 kilometers from the army's concentration area. The plan envisioned that each corps would receive two march routes for its movement to the jumping-off area and, furthermore, its arrival would occur at night, calculating so that by 1000 hours on the day after the beginning of the enemy offensive the tank corps would be in its jumping-off area. If the existing situation forced the occupation of the jumping-off areas during the day, then the tank corps would complete the march in small columns (company or battalion), using field roads and column paths to conceal its march. In this instance, according to preliminary calculations by the army staff, the tank corps' arrival and concentration in the jumping-off areas would take six to seven hours.

To maintain secrecy, once prepared the tank army's combat employment plan was not duplicated, and a single written copy was maintained by the army chief of staff. According to the plan, no copies were made and additions and instructions were given orally by visits to the units or by summoning the plan's executors to army headquarters.

Preparation for the operation

In the list of measures conducted during the preparatory period were:

- study of the enemy by the use of information from *front* and army staffs;
- reconnaissance of roads and study of the terrain in the sector of impending operations by formation, unit, and subunit commanders;
- conduct of exercises for each of the possible variants of combat operations direct with corps officer cadres on the terrain;
- conduct of force exercises to work out questions of cooperation of tanks with infantry and artillery;
- study of defensive installations in our second defensive belt and jumping-off areas and firing positions, ambushes, observation and command posts, and minefields;
- preparation of movement march routes (road repair, bridge construction and repair, construction of sectional roads; establishment of bypasses, and improvement of fords); and
- compilation of logistical support plans.

During the second half of June all measures in preparing for the operation were completed. The remaining time was used to train forces, study the situation, and repair the road network.

The purposefully conducted preparatory measures contributed significantly to the 2d Tank Army's successful fulfillment of its assigned combat mission.

By the beginning of the operation, the army had amassed the following reserves: three combat loads of shells, five combat loads of mines, three POL [fuel] refuelings, and seven days' worth of food rations.

The terrain

The 2d Tank Army's combat operations developed in the sector delineated on the right by the Polevaia Snova River and on the left by a theoretical line passing through Verkhnee Tagino, Teploe, and Khmelevoe. The operational sector was dissected from north to south by the Snova River which, as mentioned above, was impassable for tanks and which considerably hindered frontal maneuver by tank forces. Tank maneuver along the front was also complicated by ravines and a large number of streams which flowed from the east in the sector adjacent to the Snova River.

West of the Snova River was an elevated sector, which served as a watershed between the Snova and Usozha Rivers with their numerous tributaries. This terrain sector was the most suitable for tank operations and, moreover, since the streams and ravines decreased in elevation from the north to the south, corridors with a width of 3–4 kilometers were formed which complicated frontal maneuver by tank forces.

In general, the terrain in the 2d Tank Army's operational sector facilitated the organization and conduct of defensive combat and, at the same time, the presence of the Snova River and the ravines and streams hindered freedom of maneuver for large tank formations, both ours and the enemy's.

Operations on 5 July

After four hours of fierce combat, first on the Maloarkhangel'sk and then on the Ol'khovatka axes, the enemy succeeded in wedging into the dispositions of our forces in the Arkhangel'skoe and Verkhnee Tagino sector (see Map 23). At 0930 hours, that is, after the Germans' main attack axis had been determined, the *front* commander issued an order concerning the swift departure of the 2d Tank Army's corps from their concentration areas and their introduction to combat according to the second variant worked out earlier. Warned in advance about the possibility of a German offensive and fully combat-ready, the army's corps were already on the march at 1200 hours, and followed in small columns (company and battalion) according to their earlier planned march routes to the designated jumping-off regions.

While assigning missions to the corps as they arrived in their regions, the 2d Tank Army commander simultaneously ordered that firing positions be occupied in the new region and that the enemy be met with positional fire, conducted by means of ambushes.

As the tank corps reached their areas, the situation on the 13th Army's front became increasingly more complex; its left flank was withdrawing to the south, albeit slowly. Consequently, at 1200 hours the *front* commander issued an additional order to the 2d Tank Army commander to counterattack with the forces of 16th Tank Corps and the 11th Guards Tank Brigade against the enemy tanks which had penetrated to the Ol'khovatka and Kashara region. However, the counterattack by these formations did not take place since there were few of the enemy in the Ol'khovatka and Kashara region and, at this time, there was already fighting on the Ochki and Butyrki line. Furthermore, this counterattack still could not have been conducted because the corps' tanks were moving in small columns and were stretched out along the road and their introduction into combat unit-by-unit would have been inappropriate for the requirements of the situation since the enemy was conducting the offensive using large tank groupings.

By order of the *front* commander, at 1220 hours the 19th Tank Corps, which, according to the plan for the defensive operation, was earmarked for operations as part of the 70th Army, was operationally resubordinated to the 2d Tank Army. The 19th Tank Corps left its concentration region almost simultaneously with the units of the 2d Tank Army. This corps had orders to reach the Molotychi, Petroselki, Novoselki, and Iasenok line, prepare to meet attacking enemy tanks there with positional fire, and also be prepared to deliver counterstrokes along preplanned axes.

Moving in dispersed formation, the 19th Tank Corps reached the designated region at 1900 hours on 5 July, where they received the order from the chief of staff of the Central Front's Armored and Mechanized Forces to 'move forward into the Samodurovka and Nikol'skoe region and immediately counterattack the enemy in the direction of Podolian'.' Preparation for the counterattack was delayed until darkness fell and the counterattack was postponed to the morning of 6 July.

Thus on 5 July the 2d Tank Army's tank corps and the 19th Tank Corps had not been committed to battle. An entire day was lost in moving to their designated jumping-off regions, which they occupied as shown on Map 23.

By the end of 5 July the enemy's main attack axis, which ran somewhat west of the Orel-Kursk railroad, had finally been determined. In these conditions, force operations according to the second variant, which envisioned an enemy offensive along the railroad, did not fully correspond to the requirements of the existing situation. Therefore the *front* commander introduced appropriate refinements into the plan.

At 2200 hours on 5 July the 2d Tank Army headquarters received an

order from the Central Front commander, which assigned the army the following mission:

> The 3d Tank Corps will shift to the defense along the (excluding) Poselka, Goriannovo, and Gorodishche line, at dawn on 6 July, in cooperation with the units of the 17th Guards Rifle Corps units, the 16th Tank Corps is to go over to the attack in the general direction of Step' and Butyrki with the mission to restore the situation on the 13th Army's left flank, and the 19th Tank Corps will attack Saborovka and Podolian'. While exploiting the tank corps' attacks, the commanders of the 13 th and 70th Armies are to restore the former situation on their armies' fronts and firmly consolidate.

The night of 5-6 July was used to prepare the counterstroke in accordance with the *front* commander's order. The 16th Tank Corps occupied jumping-off positions in the Ponyri 2 and Kutyrki region and, having received orders for an attack along a new axis, the 19th Tank Corps spent considerable time reconnoitering the terrain and preparing passages through its infantry's combat formations. An especially long period was spent in preparing passages through minefields and other antitank obstacles which our forces had set up in the depth of the defense, since no one could know precisely where they were located. As a result, the corps was not ready for the offensive by the afternoon of the following day, let alone by the morning, and so did not take part in the counterstroke, which was delivered by the units of the 16th Tank and 17th Guards Rifle Corps.

Operations on 6 July

The second day of the operation began with combat involving the 16th Tank Corps which, at 0400 hours, launched a counteroffensive in the direction of Step' and Butyrki with forces of the 107th and 164th Tank Brigades. The 107th Tank Brigade attacked first, and the 164th Tank Brigade moved behind it, echeloned to the left. The offensive was supported by the 4th Artillery Penetration Corps and two self-propelled artillery regiments.

At the beginning of the offensive, German artillery and self-propelled guns opened fire against the 107th Tank Brigade's combat formation. Suffering losses, the infantry which was following the tanks fell somewhat behind. After two hours of combat, however, the advancing units forced the enemy to withdraw and reached the Ponyri 1, Step', and Saborovka line. During the subsequent advance the 107th Brigade's tanks encountered concentrated fire from 16 dug-in 'Tiger' tanks and positional fire from a large number of medium and light tanks. In a short time, the brigade lost 46 tanks and the remaining four tanks withdrew behind the dispositions of their infantry.

After the 107th Tank Brigade's withdrawal, the 164th Tank Brigade con-

tinued to advance and encountered up to 150 German tanks. The brigade engaged them in battle but, having lost 23 tanks, withdrew to its jumping-off region.

Having received information concerning the results of the 107th and 164th Tank Brigades' counterattacks, the 19th Tank Corps commander refrained from immediate attack and turned to the 132d and 15th Rifle Division commanders with a request to support corps units with their divisional artillery. Thus, instead of a powerful simultaneous counterstroke by the 16th and 19th Tank Corps, the 107th and 164th Tank Brigades' units conducted attacks during which they were committed to combat at different times.

Having repulsed the piecemeal attacks by the 16th Tank Corps' brigades, enemy infantry and tanks with intensive air support resumed the attack in the direction of Ol'khovatka. Units of the 17th Guards Rifle Corps, which were left without tanks, assumed the defense along existing lines while repelling fierce German tank and infantry attacks.

Although the 16th Tank Corps' counterattack was unsuccessful, it still disrupted the enemy's systematic preparations for a powerful attack. To that end, the enemy had concentrated up to 300 tanks in the Butyrki region. To a considerable degree the disruption of the enemy's preparations facilitated fulfillment of the mission assigned to the units of the 17th Guards Rifle Corps.

By 1700 hours the 19th Tank Corps had completed its preparation and at 1830 hours launched its counterattack, attacking with the 79th Tank Brigade on the Samodurovka and Saborovka axis, the 101st Tank Brigade along the axis through Krasavka and the western outskirts of Bobrik, and the 202d Tank Brigade along the western outskirts of Bobrik. However, it was already late and at this time 17th Guards Rifle Corps units were located in their jumping-off region and, cooperating with 16th Tank Corps units, repelled the fierce German attacks. The enemy met our attacking tanks with fire from artillery and heavy tanks located in shelters as well as with an air attack in which up to 100 aircraft took part. The tank brigades' motorized rifle battalions, which were following behind the tanks, were cut off from the tanks. Consequently and owing also to the losses they suffered, the brigades were withdrawn from combat and the corps received orders to occupy a defense along the Teploe and Krasavka line, with two tank brigades retained in reserve.

To protect the junction between the 70th Guards Rifle Division and the 19th Tank Corps, the 2d Tank Army commander moved forward his reserve, the 11th Guards Tank Brigade, which occupied a position in the region of Hill 274.

As a result of the second day of combat and at a cost of great losses, the enemy succeeded in pushing 1—2 kilometers forward and approaching the

forward edge of the 13th Army's second defensive belt, that is, directly up to the deployment region of the 2d Tank Army's units. The 2d Tank Army commander ordered all corps to dig in their tanks, protect their motorized infantry, and, by employing organized fire, to prevent even a single enemy tank from passing through their combat formations.

Operations on 7 July

On this day, having concentrated up to 400 tanks of several types, the enemy launched an offensive in the direction of Ponyri with the aim of capturing this important center of resistance. Our defense met the German offensive with organized fire. The antitank weapons of the 307th Rifle Division were supplemented by fire from tanks assigned to rifle units and tanks of the 103 d Tank Brigade, which had been brought forward to the Ponyri region on 6 July. All these weapons, which were dug in, fired point-blank direct fire on the advancing Germans.

Having failed to achieve success along the Ponyri axis, the Germans conducted an attack against the 17th Guards Rifle Corps. Having committed the 9th Panzer Division to combat, the enemy penetrated the 6th Guards Rifle Division's defense at 1200 hours and occupied the northern outskirts of Bitiug. Further German advance in this sector was stopped by organized positional fire from entrenched tanks of the 109th Tank Brigade and tanks from the 48th and 58th Tank Regiments, as well as by fire from the 614th Antitank Artillery Regiment.

At 1530 hours up to two enemy infantry divisions, supported by 200 tanks, launched an offensive in the Hill 257.0 and Kashara sector. Thanks to the organized fire of rifle units and entrenched tanks of the 16th Tank Corps, the enemy was forced to retreat, having left more than 40 tanks on the battlefield.

During the day the enemy twice launched an offensive opposite the 19th Tank Corps' front, but each time the attacks were beaten back with heavy losses.

Thus during the day our defense, which had been penetrated in a number of places, was restored thanks to the counterattack by the 3d, 16th, and 19th Tank Corps' tanks. In only one sector did enemy tanks penetrate into the dispositions of the 109th Tank Brigade's subunits. However, having encountered organized fire, they were forced to withdraw.

While summing up the day's combat, the 2d Tank Army commander issued an order at 2300 hours on 7 July for the next day of the operation in which he stated:

> While located in currently occupied regions and cooperating with rifle units, do not permit enemy tanks to penetrate in the [following] sectors: the 3d Tank Corps, on the right in the Bazhenovka,

> Nikol'skoe, and Zabolot'e [sector] and on the left in the Ponyri 1, Karpun'evka, and Leninskii [sector]; the 16th Tank Corps, on the right along the demarcation line with 3d Tank Corps and on the left in the (excluding) Saborovka and (excluding) Khmelevoe sector; and the 19th Tank Corps, on the right along the demarcation line with 16th Tank Corps and on the left in the Gnilets, Nikol'skoe, and Vetrenka [sector]. The reserve, the 11th Guards Tank Brigade, is to protect the junction between the 16th and 19th Tank Corps in place in its currently occupied region and by counterstrokes along the axes Hill 257, Kashara, Hill 238.1, and Samodurovka.

It can be established from this order that, in contrast to previous days of the battle, the 2d Tank Army commander was designating only one tank brigade for counterattacks and was placing responsibility on the corps commanders for the defense of specific, strictly delineated sectors. While making the tank corps commanders responsible for the defense of the designated sectors, the 2d Tank Army headquarters did not specify the order of cooperation between tank corps and rifle formations which were operating in this *front* sector. During combat, however, cooperation between tank corps and other combat arms was accomplished on the initiative of the tank and rifle unit and formation commanders.

By order of the Central Front commander, on the night of 8 July the 19th Tank Corps was removed from the 2d Tank Army and resubordinated to the 70th Army commander. However, this corps maintained its position on the 2d Tank Army's left flank until the end of the defensive battle.

Operations on 8 July

On 8 July the formations of the 2d Tank Army continued to hold on to their occupied positions and also supported the rifle division counterattacks, which were aimed at restoring the position our forces had lost the previous day. Thus at 0600 hours the 51st and 103d Tank Brigades, cooperating with the 307th Rifle Division, counterattacked the enemy in the direction of the village of May First [*1-e Maia],* and, after a three-hour battle, they captured this settlement and the northern outskirts of Ponyri. Until the day's end the enemy attempted several times to drive our units out of the populated points they had captured, but were unsuccessful. Having lost 16 'Tigers' and 24 medium tanks in the attack, the Germans abandoned further attempts at an offensive and the front was stabilized in this sector.

This day's fiercest combat took place for Hill 257. Three times during the day the Germans attacked this hill with groups of 60—100 tanks simultaneously from the northeast and the north. The 107th and 109th Tank Brigades greatly assisted the 17th Guards Rifle Corps, which was defending this hill.

They repelled the enemy attack with positional fire. Only by 1700 hours and at the cost of heavy losses did the enemy succeed in capturing it. German attempts to continue the advance further were shattered by the stable antitank defense of the 17th Guards Rifle and 16th Tank Corps.

During the second half of the day more than 200 enemy tanks from the Samodurovka region penetrated the 140th Rifle Division's combat formations and reached the eastern outskirts of Teploe. Enveloping Teploe from the south, German tanks in groups of 12-16 twice attacked the 11th Guards Tank Brigade. The brigade met the attacks with positional fire, and, having lost six 'Tiger' and three medium tanks, the Germans ceased their attacks against Hill 274.

Operations on 9 and 10 July

On 9 and 10 July units of the 3d Tank Corps assisted the 307th Rifle Division in holding May First and Ponyri, which changed hands several times. The enemy continued to attack west of the railroad at the junction between the 13th and 70th Armies, and, during the combat, managed to capture Teploe, but was unable to advance beyond this point. The commanding heights, which were located between Kutyrki and Molotychi, remained in our hands.

The Germans were unable to overcome the antitank defense of the 13th Army, which was reinforced with entrenched tanks of the 2d Tank Army and 19th Tank Corps. The defensive operation of the 13th Army and 2d Tank Army essentially ended here. On 11 July the enemy went on to the defense along the entire front and began to gather his threadbare panzer divisions in the immediate rear for their subsequent transfer against Briansk Front forces.

The results of 2d Tank Army operations

From 5 through 11 July units of the 2d Tank Army, cooperating with the 13th Army's forces, repulsed the large-scale German offensive on the Orel-Kursk axis. The armored fist of six German panzer divisions was shattered at the defensive positions of these armies.

Heavy 'Tiger' tanks and 'Ferdinand' self-propelled guns, which were committed by the enemy in large quantities, did not accomplish their assigned mission and, consequently, did not justify the hopes of the German command.

The 2d Tank Army's equipment losses (including the 19th Tank Corps' losses) constituted around 46 percent of the army's tank park; 49 percent of all losses were irrevocable.

COMBAT OPERATIONS OF THE 1ST TANK ARMY

The overall situation and army missions[3]

The enemy delivered the main attack along the Belgorod-Kursk axis against the dispositions of the Voronezh Front's 6th Guards Army, in whose belt the 1st Tank Army's combat operations subsequently developed (see Maps 3 and 24). By the beginning of the operation the Germans had concentrated the 332d and 167th Infantry Divisions, the XXXXVIII Panzer Corps (consisting of the 3d and 11th Panzer Divisions), and the *Death's Head, Adolf Hitler, Das Reich*, and *Grossdeutschland* Panzer Divisions opposite the 6th Guards Army's front in the Trefilovka and Belgorod sector.[4] In addition, enemy forces operating in front of the 6th Guards Army were reinforced with two 'Tiger' heavy tank and three medium panzer battalions. In all, around 1,200 tanks were concentrated on this axis, of which up to 200 were 'Tigers'.[5]

The principal mass of the Voronezh Front's tanks were deployed in the 6th Guards Army's sector. In addition to the 96th Tank Brigade and two separate tank regiments which were attached to the army, the 1st Tank Army and the 5th Guards Stalingrad Tank Corps (the *front* reserve) were concentrated here. The 1st Tank Army, consisting of the 6th and 31st Tank Corps and the 3d Mechanized Corps, was deployed in the Belaia, Kurasovka, and Bykonov region, and the 5th Guards Stalingrad Tank Corps was concentrated in the Marino region. The total number of tanks concentrated in 6th Guards Army's sector was 930.

Thus, before the beginning of the operation, the correlation of forces with respect to tanks in the 6th Guards Army's sector was in the enemy's favor while, on the main attack axis, the enemy's numerical superiority in tanks amounted to a ratio of 1:1.5 and even greater.[6]

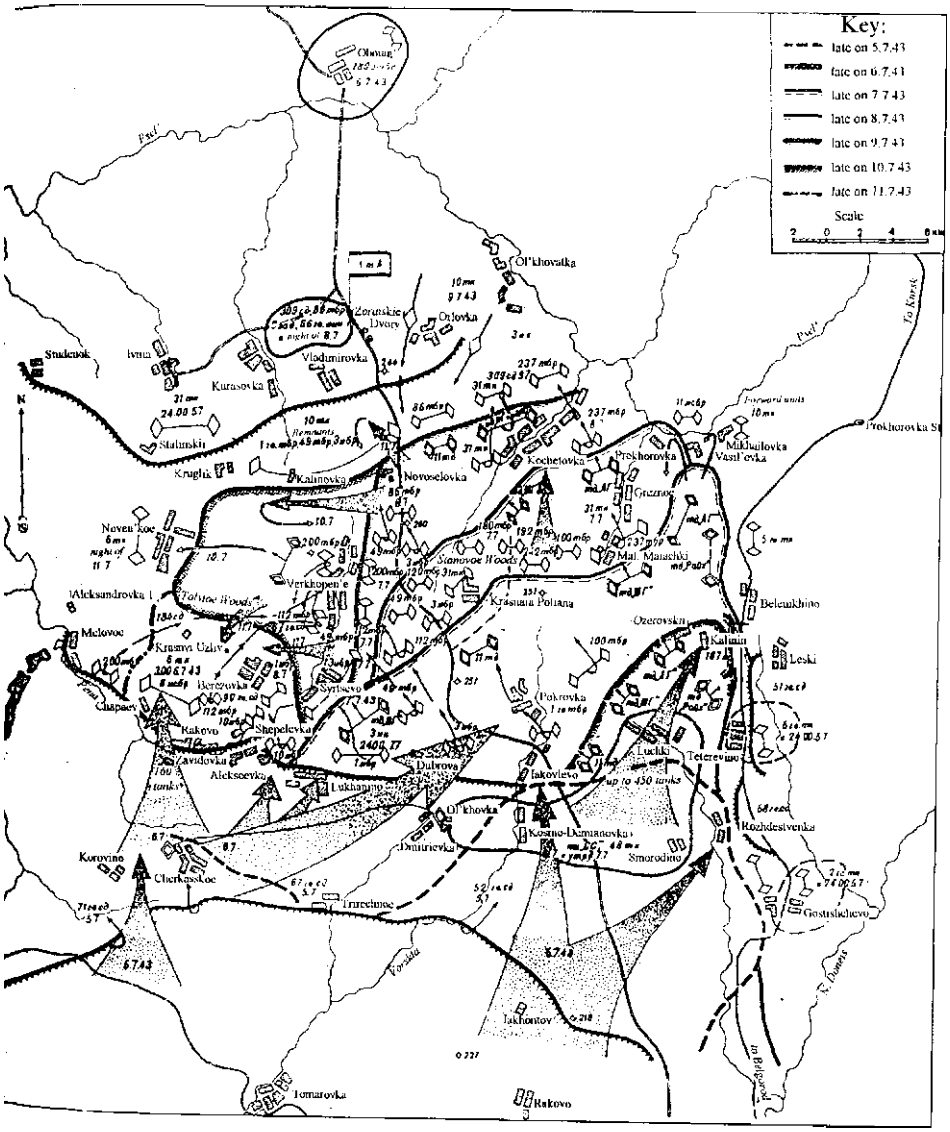
In accordance with the Voronezh Front commander's plan, the following employment of the tank army was planned during the operation.[7]

If the enemy delivered the main attack from the Tomarovka and Belgorod region in the direction of Oboian', the 1st Tank Army, cooperating with the 5th Guards Stalingrad and the 2d Guards Tatsinskaia Tank Corps, as well as the units of the 69th Army, would counterattack the enemy in the general direction of Voznesenovka and Belgorod.

If the enemy attacked from the Belgorod region against Korocha, the 1st Tank Army, cooperating with the same formations, would counterattack the enemy in the direction of Korocha.

In the event of an enemy offensive at the junction between the Voronezh and the Southwestern Front, the 1st Tank Army would not be committed but would remain in place.

Besides preparing counterattacks along the designated axes, the 1st Tank



Map 24: **The combat operations of the 1st Tank Army by days of operation**

Army had orders to prepare a defense, the 3d Mechanized Corps along the Studenok, Stalinskii State Farm, Vladimirovka, and Orlovka line, and the 6th Tank Corps along the northern bank of the Psel River.

Preparation of the operation

Based on the missions assigned to the 1st Tank Army, units conducted engineer work for three months to form their designated defensive lines and engaged in combat training. Tank trenches were prepared in the defensive line for positional fire, full-profile trenches with communications trenches and anti-shrapnel overhead protection were dug out for the infantry, and two or three earth-and-timber pillboxes were built (five to seven along the main axes) per kilometer of frontage.

To camouflage the army's deployment region, all equipment was carefully concealed from air surveillance, and most was entrenched. Dugouts were constructed and slit trenches were dug for personnel. The use of motor vehicle transport in the deployment area was severely restricted. All radio operations were prohibited. These measures made it possible to hide the dispositions of tank formations and army units. Thus, despite their prolonged stay in the region, not once did enemy aviation bomb the corps' positions, and during the battle the appearance of tank formations in the 6th Guards Army's second defensive line came as a surprise to the Germans.

Simultaneously with work on the defensive lines, formation and unit headquarters studied and prepared sectors appropriately for the movement of the corps when they assumed the counterattack. Each corps was allotted four-six axes, and two routes were indicated along each axis to reach the jumping-off positions and deliver the counterstroke. The primary work of command and staffs consisted of establishing march routes for the arrival of tank formations in their designated regions.

To prepare officer cadres for the impending operation, field trips were taken to regions of the most likely tank operations, and, in addition, variants for delivering the counterstrokes were 'gamed' [played out] on maps. During troop combat training great attention was devoted to the problem of the deployment of an army in defense. In particular, artillery worked out firing against advancing enemy tanks from open positions, and tank units and subunits worked out their departure from jumping-off areas for counterattacks. Considerable attention was given to the organizing of cooperation with rifle formations, which were deployed in front of the tank army and along probable counterattack axes. Army and corps staffs periodically visited field army headquarters, where they received information about the situation.

The Terrain

The 1st Tank Army's defensive combat developed in a belt which was delineated on the west by the theoretical Oboian', Ivnia, and Trefilovka line, on the east by the Kursk-Belgorod railroad, and on the north by the Psel River and which had a length of 40-45 kilometers from west to east and up to 50 kilometers from south to north. This belt was intersected by the Belgorod highway, which ran along ground which was most elevated to the south and southeast of Novoselovka. From this height it dropped relatively evenly to the north and to the south. Thus the indicated heights formed the commanding plateau. Existing gullies [*balkas*] and streams could not serve as obstacles to tank and motorized operations. The presence of a great number of large populated points, groves, and copses permitted the concealment of force dispositions. The large number of improved dirt roads allowed for extensive maneuver.

On the whole, the nature of the terrain favored operations by tank and other mechanized forces. However, in connection with the large-scale defensive engineer work carried out in the army and *front* defensive belts, special measures were required for the organization of passages across trenches, communications trenches, and minefields.

Operations on 5 July

On the first day of the defensive battle, the formations of the 1 st Tank Army were located in concentration regions and were ready to set forth immediately (see Map 24). At 1640 hours the army headquarters received the following order from the Voronezh Front commander:

> By 2400 hours on 5.7.43, two of your corps are to move forward into the 6th Guards Army's second defensive line and firmly occupy a defense: the 6th Guards [«V] Tank Corps along the Melovoe, Rakovo, and Shepelevka line, the 3d Mechanized Corps along the Alekseevka and Iakovlevo line, and the 31st Tank Corps is to deploy for defense along the Studenok, Stalinskii State Farm, Vladimirovka, and Orlovka line in place of the 3d Mechanized Corps.
>
> The army headquarters are in the Zorinskie Dvory region.
>
> The missions are: 1. Under no circumstances permit an enemy penetration in the direction of Oboian'. Be prepared at dawn on 6 July to launch a counteroffensive in the general direction of Tomarovka. 2. Dig in tanks in defensive positions and camouflage carefully. 3. Maximum effort is required from the troops to fulfill their assigned combat mission.
>
> By 2400 hours on 5.7.43, the 5th Guards Stalingrad Corps is to move forward into the Teterevino region, and by 2400 hours 5.7.43,

the 2d Guards Tatsinskaia Tank Corps is to reach the Gostishchevo region — both prepared to assume a decisive offensive along the Rakovo and Belgorod axis at dawn on 6.7.43.

While fulfilling the *front* commander's order, the 6th and 31st Tank Corps set off when darkness fell to occupy their indicated defensive lines, each along two previously planned march routes. The 6th Tank Corps (the 200th, 22d, and 112th Tank Brigades and the 6th Motorized Rifle Brigade) with the 69th Guards Mortar Regiment covered 35-40 kilometers and, by 0300 hours on 6 July, had concentrated in its new region. The 31st Tank Corps (the 237th, 242d, and 86th Tank Brigades) completed its concentrating by 2400 hours on 5 July, and the tanks and artillery of the 3d Mechanized Corps (the 1st, 3d, and 10th Mechanized Brigades, and the 1st Guards and 49th Tank Brigades) completed their march during the day on 5 July and, after covering 20 kilometers, reached their region by darkness on the same day. Because of the absence of transport, the [corps'] infantry reached its new defensive line only by daybreak on 6 July. Having reached the new areas, tank unit staffs set about organizing the defense and setting up communications with rifle formations operating forward. Tank ambushes were established in first-echelon corps. Artillery occupied positions prepared for direct fire in the infantry's combat formations. Shock-maneuver tank groups in up to battalion strength were detailed in tank brigades with orders to fight German tanks which had penetrated to the depth of our defense. Tanks allocated for ambushes were dug in. By the morning of 6 July the organization of the cooperation between tanks, artillery, infantry, and sappers [combat engineers] had been completed.

At 2200 hours on 5 July the 160th Separate Tank Brigade, which was concentrating in the Oboian' region, was transferred to the 1st Tank Army's reserve by order of the *front* commander.

As a result of all this work, by dawn on 6 July the 1st Tank Army was ready to conduct defensive combat against large attacking enemy tank forces.

Operations on 6 July

At 1130 hours large forces of enemy infantry and tanks launched an offensive in the direction of Iakovlevo and began to exploit success while delivering their main attack against the junction between the 1st Tank Army's 3d Mechanized Corps and the 5th Guards Stalingrad Tank Corps. Before nightfall the 1st Guards Tank Brigade (3d Mechanized Corps) withstood several attacks in which 40-120 enemy tanks took part, supported by aviation. To reinforce the brigade, one tank battalion from the 49th Tank Brigade in army reserve was resubordinated to the [brigade] commander.

By 1430 hours the large grouping of enemy tanks and infantry, which was

developing the offensive along the Cherkasskoe and Pokrovka axis, succeeded in capturing the Alekseevka and Lukhanino areas, that is, they reached the defensive line which was occupied by the 3d Mechanized Corps' formations. Fierce battles began. Thus, having dug in its tanks and artillery, the 10th Mechanized Brigade absorbed four German attacks during the day in a strength of up to 220 tanks, supported by massive air raids. Rifle subunits did not abandon their trenches when enemy tanks managed to penetrate the brigade dispositions, but instead they cut off the enemy infantry from their tanks. The tanks which found themselves in the depth of our defenses without infantry support suffered losses from the 10th Mechanized Brigade's artillery and mortar fire and withdrew. During the day the 1st Mechanized Brigade was attacked eight times from the Ol'khovatka region by enemy tanks numbering up to 100 supported by aviation. Unable to find a weak spot in the 1st Mechanized Brigade's defense and having lost 40 tanks, the Germans ceased the attack in this sector as well.

Having failed to achieve success on the 3d Mechanized Corps' front, the enemy left a screen here and his main forces concentrated in the sector of the 5th Guards Stalingrad Tank Corps. During the second half of the day, the enemy attacked this corps' right flank, and by 1800 hours had captured Luchki, throwing corps units back to the north and the northeast. By the day's end the Germans had occupied Kalinin and Ozerovskii and had thus created the threat of a penetration of our defense at the junction between the 1st Tank Army and the 5th Guards Stalingrad Tank Corps.

To eliminate the developing threat, on the order of the *front* commander, the 31st Tank Corps was thrown into the Krasnaia Poliana region at 2050 hours with the mission of preventing the enemy from spreading out to the north. In addition in view of the existing situation, the 29th Antitank Brigade was attached to reinforce the 1st Tank Army and was operationally resubordinated to the 31st Tank Corps for use in the junction between the 1st Tank Army and the 5th Guards Stalingrad Tank Corps.

Having captured Zavidovka, the enemy attempted during the second half of the day to force the Pena River from the line of march in the Chapaev and Shepelevka sector, but, encountering organized fire from units of the 6th Tank Corps and the 90th Guards Rifle Division, he was forced to halt and deploy in combat formation. Before the end of the day the Germans attacked the 6th Tank Corps' defensive lines four times, each time with air support which bombed our combat formations with groups of 60-70 aircraft. However, all enemy attacks were driven back by organized fire.

Thus during the day the 1st Tank Army's formations repelled between three and eight tank attacks and held on to their occupied positions. The enemy tanks, which had penetrated in some sectors in the 3d Mechanized Corps' belt, were destroyed by fire from antitank rifles, grenades, and Molotov cocktails.

The course of combat operations on 6 July demonstrated that the joint attack by the 1st Tank Army and the two separate tank corps, as planned by the *front* commander, did not take place, since the enemy, by introducing large tank forces, had seized the initiative and pressed the 6th Guards Army units back to the army's second defensive line. The enemy, however, did not expect to meet with such a powerful and organized rebuff along this line and was forced during the day to change his main attack axis and transfer the center of his efforts to the east of the Belgorod-Oboian' highway.

In sum, on 6 July the enemy advanced up to 11 kilometers into the rear but suffered heavy losses in tanks and infantry.

Operations on 7 July

During the day the Germans exhibited no activity in the 6th Tank Corps' sector or on the 3d Mechanized Corps' right flank and even began to set up minefields in separate sectors. This made it possible for the 6th Tank Corps commander to withdraw the 200th and 112th Tank Brigades into the reserve, while the 6th Motorized Rifle and 22d Tank Brigades units remained in contact with the enemy.

On 7 July the units of the 3d Mechanized and *31st* Tank Corps absorbed the main German attack. At dawn on that day more than 300 German tanks, with up to 40 'Tiger' tanks in the first echelon, attacked the 1st and 3d Mechanized Brigades' (3d Mechanized Corps) combat formations from the Dmitrievka and Ol'khovka region. The tank attacks were supported by aviation, which bombed our troop dispositions every 5—10 minutes in groups of 60—80 aircraft each. As a result of the repeated attacks, the enemy penetrated the 1st Brigade's front and forced it to withdraw in the direction of Syrtsevo. At the same time the 3d Mechanized Brigade was fighting an unequal battle with the *Grossdeutschland* panzer division and, as a result, was unable to hold on to its occupied positions and began to withdraw to the north. The 49th Tank Brigade, which was fighting against large enemy tank forces by means of mobile ambushes, covered the withdrawal of the 1st and 3d Mechanized Brigades. By the day's end the 49th Tank Brigade had also withdrawn to Syrtsevo.

To liquidate the threatened penetration of the 3d Mechanized Corps' front, the 6th Tank Corps' 112th Tank Brigade was thrown into the Syrtsevo region. While moving forward to its designated position, the brigade engaged in a meeting battle against enemy tanks north and northeast of Syrtsevo and, as a result, knocked out 6 'Tiger' and 15 other tanks, while losing 15 T-34 tanks.

In view of the unstable situation on the 3d Mechanized Corps' left flank, the 1st Tank Army commander ordered that the 6th Tank Corps' 200th

Tank Brigade be brought up to the Verkhopen'e region, and that the 180th Tank Brigade, which had arrived in the Oboian' region from the *front* reserve, move up to Stanovoe Woods, closer to the front. Units of the withdrawing 67th Guards Rifle Division were concentrated in the Syrtsevo and Verkhopen'e region. Tanks and infantry occupied a defense with orders to prevent the enemy from spreading out to the north and the northwest. The 11th Guards Artillery Regiment and the 12th Antitank Regiment were attached to reinforce units occupying defenses in the Verkhopen'e region, and occupied direct-fire positions.

The 31st Tank Corps was unable to reach the Krasnaia Poliana region as required by the *front* commander's order. At 1400 hours the corps' tank brigades engaged in combat with the main forces of two German panzer divisions - the *Death's Head* and the *Adolf Hitler* - but under pressure from the enemy's superior forces by the day's end they had withdrawn to the Malye Maichki line.

By the end of the day, the enemy had advanced 4—5 kilometers and was lodged in the army's third defensive line. German attempts to widen the wedge to the northeast were unsuccessful. The dispositions of our 5th Guards Stalingrad and 2d Guards Tatsinskaia Tank Corps flanked the enemy and threatened the base of the German wedge. However, the Germans continued to strain toward Oboian'.

As a result of the heavy combat, the 1st Tank Army's left flank was enveloped and thrown back to the northeast, while the army's defensive front lengthened out to 45 kilometers. The 3d Mechanized Corps turned out to have suffered most during the first two days of battles, and, with the exception of the 10th Motorized Rifle Brigade, its units suffered considerable losses. The most combat capable was the 6th Tank Corps, in whose sector the enemy continued to behave passively. The 180th Tank Brigade, having moved up to the Urochishche Stanovoe region, was in the tank army's reserve. Thus the 1st Tank Army had sufficient forces to conduct further defensive combat.

In view of the enemy's apparent desire to penetrate to Oboian' along the Belgorod Highway, the 1st Tank Army commander conducted a regrouping, while preparing for the next day's combat, during which the 10th and 1st Mechanized Brigades (3d Mechanized Corps) were resubordinated to the 6th Tank Corps, and the 192d Tank Brigade, which had arrived from *front* reserve, was transferred to the 31st Tank Corps. The 180th and 200th Tank Brigades as well as the 111th Guards Artillery Regiment and 12th Antitank Regiment, which had arrived from the 40th Army, were positioned behind the 3d Mechanized Corps' brigades, which had suffered heavy losses.

By order of the *front* commander, the 9th Antiaircraft Division, 86th Tank Brigade, 309th Rifle Division, and the 66th Guards Mortar Regiment

were transferred to the 1st Tank Army and were to concentrate in the Ivnia and Zorinskie Dvory region.

Operations on 8 July

At 0530 hours the enemy continued his offensive against Syrtsevo and along the Belgorod—Oboian' highway, committing up to 200 tanks to battle with air support.

Up until 1300 hours the 10th Mechanized Brigade and remnants of the 1st Mechanized and 112th Tank Brigades held German attacks by a force of up to two infantry regiments and 70 tanks in check, while suffering heavy losses from air and artillery fire. In view of the great losses, at 1300 hours the 6th Tank Corps commander ordered the brigades to withdraw behind the Pena River and to dig in.

The 200th Tank Brigade did not succeed in digging in at its occupied line and suffered considerable losses from German air strikes. During the day the brigade withstood 12 enemy tank attacks and at the end of the day had withdrawn beyond the Pena River, where it set about entrenching its tanks.

The 3d Mechanized Corps held off the attacks of the enemy who were advancing along the highway from the south. By the end of the day corps units had been pressed back 5-6 kilometers but continued to hold Hill 260.0 with the adjacent groves to the west and the east.

Reinforced by the 192d Tank Brigade, the 31st Tank Corps fought intense battles during the night and the day against the German *Death's Head* and *Adolf Hitler* panzer divisions. By 1500 hours the enemy had pushed the 237th Tank Brigade back from its occupied position and attempted to capture Kochetovka from the line of march. A battalion of the 86th Tank Brigade and the 59th Tank Regiment, which were attached to the 1st Tank Army and were approaching the battle area from the north, were thrown in to reinforce the 31st Tank Corps.

Enemy attempts to force the Psel River in the Prokhorovka and Mikhailovka sector were unsuccessful, and the small tank groups which managed to cross the river were destroyed by our units. Thereafter, while sliding his attacking forces by the flank along the Psel River, the enemy attempted to advance to the northwest. Simultaneously the Germans strove to widen their wedge to the east toward Prokhorovka Station. These attempts were paralyzed by the approaching forward units of the 10th Tank Corps, which had been transferred from the Steppe Front.

On 8 July the Germans advanced 8 kilometers. This was the final day of relatively rapid enemy advance along this axis, for which he paid with 129 knocked-out and destroyed tanks on the battlefield. This day enemy attempts to advance to the west to roll up the 1st Tank Army's front also began to weaken.

Operations on 9 July

In the morning the Germans brought a fresh panzer division into battle, which attempted to capture the Syrtsevo and Verkhopen'e region entirely. However, all enemy attempts to cross the Pena River were driven back and the 6th Tank Corps firmly held its occupied positions.

Failing to achieve success on the 6th Tank Corps' front, the Germans concentrated up to 100 tanks and, at 1200 hours, conducted an attack against units of the 3d Mechanized Corps. The advancing tanks succeeded in crushing the 86th Tank Brigade's combat formation and capturing Novoselovka. By the day's end some of the 3d Mechanized Corps' units had withdrawn behind the 309th Rifle Division's combat formations.

During the day the 31st Tank Corps was repeatedly subjected to enemy tank attacks in the Kochetovka region but firmly held on to its positions. In view of the withdrawal of the 3d Mechanized Corps' units, units on the 31st Tank Corps' right flank were threatened with envelopment by the enemy from the direction of the highway.

By 1600 hours a rather complex situation had developed in this sector. With the exhausted and confused units of the 3d Mechanized and 31st Tank Corps in front of them, the Germans could relatively easily develop the offensive further to the north and penetrate to Oboian'. However, by this time the 10th Tank Corps' tank brigades had begun to approach and they were thrown into a counterattack and halted the enemy.

On the night of 9-10 July the 1st Tank Army consolidated its occupied lines and conducted the following regrouping: the 60th Tank Regiment, which had arrived from the 38th Army, and the 66th Guards Mortar Regiment and 12th Antitank Artillery Regiment, which had arrived from the 40th Army, were subordinated to the 6th Tank Corps. The corps received orders to lengthen the left flank of its defense by 2 kilometers to the north of Verkhopen'e. However, the left-flank brigade (200th Tank) had occupied only the outskirts of Verkhopen'e; thus the sector between Verkhopen'e and Kalinovka remained unoccupied.

The 10th Tank Corps, minus the 11th Motorized Rifle Brigade which was left behind to defend the Psel River in the Mikhailovka region, occupied a defense along the Kruglik, Kalinovka, and Belgorod-Oboian' Highway line with the remnants of the 1st Guards Tank, 49th Tank, and 3d Mechanized Brigades of the 3d Mechanized Corps) in its combat formations and partly located forward.

By order of the Voronezh Front commander, the 5th Guards Stalingrad Tank Corps was transferred at 1945 hours to 1st Tank Army control with the mission of concentrating in the Zorinskie Dvory and Orlovka region. Furthermore, the 204th Rifle Division from *front* reserve was attached to the tank army.

Operations on 10 July

On the evening of 9 July the enemy had already discovered the gap between the 6th Tank and 3d Mechanized Corps. During the night the Germans concentrated up to 100 tanks, including 40 'Tigers', and motorized infantry in the groves and ravines north of Verkhopen'e, and at 0400 hours on 10 July they assumed the offensive against Hill 243. After a three-hour battle, the enemy occupied this hill, but his further advance was stopped by counterattacks by the 112th and 200th Tank Brigades.

Having regrouped, the Germans resumed their attacks at 1300 hours, and, as a result, by the end of the day they had thrown back the 200th Tank Brigade; part of their force reached the outskirts of Noven'koe and thus the flank and immediate rear of the 6th Tank Corps and 184th Rifle Division.

Isolated from one another, separate groups of tanks and motorized infantry from the 200th and 112th Tank Brigades were encircled in the region north of Berezovka, where they fought against enemy tanks and infantry until nightfall. When darkness arrived they began to reassemble in the Berezovka region.

As a result of the heavy battles the 6th Tank Corps suffered great losses; by the end of 10 July 35 tanks and no more than 10 antitank guns remained operational. When darkness fell the corps began assembling the tanks which had been separated during the day's battles and organizing an antitank defense.

On the same day another large German tank grouping conducted an offensive from the Novoselovka region toward Kalinovka and along the highway to Vladimirovka, where it met with stubborn resistance from units of the 10th Tank Corps. Separate groups of penetrating German tanks were partly destroyed by artillery fire and counterattacks by the 10th Tank Corps' tanks and partly thrown back to their jumping-off position.

During the day the 3d Mechanized Corps, cooperating with the 309th Rifle Division's infantry and artillery, repelled enemy attempts to penetrate to the north toward Oboian'.

During the entire day the 31st Tank Corps held firm to its occupied positions while repelling the enemy's attacks.

Operations on 11 July

In the morning the Germans almost simultaneously launched an offensive along three axes on the 6th Tank Corps' front: from the Zavidovka region against the 6th Motorized Rifle Brigade, from the Syrtsevo region toward Berezovka, and from the Tolstoe Woods region toward Krasnyi Uzliv and further toward Chapaev, while aiming to encircle and destroy the 6th Tank Corps by a concentric attack from three sides.

By midday the German grouping, which was attacking from the Zavidovka region, succeeded in capturing Rakovo. The grouping, which was attacking from the east, approached Berezovka, and tanks operating from the Tolstoe Woods region sought to seize Krasnyi Uzliv. Thus the 6th Tank Corps found itself partly encircled, and its combat formations were raked through and through by enemy artillery and mortar fire and continuously attacked by enemy aviation.

In view of the existing situation, the 6th Tank Corps commander received an order from the 1st Tank Army commander to withdraw the corps to the Krasnyi Uzliv and Chapaev line where it was to consolidate. However, the corps could not fulfill this order since its units were locked in combat, and only by nightfall did they begin to reach the region 1 kilometer west of Noven'koe.

German attacks were repulsed everywhere in the 1st Tank Army's remaining defensive sectors. During the day army units continued to consolidate and prepared to launch a counteroffensive.

This essentially concluded the 1st Tank Army's defensive operation, since on the night of 10-11 July the Voronezh Front commander had already assigned the army the [following] mission:

> With the 6th, 10th, and 31st Tank Corps, the 3d Mechanized Corps, the 5th Guards Stalingrad Tank Corps, the 204th and 309th Rifle Divisions, and reinforcing artillery units, use part of your forces to prevent the enemy from penetrating to the north to the Kruglik—Ol'khovatka line, and use your main forces, in cooperation with the 6th Guards Army, to attack from the Aleksandrovka 1 and Noven'koe line along a generally southeastern axis with the mission to capture Iakovlevo and Pokrovka and, jointly with the 6th Guards and 5th Guards Tank Armies, to encircle the penetrating mobile grouping and, subsequently, to exploit success to the south and southwest.

Operations on 12-15 July

In accordance with the *front* commander's order, the 1st Tank Army regrouped during the second half of the day on 11 July and on the night of 12 July.

The 5th Guards Stalingrad Tank Corps was concentrated in the Novoselovka 2 and Kuznetsova Woods region with the mission to attack along the Shepelevka and Lukhanino axis.

Having transferred its defensive sector to the 204th Rifle Division, the 10th Tank Corps occupied a jumping-off position along the western outskirts of Noven'koe with the mission to attack toward Berezovka and Syrtsevo.

The 6th Tank Corps remained at its occupied line with the mission to protect the concentration and deployment of the 5th Guards Stalingrad Tank Corps and the 10th Tank Corps and to prevent an enemy penetration to the northwest.

The 204th and 309th Rifle Divisions, the 3d Mechanized Corps, and the 31st Tank Corps remained in their positions with orders to prevent an enemy penetration to the north and, in the event of an enemy withdrawal to the south, were to assume the offensive in cooperation with the army shock group (the 5th Guards and 10th Tank Corps).

At 0900 hours on 12 July army forces launched a counteroffensive. The 5th Guards Stalingrad Tank Corps smashed enemy resistance, captured Chapaev, and by 1700 hours reached the northern outskirts of Rakovo. Having encountered the *Grossdeutschland* panzer division, the 10th Tank Corps drove it from its occupied positions and captured Tolstoe Woods. The 3d Mechanized Corps, 31st Tank Corps, and 309th Rifle Division also launched an offensive but were unsuccessful.

During subsequent days (13-14 July) the formations of the 1st Tank Army continued the offensive, but were unsuccessful. On 15 July the army was ordered to go over to the defense and prepare to hand its sector over to forces of the 6th and 5th Guards Armies.

On the night of 16 July the 1st Tank Army passed into the *front* second echelon.

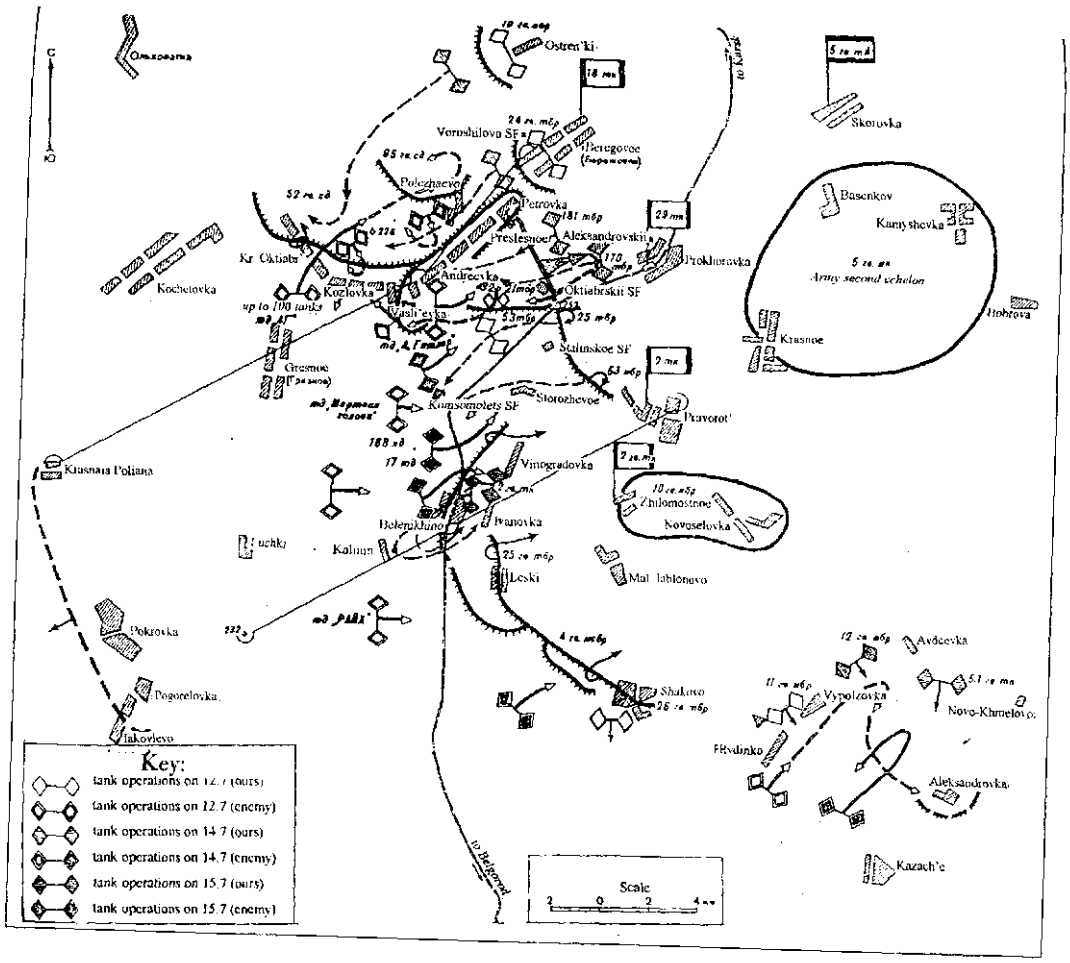
COMBAT OPERATIONS OF THE 5TH GUARDS TANK ARMY

The general situation and army missions

During the period preceding the defensive battle, the 5th Guards Tank Army (the 29th Tank Corps and the 5th Guards Zimovniki Mechanized Corps) was located in the Ostrogozhsk, Kamenka, and Shubnoe region in the Steppe Military District (see Maps 3 and 25).

On 5 July, the first day of the German offensive, the 5 th Guards Tank Army headquarters received a combat order from the commander of district forces which required full combat readiness of army units and, simultaneously, ordered the 18th Tank Corps, located in the Rossosh' region, to become part of the army. By order of the Steppe Military District commander, at 2300 hours on 6 July, it was assigned the [following] mission:

> By forced march, army units are to concentrate in the Saltykovo, Melovoe, and Orlik region along the western bank of the Oskol River in readiness to operate along the Oboian'—Kursk axis.



Map 25: **The combat operations of the 5th Guards Tank Army, 12-16 July 1943**

The units of the 5th Guards Tank Army, which were brought to combat readiness two hours and thirty minutes after receiving the order, left the deployment region, and, by the morning of 8 July, had completed their concentration on the western bank of the Oskol River, having marched 200-220 kilometers in little more than 24 hours.

During the day on 8 July the army's corps put their equipment into order, and their staffs reconnoitered the regions of impending combat operations.

At 0100 hours on 9 July the 5 th Guards Army headquarters received an order which required that, 'By the end of 9 July, [it] reach the Bobryshevo, Bol'shaia Psinka, Prelestnoe, Aleksandrovskii, and Bol'shie Seti region with the mission to be prepared to repel the attacks of the advancing enemy.' Thus army forces once again completed a march and, covering 100 kilometers in a single day, concentrated in the rear area of the 5th Guards Army, which by this time was already conducting combat operations.

Striving to widen the flanks of their penetration, the enemy conducted an attack on 10 and 11 July in the direction of Prokhorovka. By 1530 hours on 11 July the Germans had reached the Petrovka and Oktiabr'skii State Farm line, and a few of their infantry and tank units had penetrated to the western outskirts of Prokhorovka.

The German command intended to resume its offensive on 12 July, completely capture the Prokhorovka region, and, subsequently, exploit its attack to the north to reach the Kursk region from the east. To this end on the night of 12 July the enemy completed the concentration of a large grouping west of Prokhorovka, which consisted of three SS Panzer Corps divisions {*Adolf Hitler, Death's Head*, and *Das Reich),* 17th Panzer Division units, and also the 168th Infantry Division.

This grouping numbered more than 600 tanks, including more than 100 heavy tanks ('Tigers') and self-propelled 'Ferdinand' guns.[8] As the course of subsequent events demonstrated, the principal mass of these tanks was operating in the sector along the railroad and highway. Around 100 tanks with part of the infantry from the *Adolf Hitler* Panzer Division were operating to the north, in the Krasnyi Oktiabr' and Kozlovka sector. During 12 July this grouping was supported by all German aviation which was operating against the Voronezh Front.

By the beginning of combat operations the 2d Guards Tatsinskaia Tank Corps and the 2d Tank Corps, which had a total of no more than 200 tanks and significantly less than their authorized artillery and other armament, were subordinated to the 5th Guards Tank Army. In addition, the 522d and 1148th Howitzer Regiments, the 1529th Self-Propelled Artillery Regiment, the 16th and 80th Guards Mortar Regiments, the 26th Antiaircraft Division, the 10th Antitank Artillery Brigade, and the 27th Gun Artillery Brigade were also attached to the army.

Thus the 5th Guards Tank Army had 793 tanks, including 501 T-34

tanks, 261 T-70s, and 31 'Churchills', and therefore, with respect to the number of tanks, the correlation of forces was approximately equal, although the enemy had qualitative superiority, especially in heavy tanks and self-propelled 'Ferdinand' guns.[9]

The terrain

The terrain in the area of combat operations was cut with a large number of gorges, ravines, and insignificant river obstacles (the Solomatinka, Vorskla, and other rivers). The general relief of the terrain, however, permitted extensive maneuver by large tank formations. Individual regions were completely open for observation, with neither forests nor groves in them, which favored air operations on both sides, but at the same time this made it difficult for our tank forces to maneuver covertly and required good air cover. The extensively developed network of dirt and country roads created favorable conditions for movement and the rapid concentration of forces and for uninterrupted work by their rear services. The most significant water obstacles on the enemy's offensive path to Kursk were the Psel and Seim Rivers.

Having forced the Psel River, the enemy acquired freedom to maneuver along the Kursk axis but fell under cutting-off fire from the line of the Seim River. Consequently, to attack Kursk it was necessary for the enemy to capture this water obstacle or to protect himself with a covering force along the front to the northeast.

The presence of a considerable number of hills, burial mounds *kurgan*\, and populated points made it possible (in separate sectors) to conduct defensive operations, and this played a role in our forces' successful defensive battles during the initial days of the operation but at the same time somewhat delayed the advance of our units when they launched their counteroffensive.

The counterstroke of the 5th Guards Tank Army

On the night of 11 July the 5 th Guards Tank Army headquarters received a combat order from the Voronezh Front commander which assigned the army the mission - to deliver a counterstroke in the direction of Komsomolets State Farm and Pokrovka at 1000 hours on 12 July and, in cooperation with the 5th Guards Army and 1st Tank Army, to destroy the enemy in the Kochetovka, Pokrovka, and Greznoe region, while preventing his withdrawal to the south (see Map 25).

Fulfilling the assigned mission, the 5th Guards Tank Army commander decided to deliver a counterstroke with the forces of the 18th, 29th, and 2d Guards Tatsinskaia Tank Corps in the sector, on the right, Beregovoe,

Andreevka, and Krasnaia Poliana and, on the left, Provorot', Belenikhino, and Hill 232,0, and, by the day's end to reach the Krasnaia Poliana and Iakovlevo line. The 5th Guards Zimovniki Mechanized Corps, located in army second echelon, received orders to be ready to exploit the success of the 29th Tank Corps and 2d Guards Tatsinskaia Tank Corps in the general direction of Luchki and Pogorelovka. The tank corps was to occupy jumping-off positions along the Prelestnoe, Storozhevoe, and Maloe Iablonovo line by 2400 hours on 11 July and was to be ready to attack at 0300 hours on 12 July.

Thus, according to the commander's decision, the 5th Guards Tank Army delivered a frontal attack against crack German panzer divisions which, without an essential superiority in forces, could at best result in driving the enemy back. Since the Germans in turn were also assembling forces and were preparing to continue their ongoing offensive, a large tank battle was in prospect, which, indeed, broke out during the day on 12 July.

Operations on 12 July

To forestall the probable enemy offensive, at 0830 hours on 12 July (and not at 1000 hours, as envisioned by the plan), after a 15-minute artillery raid, the 5th Guards Tank Army's forces launched the offensive (see Map 25).

The enemy met the offensive by our tank corps with all types of artillery fire and also with counterattacks by heavy tanks operating in groups of 30-40 vehicles each and by self-propelled 'Ferdinand' guns. As a rule, the German tank attacks were supported by continuous, massed, air strikes, which literally hung above our combat formations throughout the entire battle.

After fierce combat with the enemy tanks, the 18th Tank Corps with its 181st and 170th Tank Brigades in first echelon captured Oktiabr'skii State Farm by 1400 hours and, while developing the offensive, approached Andreevka with its right flank, where it encountered a large German tank column. As a result of the ensuing meeting engagement, the 181st Tank Brigade defeated the Germans and, while throwing the enemy tanks back in the direction of Kozlovka, it had fully captured the Vasil'evka region by 1800 hours. The brigade's further advance was halted by organized enemy fire from the Greznoe region and also by a counterattack by 13 'Tiger' tanks from Hill 226. Owing to the impossibility of continuing the advance and also the lack of success of the neighboring unit on the left, the units of the 18th Tank Corps assumed the defense along the Petrovka, Prelestnoe, and Vasil'evka line facing southeast and northwest.

The 29th Tank Corps attacked with its right flank along the railroad toward Komsomolets State Farm. After fierce combat against an overwhelming enemy tank mass, the 32d and 21st Tank Brigades, which were

advancing in the corps' first echelon, captured Hill 252 by 1300 hours, but, encountering organized fire from entrenched tanks and continuous air attacks, they were unable to advance further and shifted to the defense. The tank brigades fought continuously until the day's end against enemy tanks, which attacked our combat formations in groups of 20^40 each.

Exploiting the 18th Tank Corps' success, the 53d Motorized Rifle Brigade advanced forward in one decisive rush and at 1730 hours broke through to Komsomolets State Farm. Having completely defeated the enemy defending this point but also itself under attack by superior enemy forces, the brigade withdrew to the Hill 252 region to restore cooperation with remaining corps units. Here it went onto the defense together with the 25th Tank Brigade.

The 2d Guards Tatsinskaia Tank Corps attacked from the Vinogradovka and Belenikhino region in the direction of Kalinin. Overcoming stubborn enemy resistance and fire, corps units had approached the eastern outskirts of Kalinin by 1430 hours, where a meeting engagement against German tanks ensued. In view of 29th Tank Corps' lagging behind and the existing threat to its open right flank, the 2d Guards Tatsinskaia Tank Corps withdrew to its jumping-off position, where it consolidated while repelling enemy tank attacks.

By 1200 hours, when it had become clear to the German command that its attempt to penetrate into the Prokhorovka region had failed, it decided to provide assistance to its main grouping, which was attacking along the Oboian' axis and, to do so, to penetrate with part of its forces to the northern bank of the Psel River to envelope the flanks of the 6th Guards Army and 1st Tank Army and then to enter the 5th Guards Tank Army's rear area in the region north of Prokhorovka.

To this end the Germans concentrated a shock group of 100 tanks, one panzer grenadier regiment, up to 200 motorcycles, and several self-propelled guns in the Krasnyi Oktiabr' and Kozlovka region. This shock group, with air support, launched an offensive at 1200 hours, penetrated the 52d Guards Rifle Division's defense and by 1300 hours had captured Hill 226. On the northern slopes of this hill the attacking enemy encountered strong resistance from units of the 95th Guards Rifle Division, which had prepared defenses in this area. All attempts by German tanks, infantry, and motorcyclists to penetrate the defense were successfully repulsed by fire and counterattacks by units of this division. At 1800 hours the enemy ceased his attacks and began to regroup.

After a massed air raid, the Germans once again attacked the 95th Guards Rifle Division's combat formations at 2000 hours, and by the time darkness fell, they had pushed our units back and captured Polezhaev but were unable to advance further along this axis.

During the second half of the day, by order of the army commander, the

5th Guards Zimovniki Mechanized Corps' 10th Guards Mechanized Brigade was moved forward to the Ostren'kii region, and the mechanized corps' 21st Guards Tank Brigade was moved to the Voroshilov State Farm region to ward off enemy attempts to penetrate into the 5th Guards Tank Army's rear area.

Having achieved some success along the Vypolzovka and Avdeevka axis, the Germans began to transfer their units there while striving to develop an offensive along the Northern Donets River and penetrate into the 5th Guards Tank Army's rear area. To parry this German attack, the 5th Guards Zimovniki Mechanized Corps' 11th and 12th Mechanized Brigades and the 2d Guards Tatsinskaia Tank Corps' 26th Guards Tank Brigade were thrown into the Vypolzovka and Avdeevka region with orders to destroy the penetrating enemy grouping in the Ryndinka region. Simultaneously the approaching units halted the German advance to the north and by 1800 hours, as a result of fierce combat, had captured Ryndinka and Vypolzovka.

Thus on 12 July the 5th Guards Tank Army failed to accomplish its assigned mission. As a result of the frontal attack, the army's corps fought heavy battles against large enemy tank forces during which they were forced to assume the defense. On the night of 13 July the army's corps were given orders to consolidate at their achieved positions and regroup their units so that, by the morning of 14 July, they would be ready to continue the offensive.

Operations on 13 and 14 July

Having forestalled the beginning of offensive operations by units of the 5 th Guards Tank Army, the enemv launched an offensive on the morning of 13 July.

Employing positional fire from entrenched tanks and also fire from anti-tank artillery regiments, the 18th Tank Corps successfully repelled strong tank and infantry attacks launched by the Germans from the Polezhaev and Hill 226 region and held firmly to its positions.

The 5th Guards Zimovniki Mechanized Corps improved its positions on the army's right flank by means of active operations. Exploiting the enemy's confusion during combat against our 18th Tank Corps units, its 10th Guards Mechanized and 24th Guards Tank Brigades launched an offensive, drove the Germans from Polezhaev, captured Hill 226 and, after regrouping, began an attack in the direction of Krasnyi Oktiabr'. However, having encountered organized enemy resistance, they could not capture this point.

During the day the 29th Tank Corps successfully repulsed two furious attacks by SS Panzer Division *Adolf Hitler*, which attacked along the railroad toward Oktiabr'skii State Farm.

On the army's left flank in the Vypolzovka region the 53d Guards Tank Regiment, supported by the 689th Antitank Artillery Regiment, attacked the enemy in the direction of Aleksandrovka, and, after a meeting battle against 28 German tanks including eight 'Tigers', it assumed the defense along the western and southwestern outskirts of Aleksandrovka.

Thus, on 13 July the 5th Guards Tank Army's forces completely repulsed numerous and fierce attacks by large enemy forces against the center of its dispositions, and, while holding firmly to its occupied position, it improved its position somewhat on the army's flanks by local counterattacks.

The enemy displayed no activity on 14 July. The forces of the 5 th Guards Tank Army conducted a regrouping to its left flank. In particular the 2d Guards Tatsinskaia Tank Corps abandoned Belenikhino so as not to disperse its forces and occupied a defense along the Ivanovka, Leski, and Shakhovo line.

Operations on 15 and 16 July

On 15 and 16 July the 5th Guards Tank Army's forces fought defensive battles during which they threw back numerous enemy attacks. The army was defending on a front extending 40^12 kilometers and with a depth of 6-10 kilometers. The main defensive efforts were concentrated in the center of the combat formation with three tank corps (the 18th and 29th Tank Corps, and the 2d Guards Tatsinskaia Tank Corps) on a front of 10—12 kilometers and with units of the 5th Guards Zimovniki Mechanized Corps on the flanks and in army reserve.

On the night of 15 July combat operations spread into the 2d Guards Tatsinskaia Tank Corps' sector. At 2000 hours on 14 July the enemy had already conducted a massed air raid against the corps' combat formations, and, after a strong artillery preparation, the *Das Reich* Panzer Division attacked its positions along the Vinogradovka and Shakhovo axis. As a result of a fierce battle the units of the 2d Guards Tatsinskaia Tank Corps were forced to abandon these populated areas after having suffered heavy losses. In view of the existing situation the army commander transferred the 10th Guards Mechanized Brigade to the Zhilomostnoe and Novoselovka region. Thanks to this action, any further advance of German tanks to the east was halted. The enemy launched a strong night attack against the 2d Tank Corps' positions along the Storozhevoe and Pravorot' axis with units of the *Death's Head* Panzer Division but failed to achieve success there.

Employing forces from the *Das Reich* and the 17th Panzer Division, the enemy resumed his offensive on the morning of 15 July, and furiously attacked the positions of the 2d Guards Tatsinskaia Tank Corps, the 10th Guards and 11th Guards Mechanized Brigades, and also the army's left flank on the **Novo**-Khmelevoe axis but failed everywhere.

By means of a night attack with a single motorized rifle battalion, the 32d Motorized Rifle Brigade (18th Tank Corps) captured the eastern outskirts of Vasil'evka and the slopes of the heights running up to the road (southeast of Oktiabr'skii State Farm) at 0200 hours on 16 July, which improved its positions.

On the night of 16 July and during the following day the enemy once again launched a series of counterattacks against the 29th and 2d Tank Corps' positions and also in the direction of Novo—Khmelevoe, but each time encountered stubborn resistance from our forces, suffered serious losses, and withdrew to his jumping-off position.

This essentially concluded the 5th Guards Tank Army's defensive battles. On 17 July army forces launched a counteroffensive and, subsequently, a pursuit of the withdrawing enemy.

The results of the operation

Immediately before the operation began, the forces of the 5th Guards Tank Army completed a three-day march covering a distance of around 320 kilometers, having maintained full combat readiness as the course of combat operations confirmed.

By means of dynamic offensive operations and a powerful attack against the enemy tank groupings, the 5th Guards Tank Army disrupted the plan for a German offensive along the Prokhorovka axis. As a result of five days of combat, the Germans lost around 300 tanks, 20 self-propelled guns, more than 200 guns of various calibers, around 500 motor vehicles, and also more than 4,500 soldiers and officers.[10]

CONCLUSIONS REGARDING THE OPERATIONAL EMPLOYMENT OF TANK ARMIES IN THE DEFENSIVE OPERATION

1. The defensive operations of the Central and the Voronezh Front which were conducted in July 1943 demonstrate several unusual examples of the employment of large tank formations in defense. Such an employment of tank forces was prompted by the particular situation as well as by the qualitative and quantitative correlation of forces which existed by the beginning of the battle for the Kursk strategic bridgehead.

In accordance with the Central and Voronezh Fronts' operational plans, while operating from the depth the 2d and 1st Tank Armies were to deliver counterstrokes against enemy units which had driven wedges into our defense. To this end the staffs and officer cadres of these tank formations studied the terrain in advance, prepared jumping-off positions in an

engineering sense, and studied the axes of the most probable counterstrokes. During combat operations, however, both these tank armies were forced to repel massed enemy attacks in cooperation with other combat arms while combining the conduct of local counterattacks against penetrating groups of German tanks and infantry with positional fire from entrenched tanks.

2. The new form of operational employment of tank forces in defense was prompted by the appearance of new weaponry and, in the light of this, by the new tactics of the attacking enemy. These new tactical-technical factors were:

- large-scale enemy employment on the battlefield of heavy 'Tiger' tanks, against which the fire of our counterattacking medium and light tanks was not very effective, especially when firing from the march and at considerable range;
- the presence in the attacking enemy's combat formations of heavy self-propelled 'Ferdinand' guns, which increased the penetrative capability of the tank attack and, at the same time, made it possible to repel counterattacks by our tanks;
- a change in the offensive tactics of German tanks, which did not meet up with our counterattacking tanks at close ranges but rather defeated the counterattackers by positional fire while exploiting the precision and range of their fire power; and
- the increasing saturation of attacking enemy force combat formations with antitank weapons (an increase of 60 percent in comparison with 1941 in the quantity of antitank guns in a German panzer division, and the inclusion in these divisions of antiaircraft gun battalions, which were used to fight our counterattacking tanks).

Thus, in the July defensive battles our forces encountered the mass employment of the latest models of German tank equipment and new methods for their tactical employment on the battlefield. This predetermined the forms of operational-tactical employment of both our tank armies.

3. To a considerable extent the employment of large tank formations for defense improves the stability of field army defensive lines and sharply increases the number of artillery tubes and antitank weapons. It is sufficient to point out that the 2d Tank Army's arrival at the 13th Army's defensive line increased its artillery and antitank weaponry by 16 percent and in the 6th Guards Army, when the 1st Tank Army arrived at its line, this increase amounted to 83.5 percent.

The high saturation of forces with antitank weapons and their purposeful employment in combination with various types of barrier and mine-demolition obstacle made it possible to bleed the large attacking enemy tank group-

ing white and hold on to the defensive lines. In Table 22 approximate figures are cited for tank losses in the battle of Kursk with indications as to what means knocked out or destroyed the German tanks. The loss figures are not absolutely precise, however, it can be determined from the analysis and comparison of them what role was played by Red Army artillery, tanks, and sappers in their destruction.

TABLE 22: TANK LOSSES IN THE BATTLE OF KURSK

	Number of Tanks	
Means of Destruction	*German Ninth Army*	*German Fourth Panzer Army*
Fire by field forces artillery and tank army weapons	**904[1]**	**1,800[2]**
Blown up by mines	**248**	
Totals	**1,152**	**1,800**

Notes'. [1] **Including 35 'Tigers'**
[2] **Includes tanks blown up by mines**

It is obvious from Table 22 that each tank of the 14 enemy panzer divisions participating in combat, in essence, suffered some kind of defeat; that is, not one tank left the battlefield without having been damaged, and some were damaged more than once.

4. The transition of large tank formations to the defense of specific lines increases the depth of the defending forces' operational formation. Thus the Central Front's 2d Tank Army was deployed in the depth of the defensive zone behind the army second defensive line and had the mission to halt the enemy by organizing a stubborn defense. In this case the tank corps received defensive belts, and the forces' operational formation was as follows:

- the 13th Army's rifle divisions occupied the main defensive belt;
- at the beginning of the operation, the 13th Army's reserves, the 17th Guards and 18th Rifle Corps, entered the army second defensive belt; and
- the tank army was deployed behind the army second defensive belt and formed, with the 19th Tank Corps, as if it were a third defensive belt.

The first and the second antitank defense zone consisted of rifle corps and division antitank weapons whose mission was to exhaust the enemy and destroy his personnel and tanks. The tank corps formed a third antitank defense zone. Thus a deeply echeloned defense was constructed and, furthermore, the tank corps' lines were constituted as if they were the foundation of the defense, upon which the rifle units withdrawing from the first and the second line relied as they conducted their defensive battle. The *front*

commander had at his disposal the 9th Tank Corps, which was deployed behind the 2d Tank Army, as his antitank maneuver reserve.

While operating in the Voronezh Front on the first day of the German offensive, the 1 st Tank Army received orders to move its two tank corps forward into the 6th Guards Army's second defensive belt and stubbornly defend it, and the defensive lines were precisely indicated to the corps. The 6th Guards Army's rifle divisions operated in front of the tank corps' defensive lines and, subsequently, the tank corps' lines were the basis of the defense to which the broken-up rifle units of the 6th Guards Army withdrew and conducted defensive combat.

Having assigned the 1st Tank Army the mission 'to prevent under any circumstances enemy penetration to Oboian", the Voronezh Front commander also required that the army be ready to shift to a counteroffensive at dawn on 7 July. However, this did not take place, and the operational situation forced the 1st Tank Army, as well as the 2d Tank Army, to conduct a stubborn defense to hold on to their occupied lines. The same happened to the 5th Guards Tank Army, whose mission was to deliver a counterstroke against enemy units which had wedged into our disposition. As a result of the battle against large German tank forces, the 5th Guards Tank Army was also forced to assume a stubborn defense to hold on to its line.

5. The struggle to hold on to the defensive lines by means of positional actions by dug-in tanks, together with the conduct of local counterattacks, contributed to the survivability of the large tank formations during the defensive operation. This is evidenced by information on tank losses, for example, in 2d Tank Army's 3d and 16th Tank Corps and the 11th Guards Tank Brigade. As shown by Table 23, these losses are expressed by the day of operation.

TABLE 23: TANK LOSSES BY DAY OF OPERATION

Day of Operation	*% of Total Tank Strength*	*%of Irreparable Tank Losses of Total Tanks*	*%of Irreparable Tank Losses of Lost Tanks*
6.07	**20.2**	**15.3**	**75.8**
7.07	**10.8**	**6.0**	**55.1**
8.07	**10.9**	**7.3**	**67.3**
9.07	**1.8**	**1.1**	**62.5**
10.07	**2.0**	**1.0**	**44.4**
11.07	**0.2**	—	—
12.07	**0.5**	—	—
14.07	**1.0**	-	-
Totals	**47.4**	**30.7**	

From Table 23 it is obvious that, first, tank losses in the 2d Tank Army constituted more than 47 percent of the army's tank park, while around 65 percent of the total number of losses were irrevocable. Secondly, the greatest number of tank losses took place on 6 July, that is, on the day when the 16th Tank Corps' brigades counterattacked enemy tanks, which were superior in quantity and quality to our counterattacking tanks.

Despite the high losses, three days after the intense seven-day defensive battles, the 2d Tank Army launched a counteroffensive, while lacking about 20 percent of its authorized combat machines and, by the beginning of this the 1st Tank Army had around 100 operational tanks in each of its corps. There was no interruption at all in the 5th Guards Tank Army between the defensive battles and the launching of the counteroffensive. The rapid restoration of equipment was helped by the fact that repair means were located in the vicinity of their defending units and were protected by antitank obstacles and that in some instances mobile repair detachments were entrenched and properly camouflaged.

6. Large tank formations held on to their defensive lines in close cooperation with rifle formations while combining positional actions by dug-in tanks with the delivery of powerful counterstrokes against penetrating enemy units and also by conducting a maneuver defense to protect the regrouping of their forces. As the experience of the July battle demonstrated, the nature of tank formation operations in defense depends on the situation and the correlation of forces. Thus the counterattacks by the 107th and 164th Tank Brigades, launched on 6 July against superior enemy forces, were broken up and ended in failure. On the other hand, the counterattacks by the 103d and 51st Tank Brigades along the Ponyri and May First axis halted the enemy advance along this axis. By employing ambushes, the 49th Tank Brigade delayed the offensive of the *Grossdeutschland* SS Panzer Division on 7 July, which advanced 6-7 kilometers forward during the entire day of combat. The delaying action by the 49th Tank Brigade supported the withdrawal and regrouping of the 1st and 3d Mechanized Brigades.

The high mobility of tank and mechanized formations ensures their extensive battlefield maneuverability. Thus on 12 July units of the 10th Guards Mechanized and 24th Guards Tank Brigades, having reached the Ostren'kii and Voroshilov State Farm region, halted the enemy who had penetrated into the Hill 236.0 region, while the arrival of the 11th and 12th Guards Mechanized Brigades and the 26th Tank Brigade in the Ryndinka and Vypolzovka region liquidated the German penetration on the 5th Guards Tank Army's left flank.

7. As a rule, the Germans met our tank counterattacks with powerful artillery fire of all calibers and also with positional fire from heavy and medi-

um tanks and self-propelled guns which to a considerable degree increased the accuracy of their fire. German artillery, tanks, and self-propelled guns did not stop firing against the tanks until they caught fire, even when our tank had stopped as a result of being hit by a shell. Such a method of fighting attacking tanks can lead to enormous irrevocable losses in their ranks. Table 24 below shows the quantity of irrevocable tank losses from various types of weapon.

TABLE 24: TANK LOSSES BY TYPE OF WEAPON

Type of Damage	*2nd Tank Army: % of Total Irreparable Losses*	*1st Tank Army: % of Total Irreparable Losses*
Burned as a result of being hit by artillery shells	**72.5**	**72.0**
Destroyed by artillery	**15.3**	**13.0**
Put out of action by air attack	**6.5**	**2.0**
Put out of action for other reasons	**5.0**	**13.0**
Blown up by mines	**0.7**	**0.0**

Thus, as before, the main means of fighting tanks remained artillery, whose fire was responsible for 85—88 percent of all irrevocable losses. Increasing the caliber of antitank artillery, the initial speed of shell flight and employing special shells produced a very high percentage of irrevocable losses of the total number of tanks put out of action.

The effectiveness of air operations against tanks deployed in a positional defense is minor.

8. When employing a tank army or tank corps for defense, defensive belts (lines) should be prepared by engineers beforehand along all probable axes of operations by these formations. March routes for the movement of tank columns to their assigned defensive lines should also be prepared and fitted out in advance. The experience of the 2d and 1st Tank Armies indicates that it is necessary to have no fewer than two such march routes per corps and even more if the situation and time permit.

Just as when delivering a counterstroke, a tank army (corps) occupies a defensive sector only after the enemy's main attack axis has been determined. Before this, an army's corps (brigades) are located at road junctions in the depth of the *front's* defensive zone at a distance which ensures their timely movement forward into the prepared defense line. The 2d Tank Army was deployed in concentration areas at a depth of 25-40 kilometers (depending on the variant of its employment) and the 1st Tank Army's concentration area was 18-20 kilometers from the front line. Consequently, in

addition to engineer preparation of the defensive belt and march routes, concentration areas also had to be prepared for the tank army's corps.

9. Engineer-defensive works and the large-scale employment of mine-demolition obstacles played a great role in the struggle against massed German tank attacks. Well-developed engineer works and narrow trenches permitted our infantry to withstand enemy tank attacks steadfastly, maneuver covertly under fire, and cut the enemy infantry off from his tanks.

Tank and artillery trenches were prepared beforehand in the defensive lines of rifle forces. This made it possible for the tank corps to create a reliable system of antitank and anti-personnel fire quickly.

The timely study of army march routes and their early engineer preparation permitted tank formations to reach their designated regions without any unnecessary loss of time. Thus, for example, the 2d Tank Army's tank corps required 6—7 hours and the 1st Tank Army's 3d Mechanized Corps needed 3-5 hours to arrive.

CONCLUSIONS

The experience of the July defensive battle for the Kursk bridgehead demonstrated that, while exploiting the basic characteristics of tanks (mobility, shock and fire power, and survivability), large tank formations in cooperation with other combat arms could conduct a stubborn defense to hold on to a line.

Based on the experience of the July defensive battles, several conclusions may be drawn concerning the use of large tank formations in defense against superior enemy forces, especially in those instances when the enemy has qualitative and quantitative superiority in tank forces on the main attack axis.

A tank army defense should meet the following basic requirements:

- to delay the enemy offensive, and first and foremost his tanks, and to defeat him with fire by exhausting him in front of the tank army's defensive line;
- to prevent a penetrating enemy, and especially his tanks, from spreading out into our defensive depth and along the front;
- to splinter and dismember an advancing enemy's combat formations, particularly his tanks, against our engineer obstacles; and
- to cut the enemy tanks off from their infantry and, in the event that they lodged in the defensive depth, to encircle and destroy the tanks and infantry separately.

These requirements predetermine the necessity of structuring a deep defense, which should be antitank, anti-personnel, and anti-air.

One tank corps in a tank army's defense will usually be deployed in the army's second echelon, echeloned behind one of the flanks or behind the center of the first echelon combat formation. Not less than one tank brigade from the second-echelon tank corps should be in the army commander's reserve. Based on the experience of the defensive battle along the Orel-Kursk axis, a tank army with such a defensive formation can defend a 20-25 kilometer-wide sector. The depth of the army's operational formation, with one tank corps in the second echelon, will be around 20 kilometers. When the tank army is deployed in the defensive depth behind the second defensive belt of the field army operating along this axis, the overall depth of the defensive zone will be 35—40 kilometers.

Each first-echelon corps should receive an independent defensive sector, whose width, depending on terrain conditions and the presence of weapons, can fluctuate between 7 and 15 kilometers.

While organizing a defense within the limits of the allotted sector, the corps has at its disposal two-thirds of its tanks in the first echelon and the remainder in the second echelon, and, in this case, up to a tank battalion should be in the corps commander's reserve.

Reinforced tank companies organize company strong points, from which battalion centers of resistance are formed.

When occupying a defense, all tanks, including the corps and army commanders' reserve, should as a rule be entrenched and camouflaged. In this case tank battalions and companies should be deployed so that 'fire sacks' are created along dangerous tank axes. The profile of the forward edge of the defense is selected and determined in accordance with this requirement.

Thus during the operational deployment of a tank army in the defense, it is necessary to envision the echelonment of tanks and artillery, including:

- a *first echelon*, which consists of tank and mechanized corps and two-thirds of the antitank tank and field artillery (engineer and mine-obstacle units); the first defensive echelon's mission is to stop the enemy offensive and destroy his personnel and, first and foremost, his tanks;
- a *second echelon,* which consists of one tank corps reinforced by artillery if available; depending on the situation, the second echelon is itself deployed in echelon either immediately behind the first or behind one of the first-echelon tank corps. The second-echelon corps has primary and reserve defensive positions along one of the probable enemy attack axes and also prepared axes for counterstrokes from the rear and in front of the forward edge from behind the flanks of the first echelon corps;
- a *mobile tank* and, when the means are available, an *antitank* reserve - a tank brigade and 2-3 antitank gun or self-propelled artillery batteries; and

- an *antiaircraft group* which consists of antiaircraft artillery and fighter aviation; the latter can operate according to the *front* plan.

Each first-echelon corps carves out a defensive sector for its brigades in its allocated belt and deploys one or two tank and motorized rifle brigades and antitank artillery in the first echelon and one tank brigade in the second. The corps commander details a reserve from the second-echelon brigade.

First-echelon tank brigades deploy two-thirds of their tanks by companies while forming strong points jointly with motorized infantry and antitank artillery, from which centers of resistance are formed. One-third of the tanks constitute the brigade commander's mobile reserve. As a rule, antitank artillery is deployed along the forward edge of the first-echelon brigades' defense, protected by infantry and echeloned into the depth, and the corps' reinforcing artillery is in the deployment region of the corps' second-echelon tank brigade.

When employing a tank army to occupy a defense behind rifle divisions in the army second defensive belt it can operate in its usual composition (two tank corps and a mechanized corps), but it is necessary to reinforce it with defensive antitank weapons and, first and foremost, artillery, as well as antiaircraft defense weapons and engineer units. Thus, for example, during the operation the 1st Tank Army received as reinforcements eight antitank regiments, one self-propelled artillery regiment, two antiaircraft artillery divisions, one antiaircraft artillery regiment, one guards mortar regiment, two guards mortar battalions, and one 85mm gun battalion.

During operations along an independent axis it is necessary to include rifle divisions in the tank army, whose number in each separate case will be determined by the width of the tank army defensive sector. Thus during the defensive operation two rifle divisions were subordinated to the 1st Tank Army commander.

In all instances, tank army combat formations in defense should be reliably protected by aviation.

NOTES

1. **When studying this section we recommend the use of the following maps: 1:200,000, No. 36 - XXIX, XXX, XXXVI, and No. 36 - XXI, XXVI, XXXI, and XXXII.**
2. **See chapter 1. [Editor: antitank artillery formations and units are also termed tank-destroyer artillery.]**
3. **While studying this section one should use the following 1:200,000 scale map sheets: M-37-I, II, VII, and VIII, and M-37-XIII, XIV, XIX, and XX.**
4. **[Editor] The three SS panzer divisions were actually panzer grenadier divisions and the *Grossdeutschland* Division was a panzer grenadier division, but not SS.**
5. **[Editor] Here, the Soviet authors routinely confuse 'Panther' and 'Tiger' tanks and they count 'Panthers' in the 'Tiger' strength figures.**

6. [Editor] Here the Soviets routinely inflate German armored strength by about 200 tanks. Apparently, they counted 17th Panzer Division tanks in the total and some of the German antitank guns. Thus the initial correlation of forces was closer to even and, when 5th Guards Tank Army was included, the correlation swung decisively in the Soviets' favor.
7. For details, see chapter 1.
8. [Editor] These German strength figures are also inflated. According to II SS Panzer Corps records, on 11 July the corps numbered approximately 250 tanks and assault guns, with fewer than 20 Tiger tanks. For details, see David M. Glantz and Jonathan House, *The End to Blitzkrieg: The Battle of Kursk* (Lawrence, KS: Kansas University Press, 1999).
9. [Editor] II SS Panzer Corps had no 'Ferdinand' guns. The actual correlation of forces was approximately 2.5:1 in the Soviets' favor and even more so in the Prokhorovka sector itself.
10. [Editor] This too is either an exaggeration or wishful thinking. Actual German tank losses in combat on the approaches to Prokhorovka were approximately 70-80 tanks of various types, plus about 40 tanks in III Panzer Corps. The 5th Guards Tank Army lost about half (450) of its more than 800 tanks and self-propelled guns.

8

Air Operations in the Battle of Kursk

Aviation played a highly important role along the entire extent of the front in the fierce struggle for the Kursk bridgehead. According to the German command's plan, tanks and aviation would resolve the outcome of this battle. Therefore, together with the concentration of a large quantity of powerful tanks and self-propelled guns, up to 80 percent of the aircraft operating on the Soviet-German front were enlisted to participate in the operation.

Military history had never known such a concentration of aircraft and such an intensity of air combat operations as took place in the battle of Kursk. To understand the intensity of the air activity during the operation, it should be kept in mind that more than 4,300 aircraft were operating in two narrow front sectors with a total expanse of around 100 kilometers.

The fiercest air battles during the entire operation took place along the two most important axes for the advancing German forces: Orel—Kursk (Central Front), where our 16th Air Army was operating, and Belgorod-Kursk (Voronezh Front), along which this *front's* 2d Air Army and part of the forces of the neighboring Southwestern Front's 17th Air Army were operating. Furthermore, our long-range aviation [LRA] actively participated along both axes at night.

PREPARATION OF AVIATION FOR COMBAT OPERATIONS

The air situation

Neither side's aviation was particularly active in the Central and Voronezh Fronts' sectors before the battle of Kursk.

In contrast to his former practices, while preparing to assume the offensive in June 1943 the enemy had almost given up air operations against our forces and close rear-area objectives, railroad trains, headquarters, communications centers, and airfields. From 22 June through 4 July 1943 German

aviation delivered no more than ten grouped strikes by small forces, the majority of which were against railroad stations and railroad sectors.

Before the transition of his forces to the offensive, the enemy concentrated his principal air efforts on reconnoitering our airfield network and rear lines of communication up to the Lipetsk and Voronezh line, on carefully photographing the defensive belt, and on air cover for his own forces' concentration areas. It should be noted that, as the start of the enemy offensive approached, his aviation reduced the intensity of their combat operations. Beginning on 25 June no more than 100-150 sorties [flights] were noted before the Central and Voronezh Fronts, while at the beginning of June, these had numbered as high as 400.

The reduction in the intensity of air operations was obviously one of the operational *maskirovka* measures with which the enemy was attempting to conceal the preparation of his offensive and ensure surprise at its commencement. To this end, the enemy also concentrated the main mass of his aircraft in the sector of the forthcoming offensive immediately before the beginning of the operation. Thus on 1 July only 400 aircraft were based in the Voronezh Front's sector, while at the beginning of the offensive there were around 1,000 located there. Between 1700 and 1830 hours on 4 July, that is 9-10 hours before the offensive, no fewer than 300 aircraft had flown there.

By the beginning of the operation the Germans had concentrated more than 17 squadrons in front of the Central and Voronezh Fronts at the Briansk, Orel, Belgorod, Khar'kov, and Seshchensk airfields and other air centers as part of the 4th Air Fleet's 1st, 4th, and 8th Air Corps. The total number of aircraft amounted to 1,850, including 1,000 bombers, 600 fighters, 100 assault aircraft, and 150 reconnaissance aircraft. Furthermore, during the operation up to 200 bombers were drawn in from the airfield centers at Smolensk, Orsha, Stalino, Zaporozh'e, and Kirovograd, which made bombing runs from the airfields. Thus the enemy concentrated more than 2,000 aircraft to support the offensive, which amounted to around 80 percent of all his aviation operating on the Soviet-German front.

The enemy also concentrated a huge quantity of antiaircraft weapons for the struggle against our aviation before the offensive front. According to intelligence data, more than an antiaircraft corps was operating before the Voronezh Front in the Trosnoe, Zmiev, and Lebedin regions, and air reconnaissance alone detected 121 antiaircraft artillery batteries and 68 searchlights. According to data from the Central Front's intelligence organs, 64 medium-caliber guns, 242 light antiaircraft artillery guns, and 240 antiaircraft machine-guns were concentrated along the Orel axis in the enemy's offensive sector (a width of 36 kilometers).

The presence of such a quantity of antiaircraft weapons ensured a three-layered fire from medium-caliber antiaircraft artillery and four-layered fire

from small-caliber antiaircraft artillery along the main attack axis.

During the first half of June air reconnaissance from our 16 th and 2d Air Armies had already detected large enemy troop movements along the Briansk-Orel and the Belgorod-Khar'kov axes, and at the end of the month it determined precisely and photographed the deployment region of his main force groupings. According to intelligence information, including air reconnaissance, it was established that the Germans were preparing for a large-scale offensive operation. Taking this into account, our forces improved their defensive lines, developed their antitank defense, and concentrated forces and weaponry necessary for the defense.

Before the beginning of the defensive operation the 16th, 2d, and 17th Air Armies were significantly reinforced with aviation corps from the *R{V)GK* [High Command Reserve], The aviation units and formations of these air armies were replenished with flight personnel and aircraft, and defective *materiel* was almost completely repaired. Thanks to these measures, the correlation of opposing air forces at the beginning of the German offensive was as shown in Table 25.

TABLE 25: CORRELATION OF OPPOSING AIR FORCES AT BEGINNING OF GERMAN OFFENSIVE

Types of Aircraft	*Our Aircraft*				*Enemy Aircraft*
	16th Air Army	*2d Air Army*	*17th Air Army*	*Totals*	
Fighters	**455/71**	**389/85**	**163/43**	**1,007/199**	**600**
Assault	**241/28**	**276/23**	**239/27**	**756/78**	**100**
Dav Bombers	**260/14**	**172/18**	*76/2*	**508/34**	**1000**
Night Bombers	**74/2**	**34/15**	**60/1**	**168/18**	
Recce	**4/2**	**10/8**		**14/10**	**150**
Totals	**1,034/117**	**881/149**	**538/73**	**2453/339**	**1,850**

Note: **The larger number represents operational aircraft, and the lower number aircraft in disrepair**

Thus the overall numerical correlation of forces was in our favor. Our aviation had a great superiority over the enemy in fighters and especially in assault [ground-attack] aircraft but was inferior to him in the numbers of bombers and reconnaissance aircraft.

The enemy had the advantage in aviation basing (see Map 26). A considerable number of the airfields for his fighter aviation were located 18-30 kilometers from the front line, and individual landing strips were only 5-6 kilometers from the forward edge of the battle. To a considerable degree, such a basing of enemy fighter aviation made it possible for him to maintain

a balance of forces in the air during the first days of the operation, despite our more than 1.5-fold superiority in fighters.

Although our aviation was based along enemy offensive axes, it was deployed over a large territory and, consequently, a large number of airfields for fighters and assault aircraft were a considerable distance from the front line. This reduced the intensity of our aviation's activity during the operation; at the same time, however, this circumstance, combined with good camouflaging of *materiel* and rather well-coordinated operations involving dummy airfields, made it difficult for the enemy to detect our airfield network, and his reconnaissance was unable to establish the actual numerical size of our aviation. Thus intercepted radio reports from enemy reconnaissance aircraft indicated that to a large extent in their transmitted information the number of sighted aircraft at monitored airfields was considerably lower than the actual one. Furthermore, a great many operating airfields remained completely undetected.

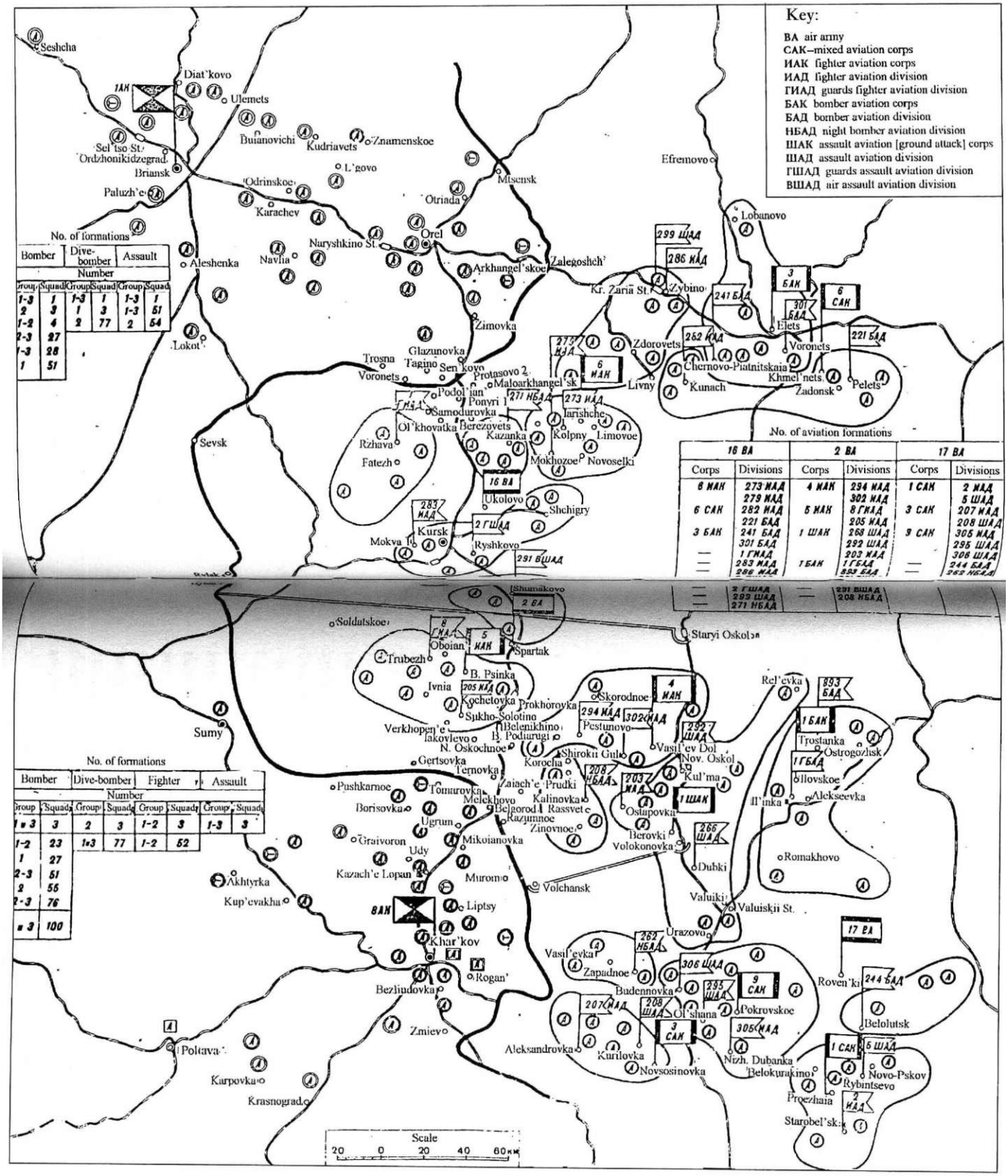
False airfields played a large role in disorienting the enemy, and 17 such airfields were built in the 2d Air Army alone, in which 158 dummy aircraft were set up. Thanks to the shifting of these dummies and changes in their number and also the landing of individual aircraft and other aspects of 'life' at the false airfields, the enemy accepted them as real and they were subjected to repeated bombings. In June, for example, of 35 enemy raids against our airfields, 29 were made against false airfields, with many individual ones being attacked several times.

Operational planning

In mid-May the headquarters of the 16th and 2d Air Armies had already compiled a plan for the employment of aviation in the defensive operation. The basis of this plan was the agreed defense plan of the *fronts* to which the air armies belonged. In principle, the plans of the air armies did not differ from each other and therefore, we shall provide an account of the contents of only the 2d Air Army's plan.

The Voronezh Front command envisioned the possibility of an enemy offensive along four axes: from the Pushkarnoe, Tomarovka, Belgorod, and Murom regions. Each of these axes was regarded as an independent variant for air operations. The operation foresaw the following three stages:

- *first stage-,* the occupation by the enemy of jumping-off positions for the offensive (a duration of 2—3 days);
- *second stage:* the enemy attack against the forward edge of our defensive belt (a duration of one day); and
- *third stage-,* the struggle against penetrating enemy forces within the defensive belt.



Map 26: **Aviation basing during the operation**

Common air army missions were assigned for each stage, combat intensity was calculated with respect to types of aircraft, and regions in which aviation should operate while implementing this or that planning variant were indicated. The plan provided only basic instructions regarding the employment of the 2d Air Army's aviation during the *front's* defensive operation. A shortcoming of the plan was that it did not allocate missions among the army's aviation formations.

To coordinate cooperation with army ground forces, the 2d Air Army command sent responsible aviation commanders to the headquarters of the latter to participate in developing the plan for ground army combat operations and to specify areas of operation, problems in the combat employment of aviation, and procedures for mutual recognition and target indication.

The plan envisioned that the air army would send qualified representatives to the ground forces commanders' command posts to create more favorable conditions for control of aviation during operations with ground forces. These representatives, who were familiar with the details of the plan, were to be sent to ground armies when combat operations began. However, such an important cooperative measure was not fully applied in practice. The 2d Air Army headquarters failed to assign representatives to ground army command posts and reliable communications were not organized with them.

Cooperation with ground forces was organized considerably better in the 16th Air Army, which, in advance, dispatched an operational group with a radio station and headed by the deputy air army commander to the ground army's command post. The deputy air army commander was authorized to summon aircraft from airfields direct to the battlefield. Not only was the operational group familiar with the plan for the combat employment of aviation, but its individual representatives also came to 13th Army's command post several times, since this was the army with which it was subsequently to cooperate. As the experience of this operation demonstrated, such visits by air officers to ground forces headquarters to refine cooperative issues and become familiar with the expected pattern of work were of great importance.

In addition, to give concrete expression to the work of air formations during their activities in the defensive operation, the 2d Air Army headquarters developed a plan for the combat use of such formations in cooperation with the 6th Guards, 1st Tank, and 7th Guards Armies on the front or along the axis where enemy attacks were expected. The principal material for compiling such a plan was that for the combat employment of aviation in the *front* defensive operation and those for ground army combat operations. All aviation formations, with the exception of the 5th Fighter Aviation Corps which had the mission to fight for air superiority, were enlisted for joint operations with ground forces.

The overall plan for the combat employment of air formations envisioned the same operational stages, common ground forces missions and air missions in the event of an enemy offensive along this or that particular axis in each army's belt. The number of possible enemy offensive axes (variants) for each army varied but, as a rule, did not exceed four. Thus four variants of offensive axes were established for operations with the 6th Guards Army, which included an enemy offensive against the junction between the 40th and 6th Guards Armies, an offensive along the axis from Tomarovka toward Ivnia, from Belgorod toward Oboian', and from Belgorod toward Korocha. The plan assigned aviation formations not only missions but also the areas, number of aircraft, and times for delivering the air strikes. Air strike delivery times were designated as 'H' + x hrs, x mins (where 'H' represented the time when the enemy assumed the offensive).

The *front* command approved the plan for the combat employment of aviation formations, after which excerpts from it were distributed to aviation formations. On the basis of these excerpts, aviation corps commanders compiled their own plans for the combat use of aviation formations, while division commanders established timetables for combat flights, which indicated the composition of each aircraft group, the numeration of air units, the names of group leaders, areas where enemy fighters were expected to be encountered, the time for take-off, and the attack objectives. Planning documents developed by the air army and the aviation corps commanders were approved by the air army commander.

The availability of developed plans for the employment of aviation in air armies and aviation corps and also the timetables for combat operations in divisions considerably facilitated the organization of combat when the enemy launched the offensive. The command cadre of aviation formations knew about the impending operations and therefore it was sufficient to report the variant number at the necessary moment, together with the appropriate password, for aviation to begin its part in the combat in accordance with the developed plan.

On the whole, the documents prepared by the 16th and 2d Air Army headquarters on planning air combat operations during the defensive operation fully ensured the rapid commitment of aviation formations at the beginning of the enemy offensive. A common deficiency in the planning documents and, above all, in the combat employment plan was that the missions and, in particular, the regions of air operations indicated in them on the basis of intelligence data that had been received at the time the plan was compiled were never once refined, even though the enemy force situation changed significantly during the month of the plan's implementation.

In accordance with the plans prepared by the air armies, the intensive aviation activity designed to disrupt the offensive was to begin two to three days before the beginning of the enemy offensive, that is, while the Germans

were occupying their offensive jumping-off positions. This required the attentive observation of enemy actions on the part of our reconnaissance, and of air reconnaissance in particular, to determine the moment that enemy forces reached their jumping-off positions.

It should be noted that the moment the enemy completed his force concentration was not determined with sufficient accuracy. Possessing information about large-scale German movements for more than two months, our intelligence drew day-to-day conclusions about enemy force concentrations and his possible imminent launching of an offensive along the Orel and Belgorod axes. These timely conclusions were of great importance in preparing forces for the defense, but this was far from all that was required of intelligence.

Moreover, by extensively employing all possible measures to camouflage the concentration of their forces, the Germans were able to conceal their arrival in the jumping-off positions from our reconnaissance, and in several instances they created an incorrect impression as to their intentions. Thus, three days before the beginning of the German offensive, our scouts confirmed that the enemy had transferred the 51st, 27th, and 55th Bomber Squadrons from the Briansk and Orel air centers to reinforce other axes. The basis of this incorrect conclusion was information from radio reconnaissance, which, for an extended period, had failed to note the work of these squadrons' radio stations.

Until the very beginning of the German offensive, the Voronezh Front's air reconnaissance noted only some intensification of enemy movement along the Akhtyrka-Borisovka and Khar'kov-Belgorod roads, and the concentration of enemy forces at the front line went almost unobserved. Although the 16th Air Army's scouts noted a considerable concentration of equipment and personnel in the Trosna, Voronets, Tagino, and Sen'kovo region, this information was clearly inadequate to decide on the intensification of air operations to disrupt the enemy offensive.

The fact that the enemy had already completed his force concentration became known to the command from German prisoners and deserters only by the close of 4 July (and the beginning of his offensive only on the morning of 5 July). Thus the air operations envisioned in the combat employment plan were not conducted during the enemy's occupation of his offensive jumping-off positions, that is, during the first stage of the defensive operation.

The organization of aviation activity

At the end of June and the beginning of July, the combat activity of the 16th and 2d Air Armies' aviation largely amounted to reconnoitering the enemy's force grouping, his reserves, basing airfields, and also covering ground

forces and its own airfields. The intensity of combat operations was insignificant. The numbers of sorties carried out by the air armies from 1 through 4 July, 25 percent of which were carried out at night, are shown in Table 26.

TABLE 26: SORTIES BY AIR ARMIES (1-4 JULY)

Air Army	*Total Sorties*	*Types of Sortie*					
		Recce	*Attacking forces*	*Attacking rail targets*	*Protecting instal-lations*	*Intercepting enemy aircraft*	*Accompany-ing assault aircraft*
16th	**464**	**178**	**114**	**17**	**23**	**44**	**71**
2d	**434**	**111**	**63**	.	.	**260**	.

While flying a minimum number of sorties during this period, the air armies continually had on-call [on duty] assault and fighter subunits at airfields to attack important enemy objectives which had been detected by our reconnaissance. Thus in the 2d Air Army 18 assault aircraft and the same number of fighters were kept at 30-minute, dawn-to-dusk readiness for operations against enemy personnel and equipment. This group could fly only on the order of the air army commander. In addition, fighters were on duty in ambush positions and at airfields with the mission of engaging enemy aircraft which appeared over our territory. On the order of the air army command, these fighters could fly from airfields only to intercept and repel enemy aircraft when they appeared over our territory.

Thus all measures were taken in the air armies to organize aviation combat activity, which, in the absence of active ground *force* operations, had great importance. Air army units and formations had the opportunity to put *materiel* in order and to prepare personnel and air staffs for combat operations and, on the whole, created conditions for aviation to deliver powerful strikes when active ground force operations began.

During this period aviation units and formations carried out combat training for the impending operations. Flight personnel studied in detail the area of operations, the precise deployment of their own forces along probable enemy offensive axes, and identification signals and communications with ground forces. Flights against probable targets were gamed in many units and, in addition, the majority of group leaders were given the opportunity to conduct a preliminary flight covering the area of the forthcoming combat operations.

In a number of aviation formations unit and squadron commanders and navigators conferred with ground forces to determine specifically on the terrain the deployment of forces and characteristic orientation points in the depth of the enemy defense. Radio exercises on the theme 'The air

operations in a *front* defensive operation' were conducted by the 2d Air Army headquarters with the command cadre of aviation formations.

Much work was accomplished on the organization of cooperation between formations representing the several types of aircraft. For a long time before the operation began the air army commands issued special instructions as to how fighter formations were to support the combat operations of assault aircraft and bombers. Assault and bomber formations were attached to fighter formations for this purpose with their basing in the immediate vicinity of one another, in some cases at the same airfields.

On the basis of these instructions, the commanders and chiefs of staff of cooperating aviation formations jointly worked out planning tables for their collaboration during the first stage of the operation and also cooperation instructions and radio signal tables. Furthermore, in a number of the 2d Air Army's formations gatherings were held among those who were to lead assault (bomber) and fighter groups which worked out questions associated with [air] encounters, the establishment of combat formations, cooperation on the way to and within the target regions, maintenance of communications during the flight, and the protection of landings.

The measures conducted by air army staffs and also by aviation units and formations on the preparation for combat operations helped commanders at all levels to organize aviation's participation. Despite the lengthy preparatory period, however, far from everything was done. Thus in the 2d and 16th Air Armies guidance, reporting, and control of fighter aviation by radio were not readied.

Work in organizing guidance, reporting, and control by radio was limited by the air army headquarters' allocation of radio sets for guidance and by their location along probable enemy offensive axes in the immediate vicinity of the front line. Before the beginning of the operation these radio sets, which were attached to fighter formations, worked on notifying fighters about flights by enemy aircraft across the front line. When air activity on both sides was low this work by guidance radio sets satisfied the fighter formation command, since, having data on the flight of individual enemy aircraft, the command was able to control fighters from its own command post.

It should have been assumed that, during the operation, the control of fighters from the formation commander's command post would become more difficult and therefore would require the allocation in advance of responsible officers to control fighters immediately over the battlefield, that is, from guidance radio sets. However, the fighter formation commanders did not detail responsible officers to control fighters over the battlefield. Furthermore, neither the distribution of radio sets on the terrain nor their technical condition was checked. As a result, during the operation the 16th Army's guidance radio sets were located far from the front line and, consequently, it was inconvenient to exercise control from them. In the 2d Air

Army two radio sets which were located along the most important enemy offensive axis were in disrepair.

Deficiencies in organizing guidance, reporting, and control of fighter aviation by radio during the battle strongly affected the execution of aviation's most important mission - winning air superiority.

AIR OPERATIONS DURING THE DEFENSIVE BATTLE: THE BELGOROD-KURSK AXIS

During the entire battle fierce battles were fought on the ground and in the air along the Belgorod-Kursk axis. Our 2d and 17th Air Armies operated along this axis in the Voronezh Front's sector, while the 2d Air Army supported ground forces which were operating along the enemy's main attack axis (the Oboian' axis), and the 17th Air Army operated along the axis southeast of Belgorod.

During the entire battle both air armies operated from airfields at which aviation had been based before the beginning of the operation, with the exception of the 1st Mixed Aviation Corps (17th Air Army), which had been transferred to the Urazovo air center for the sake of convenience.

On 4 July German aviation became active to support its reconnaissance forces, which were operating in the 6th Guards Army's sector. From 1600 to 2000 hours it flew around 300 sorties along the forward edge of our defense. Our fighters carried out more than 100 sorties to repel enemy air strikes and shot down 10 enemy aircraft in four engagements.

By the end of the day, it had become apparent that the Germans were preparing an offensive for 5 July and that they had a large concentration of aircraft at airfields in the Khar'kov air center. On the basis of this information, a decision was made that the forces of the 2d and 17th Air Armies would strike enemy airfields at dawn on 5 July. Thus our air combat operations in the Voronezh Front defensive battle began with an attack against enemy airfields.

At 0430 hours on 5 July the enemy airfields at Mikoianovka, Pomerki, Sokol'niki, Osnova, and Rogan' were attacked simultaneously by 18-24 ground attack aircraft, protected by the same number of fighters, operating against each airfield. In addition at the time of the attack a number of airfields in the Khar'kov air center were blockaded while fighter groups patrolled above the front line to keep enemy aircraft away from our assault aircraft as they returned from their combat mission. Four hundred and seventeen aircraft took part in raids against enemy airfields.

In spite of the well-organized operations against enemy airfields, the strikes did not produce the expected results, since, at the moment they were being delivered, the main mass of enemy aircraft had already taken off for

operations against our defending forces. Up to 60 German aircraft were destroyed or damaged as a result of these strikes.

Beginning at dawn on 5 July large groups of enemy bombers (50-120 aircraft in each) subjected our ground forces in the Syrtsevo, Gertsovka, and Ternovka region to heavy strikes. During the first hour of enemy air operations alone around 400 sorties were flown above our forces. While concentrating their main efforts on supporting the advance of their tank group in the narrow Butovo and Dragunskoe front sector (10-15 kilometers in width), enemy aviation flew 1,958 sorties during the day, the absolute majority (as many as 1,600) of which were made by bombers.

During the first half of the day enemy fighter aviation protected its bombers, chiefly with the appearance of strong groups on the probable flight paths of our aircraft, and engaged them in battle before they reached their attack objectives. The Germans allocated a small number of fighters (3-5) for the immediate protection of the large bomber groups over the battlefield.

Owing to the great expenditure of aircraft for strikes against airfields and also the great saturation of enemy aircraft over the battlefield and the approaches to it, during the first hours of combat the 2d Air Army's 5th Fighter Aviation Corps, which was fulfilling the mission of covering ground forces operations, was unable to repulse enemy aviation as was required. The situation changed somewhat after 0600 hours on 5 July when [our] main fighter forces were committed to combat.

In the air the enemy reacted swiftly to the reinforcement of our fighter aviation and threw all his forces and weapons into combat to gain superiority over the battlefield. This provoked fierce air battles in which both sides suffered losses. During this period information was continuously received from ground forces commanders and air group commanders, who were in the air, about the presence of a great number of enemy aircraft over the battlefield. The commanders of the 5th Fighter Aviation Corps' fighter formations were forced to strengthen the efforts of fighter forces in the air. To do this all available aircraft at airfields were sent up, including those which had just returned from their missions (immediately upon being refueled and resupplied with ammunition). Only on-call aircraft remained at the airfields to protect them.

During the first half of the day, however, our aviation fought air battles primarily against enemy fighters along the approaches to the battlefield, while enemy bombers were operating almost continuously against our defending forces immediately over the battlefield along the main attack axis. Given our air superiority in fighters, these battles were very intense. Thus an area measuring 6 x 4 kilometers in the sector of the 52d Guards Rifle Division, which was defending along the Germans' main attack axis, was subjected to 15 hours of uninterrupted air attacks while, during this time as many as 20 bombers were continuously in the air. Such intense enemy air

operations against our forces made it considerably easier for German tanks and infantry to penetrate our defense and advance 6-8 kilometers into the depth of our positions.

During the second half of the day our fighters were ordered not to engage in battles against enemy fighters but rather to make their way to the forward edge of the battle and destroy his bombers. In addition, the 5th Fighter Aviation Corps was reinforced with one of the 4th Fighter Aviation Corps' fighter divisions, which was relieved of its mission of accompanying the 1st Bomber Aviation Corps' bombers. As a result of these measures and the great intensification of efforts, the 2d Air Army had achieved an equilibrium of forces in the air by the end of the day and had considerably reduced the effectiveness of enemy air operations.

There were a great many aircraft from both sides over the battlefield until darkness fell, due to the continuous air combat. During the day the 2d Air Army's aircraft fought 81 group air battles in the 6th Guards Army's sector, during which it shot down 154 enemy aircraft and lost 83 of its own. In addition to the irrevocable losses, both sides had a large number of aircraft put out of action (more than 50 in the 2d Air Army). The enormous enemy aircraft losses were eloquently confirmed by the sharp reduction in intensity of his air operations during subsequent days. Thus, for example, on 6 July the number of enemy sorties decreased by 55 percent.

Aircraft from the 17th Air Army were operating in the 7th Guards Army's sector, where the enemy delivered a secondary attack in the Solomino and Bezliudovka sector (10—25 kilometers southeast of Belgorod). The air situation here was less intense. During the day 18 air battles were fought during which 19 enemy aircraft were shot down.

Thus the first day of the offensive was characterized by the extreme intensity of the struggle for air superiority. Our fighter aviation conducted 1,172 sorties, fought 99 group air battles, and shot down 173 enemy airplanes, of which 88 were fighters and 85 were bombers and reconnaissance aircraft.

The main efforts of our assault and bomber aviation aircraft were directed at the destruction of the enemy tank grouping in the Zybino, Moshchenoe, Tomarovka, and Streletskoe region, which was attempting to penetrate the defense in the 6th Guards Army's sector, and also to prevent enemy forces from crossing the Northern Donets River in the 7th Guards Army's sector in the Solomino and Bezliudovka region. While striving to strike a large number of targets, the 2d Air Army's bombers and assault aircraft operated in small groups (six to eight each), which led to a dissipation of efforts over a large area and reduced the effectiveness of the strikes. Furthermore, if one takes into account the much reduced level of air activity by assault aircraft and bombers (during the day, the 2d Air Army flew a total of only 322 sorties), then one must acknowledge that our bomber and assault aviation

did not exert a significant influence on the course of ground forces' combat during the first day of the operation. The 17th Air Army, whose assault aircraft flew 152 sorties in the 7th Guards Army's sector and upon being called by ground forces command provided crucial assistance to our forces, was considerably more effective.

Subsequent days of the operation were characterized by a reduction in air activity on the part of both sides. Table 27 shows the sorties and flights over Soviet territory by enemy aircraft from 5 through 18 July.

TABLE 27: AIR SORTIES OVER SOVIET TERRITORY BY ENEMY AIRCRAFT (5-18 JULY)

	Our Aviation							*Enemy*	
	2d Air		*17th Air*			*Total*			
Date	*Army*		*Army*						
	Day	*Night*	*Day*	*Night*	*LRA*	*Day*	*Night*	*Day*	*Night*
5.07	**1,274**	**48**	**446**	**123**	–	**1,720**	**171**	**1,947**	**11**
6.07	**820**	**72**	**458**	**197**	**85**	**1,278**	**354**	**873**	**26**
7.07	**847**	**83**	**689**	**192**	**163**	**1,536**	**438**	**829**	**15**
8.07	**957**	**96**	**228**	**174**	**275**	**1,185**	**545**	**692**	**25**
9.07	**658**	**60**	**187**	**183**	**161**	**845**	**404**	**1,577.**	**28**
10.07	**455**	**69**	**71**	**149**	**231**	**526**	**449**	**1,105**	**17**
11.07	**539**	**57**	**56**	**183**	**45**	**595**	**285**	**528**	**21**
12.07	**759**	**109**	**134**	**164**	_	**893**	**273**	**530**	**8**
13.07	**659**	**156**	**118**	**151**	**112**	*111*	**419**	**271**	**35**
14.07	**865**	**200**	**168**	**114**	**144**	**1,033**	**458**	**1,195**	**43**
15.07	**328**	**151**	**35**	**146**	**193**	**363**	**490**	**261**	–
16.07	**723**	**219**	**203**	**143**	**112**	**926**	**474**	**403**	**7**
17.07	**484**	**135**	–	.	.	**484**	**135**	**140**	**22**
18.07	**436**	**199**	.	.	.	**436**	**199**	**55**	**17**
Totals	**9,804**	**1,654**	**2,793**	**1,919**	**1,521**	**12,597**	**5,094**	**10,406**	**275**

Note: **LRA = Long-range Aviation**

It is evident from Table 27 that during the battle the intensity of air operations was not uniform. While a sharp reduction in enemy air activity was observed after the first day of the offensive, this increased sharply on 9, 10, and 14 July. On these days the fighting of the ground forces which aviation was supporting also attained maximum intensity.

Based on this information about the number of enemy sorties by the day of operation, one may conclude that on the days when the ground forces were resolving their most important missions enemy aviation operated at maximum intensity, whereas on subsequent days it reduced its intensity by 60—70 percent.

The intensification of operational activity on days of intense ground fight-

ing was characteristic not only of enemy aviation. This principle of employing aviation in ground force operations was also reflected in our air operations, although it was less clearly expressed than with the enemy. Operations by the 2d Air Army on 8, 12, and 14 July, when the most important missions were being resolved on the ground, bore witness to this fact. On 8 July a counterstroke was carried out by two tank corps from the region south of Prokhorovka to cut part of the enemy force off from the Oboian' axis; on 12 July the 5th Guards Army and 5th Guards Tank Army undertook a more powerful counterstroke, which ended with a fierce tank battle southwest of Prokhorovka, and on 14 July our efforts were directed toward thwarting German attempts to encircle the 69th Army's right-flank forces.

Table 27 shows that the intensity of air operations was almost identical for both sides during the daytime. This resulted in a fierce battle for air superiority, especially during the initial period of the battle. Both sides threw all their forces and weapons into battle to gain air superiority over the battlefield along the enemy's main attack axis. To this end, on the morning of 6 July, the 2d Air Army command employed all 4th Fighter Aviation Corps' formations to cover the ground forces on the battlefield, having freed them from bomber accompaniment, while on 6—7 July the enemy rebased a number of his units from the Kramatorsk, Barvenkovo, and Stalino airfields to Khar'kov air center airfields.

The intense air struggle continued until 9 July. During this period the 2d Air Army's fighter aviation (4th and 5th Fighter Aviation Corps) provided cover for ground forces operating along the Belgorod—Oboian' highway and for formations which delivered the counterstroke from the Prokhorovka axis by continuously patrolling in the Dragunskaia, Ternovka, Teterevino, Prokhorovka, Kochetovka, and Verkhopen'e region. The data in Table 28 attest to the intensity of the air struggle along the enemy's main attack axis.

TABLE 28: THE AIR STRUGGLE ALONG THE ENEMY'S MAIN AXIS

Date	*Air Battles*	*Enemy Losses*			*2d Air Army Losses*			
		Fighter	*Bomber*	*Total*	*Fighter*	*Bomber*	*Assault*	*Total*
5.7	81	71	83	154	36	15	27	78
6.7	64	40	65	105	23	_	22	45
7.7	74	44	78	122	24	_	13	37
8.7	65	54	52	106	24	1	16	41
9.7	62	49	22	71	16	1	15	32
10-14.7	152	112	93	205	49	14	75	138
15-18.7	43	45	27	72	(10-18.7)	(10-18.7)	(10—18.7)	(10—18.7)
Totals	541	415	420	835	172	31	168	371

As is evident from Table 28, during the first five days of the combat alone,

366 group air battles were fought, during which 548 enemy aircraft were shot down (including 258 fighters), while 259 of our own aircraft were lost. On these days the enemy suffered heavy air losses; thus a German pilot prisoner from the 52d 'Hunter' Fighter Squadron, Senior Lieutenant Lutz, indicated that this squadron, which consisted of 100 aircraft and had been transferred from Anapa, lost 15-17 aircraft from each group from 5-7 July alone, comprising around 60 percent of the entire squadron.

The heavy losses of equipment and flight crews could not help but have a telling effect on the combat capability of the enemy's aviation. If during the first days of the operation, small enemy fighter groups engaged in combat with larger groups of our fighters, then, beginning on 8—9 July, they began to engage in combat only when their forces were clearly superior.

It should be noted that during the first three days of the operation, bombers comprised the larger part of enemy losses, while subsequently until the end of the operation he lost more fighters. This is explained by the change in tactical procedures in enemy air operations on the battlefield. During the first three days enemy fighters attempted to keep our aviation from the battlefield by means of active operations over our territory, thereby supporting the combat operations of their own bombers and also preventing air strikes against their own forces. This procedure, however, justified itself only during the first half of the day on 5 July. Subsequently, his fighters were unable to render substantive opposition to our fighters and, in fact, succeeded only in engaging individual patrols in battle, while our main fighter force was successfully fighting enemy bombers, often forcing them to drop their bombs indiscriminately.

In order to protect their bomber operations, on 8 July the enemy adopted the tactic of escorting them with strong fighter patrols.

On the whole, although our aviation fought successfully against enemy aviation, nevertheless it still did not have air superiority over the enemy's main attack axis - along the Belgorod-Oboian' Highway — until 10 July. Enemy aviation not only offered strong opposition to our assault aircraft, it also gained superiority over the battlefield relatively easily during the period necessary for his bomber operations.

German aviation offered serious resistance along the Korocha axis (where the 17th Air Army was operating) only during the first three days of the operation, when 55 air battles were fought and 70 enemy aircraft were shot down (including 57 fighters). Subsequently, owing to the enemy's concentration of the effort of his entire aviation on the Oboian' axis, 17th Air Army carried out its work with only weak enemy air opposition.

Enemy air activity sharply decreased along the entire front when on 11 July he assumed the defense along the Oboian' axis. Although enemy air resistance was still quite strong, from this time on our aviation had superiority. From 11 July until the end of the operation the strongest enemy air

opposition occurred from 11 through 14 July along the Prokhorovka axis, which at this time was his main attack axis. Frequent group air battles, in which enemy aviation suffered heavy losses, took place here every day, and on 14 July alone 68 enemy aircraft (40 fighters) were shot down in 44 battles.

Our air superiority during the second half of the defensive battle was achieved as a result of intense work by fighters and an enormous number of sorties. While flying a large number of sorties, our fighter aviation was engaged during the operation exclusively with covering the ground forces and accompanying assault aircraft and bombers. In other words, it fulfilled the mission of protecting the forces and other types of aviation from attacks by enemy aviation. The use of a large number of fighters to cover forces did, however, eliminate the possibility of extensively employing assault and bomber aviation for strikes against enemy forces. This may be seen from the data in Table 29.

TABLE 29: DISTRIBUTION OF AIRCRAFT SORTIES BY TYPE

			Bombers				% of Fighter Operations	
				Night				
Date	*Fighters*	*Assault Aircraft*	*Day*	*Total*	*Long-range*	*Total*	*Total*	*Day*
5-10.7	**4,657**	**2,119**	**314**	**2,361**	**915**	**9,451**	**49**	**65**
11-14.7	**2,104**	**878**	**316**	**1,435**	**301**	**4,733**	**[44]**	**64**
15-18.7	**1,277**	**598**	**334**	**1,298**	**305**	**3,507**	**36**	**58**
Totals	**8,038**	**[3,595]**	**964**	**5,094**	**1,521**	**17,691**	**45**	**64**

Note: **corrected figures appear in square brackets.**

Table 29 shows that almost half the sorties which were carried out by all types of aircraft in the front's sector were flown by fighters, and of all the daytime sorties the absolute majority were flown by fighters. Assault aircraft and day-bomber activity during the operation was low (25 percent of the total number of sorties). Because of this the 2d Air Army's bomber and even assault aviation combat operations were not at full intensity during the first day of the operation, and from 6 through 12 July the 1st Bomber Aviation Corps conducted almost no attacks at all.

During the first period of the operation, when the enemy was delivering his main attack along the Belgorod-Oboian' highway (5-10 July), assault aircraft flew 300-400 sorties daily, of which as many as one-third were against the secondary axis in the 7th Guards Army's sector. Operations along the enemy's main attack axis were directed against the Kochetovka, Verkhopen'e, Gertsevka, Streletskoe, Teterevino, and Greznoe regions, that is, directly on the battlefield. It should be noted that during the first days of the operation assault aircraft operated in small groups (6-8), and the

small number of sorties were spread out over a large front. Thus on 6 July the 2d Air Army's assault aircraft flew 237 sorties against enemy forces and equipment in the Vasil'evka, Gertsevka, Streletskoe, and Koz'mo-Dem'ianovka region, that is, on a front of more than 30 kilometers and, in addition, destroyed the Northern Donets River crossings south of Belgorod. It is completely understandable that such activity had only a small effect on the enemy and, as a result, the assistance provided to ground forces was insignificant.

These assault aircraft tactics changed during the battle. On the third day assault aircraft had already begun to operate in groups of 30-40 in a narrow front sector. The effectiveness of assault aircraft operations increased and their losses decreased with this change in tactics.

During the period when the enemy shifted his main attack to the Prokhorovka axis (11-15 July), the intensity of the 2d Air Army's assault aircraft operations decreased. However, thanks to the renewal of the 1st Bomber Aviation Corps' activities, pressure against enemy forces was maintained. The main regions of air operations were Malye Maiaki, Verkhopen'e, Iakovlevo, Teterevino, Novoe Oskochnoe, Verkhnii Ol'shanets, Melekhovo, and Kazach'e.

The 17th Air Army exerted more or less strong resistance along the enemy's secondary offensive axis only during the first three days of the operation by flying 200 sorties daily. On subsequent days the number of sorties did not exceed 75. The chief objectives of these air operations were the Northern Donets River crossings in the Mikhailovka and Bezliudovka sector and enemy forces in the Iastrebovo, Krutoi Log, Razumnoe and Novoe Oskochnoe, Verkhnii Ol'shanets, Melekhovo, Kazach'e regions.

Assault aviation and bomber operations against enemy forces and combat weapons during the day were supplemented by night operations by the air armies' light aviation and long-range aviation. It should be mentioned that the intensity of air operations at night was higher than that during the day both with respect to the number of sorties and the number of bombs dropped. Throughout the duration of the entire operation enemy forces operating in active front sectors were subjected every night to continuous air activity. Taking into account the short summer nights, this activity was very strong. On some nights as many as 550 sorties were flown, around 50 percent of which were made by long-range aviation with large load capacities (Il-4s), which dropped more than 400 tons of bombs per night.

Long-range aviation was mostly employed against the enemy's main attack axis. Thus of 1,521 sorties which were flown during the entire defensive battle in the Voronezh Front's sector, 1,231 were along the Oboian' axis.

AIR OPERATIONS DURING THE DEFENSIVE BATTLE: THE OREL-KURSK AXIS

Air combat operations in the Central Front were no less intense than in the Voronezh Front. During the first days of the offensive the enemy concentrated somewhat more of his aviation here even than on the Belgorod—Kursk axis. Thus daily from 5 through 8 July 250-350 more enemy aircraft were observed in the Central Front than on the Belgorod—Kursk axis.

To imagine the intensity of the air situation, it is necessary to keep in mind that during the entire operation the air activity of both sides was concentrated in a single front sector extending 35-40 kilometers, rather than in two sectors, as was the case in the Voronezh Front. Large numbers of aircraft were continuously on the battlefield in this narrow front sector, and as a result intense air combat almost never ceased along the entire front from dawn until darkness fell.

Active air combat operations commenced at 0425 hours on 5 July and at this time the first enemy air raids were conducted against our artillery firing positions, centers of resistance, and infantry and tank combat formations in the Maloarkhangel'sk Station region. More than 150 bombers took part in the raid under the protective cover of 50-60 fighters. At the beginning of the attack a large number of these aircraft, having broken up into groups of 4—6, flew forward 10—15 kilometers and created a screen to intercept our aircraft, which were approaching the battlefield.

Subsequently, every 10-15 minutes after the enemy bombers left the battlefield a new group of aircraft arrived and subjected our first-line defensive forces to attack. On 5 July during the period from 0425 to 1100 hours alone as many as 1,000 enemy sorties were recorded, of which around 800 were flown by bombers.

When the enemy aviation appeared over the battlefield the 16th Air Army's fighter formations (the 6th Fighter Aviation Corps and 2d Guards Fighter Aviation Division), which had received orders to combat enemy aircraft as they appeared over our territory, commenced their combat operations. During this initial period of the defensive operation, however, our air operations had an episodic rather than a planned character. From the very beginning of the enemy offensive, the developed plan for the combat employment of aviation and also the timetable for flights in air formations were not put into action, and therefore combat operations were conducted primarily by fighters to repel enemy air raids. This explains the low intensity of the 16th Air Army's combat operations during the first half of the day. While there were more than 1,000 aircraft in working order, only 520 sorties were flown before 1200 hours on 5 July.

The plan for the combat employment of the 16th Air Army's aviation was

put into effect at 0930 hours on 5 July, and at that time our intensive air combat operations began.

Having repelled the enemy air strikes, fighters of the 6th Fighter Aviation Corps and the 2d Guards Fighter Aviation Division shifted to providing immediate cover for ground forces by having 30 aircraft continuously on patrol. In accordance with earlier developed timetables for combat sorties, the fighters were to cover forces immediately on the battlefield and, to strengthen forces already in the air, the fighter formations were to have 16 crews at airfields in readiness to take off immediately upon receipt of orders. In reality, this was not done. As a rule, while flying patrol in general formation along the approaches to the battlefield, our fighters encountered small groups of enemy fighters which were operating as screens and engaged them in air battles.

In a majority of cases the timely strengthening of forces in the air did not succeed due to poor notification about the air situation and, above all, due to the lack of on-call fighters at airfields. Sixteen fighters ready for immediate take-off were clearly inadequate in such an intensive air situation. During the first half of the day on-call fighter subunits were usually expended immediately after they were allocated and, during the second half of the day because of heavy fighter losses, they were generally not allocated at all.

Thus, during the first day of the operation, our aviation fought mainly against enemy fighters along the approaches to the battlefield in the Maloarkhangel'sk, Podolian', Ol'khovatka, and Berezovets region, and opposition by enemy bombers operating against our forces on the battlefield was weak. This is clearly reflected in the results of air combat; during the first day of the operation, 106 enemy aircraft, of which 72 were fighters and only 34 were bombers, were shot down in 76 air battles.

While operating in groups of 8-15 aircraft, assault and bomber aviation destroyed advancing enemy forces and equipment on the battlefield in the Vasil'evka, Sen'kovo, Verkhnee Tagino, Ozerki, and Arkhangel'skoe regions. It should be mentioned that the intensity of activity by assault and bomber aviation was inadequate. Thus assault aircraft flew 225 sorties, which was equivalent to less than one flight for each operable aircraft, and bombers flew only 105 sorties, that is, less than half a sortie per aircraft. Just as was the case in the Voronezh Front, this low intensity of assault aviation operations was explained by the absence of fighter escorts.

On the following day of battle the air situation was also extremely tense. Despite numerical superiority in aircraft, our fighters were unable to paralyze enemy aviation activity. It is true that on that day, thanks to intensive work, our assault aircraft reached the battlefield and began to struggle successfully against the enemy bombers. This caused an intensification of enemy fighter activity, and as a result air battles took on a fiercer character than on 5 July.

On 6 July 92 battles were fought in which 113 enemy aircraft were shot down and 90 of our own planes were lost. To maintain air superiority the enemy was forced not only to make the maximum effort with his fighter aviation but also to transfer fresh units to the Orel axis from other front sectors. On the basis of statements by captured pilots, it was established that on 6 July the 54th Fighter Squadron's 1st Group was transferred from Krasnogvardeisk to Pan'kovo airfield and immediately committed to battle.

Although the enemy fighters lost the air superiority they had gained on the first day of the battle, they still managed to support their bombers' combat operations. This was achieved by the dispatch of 20-40 fighters to the region where bombers were operating several minutes before the beginning of the bomber attack. These fighters not only pinned down our patrolling fighters, but they also achieved [temporary] air superiority.

On 7 July the air situation abruptly changed. By this time the radio air combat guidance and control service had been put into order and tactical procedures for fighters patrolling over our troop dispositions had changed. There was a shift from patrolling in large groups at one altitude and in a general formation to simultaneous patrolling in one region by several small, cooperating fighter groups (*4—6* aircraft), echeloned with respect to altitude. Furthermore, squadron and regimental commanders were designated as group leaders, and the practice was introduced of summoning on-call subunits from airfields to reinforce patrolling fighters when large groups of enemy aircraft appeared on the battlefield. Thanks to these measures, the maneuverability of patrolling groups increased significantly, and the control of fighters in the air improved, as did cooperation among them. This was quickly reflected in the fighters' execution of the order to gain air superiority over the battlefield. On 7 July our fighters had already reached the battlefield and commenced their successful fight, not against the fighter screens but more directly against enemy bombers, which forced enemy aviation to increase its altitude to 4,000 meters and to bomb our forces while in flight with [only] one pass.

It should be noted that these measures helped our fighters not only to paralyze German air operations but also to increase enemy losses significantly and to reduce our own. This is clearly evident from the results of air battles during the first four days of the operation, as shown in Table 30.

TABLE 30: AIR BATTLES, 5-8 JULY

Day of Operation	*Air Battles*	*Destroyed Enemy Aircraft*	*Our Losses*	*Average Losses of Aircraft per Air Battle*	
				Enemy	*Ours*
5-6.7	**168**	**219**	188	**1.3**	1.12
7-8.7	**125**	**185**	**87**	**1.5**	**0.70**

Thus, beginning on 7 July and until the end of the operation, our aviation maintained air superiority, which favorably affected the development of assault aviation and bomber combat operations.

The intensity of air operations on both sides for the period of 5 through 12 July 1943 is shown in Table 31.

TABLE 31: AIR OPERATIONS ON BOTH SIDES, 5-12 JULY

	Our Aviation						*Enemy Aviation*	
			Bomber					
Date	*Fighter*	**Assault**	*Day*	*Night*	*Total*	*LRA*	*Total*	*Night*
5.7	**817**	**225**	**105**	**102**	**1,249**	**17**	**2,257**	**24**
6.7	**779**	**225**	**122**	**469**	**1,595**	**269**	**1,162**	**32**
7.7	**731**	**219**	**235**	**422**	**1,607**	**210**	**1,203**	**41**
8.7	**613**	*130*	**170**	*342*	**1,255**	**169**	**933**	**58**
9.7	**448**	**152**	**175**	**181**	**956**	**36**	**350**	**16**
10.7	**419**	**79**	**173**	**250**	**921**	**77**	**955**	**5**
11.7	**218**	**80**	**3**	**176**	**477**	-	**680**	н
12.7	**25**	**71**	1	**236**	**[333]**	.	**72**	**7**
Total	**4,050**	**[1,181]**	**[984]**	**2,178**	**[8,393]**	**778**	**7,612**	**194**

Note\ **Corrected figures appear in square brackets.**

From Table 31 it is clear that, despite losses during the first days of the operation, the intensity of our assault and bomber aviation operations not only did not fall with the gaining of air superiority but, on certain days, even grew. As along the Belgorod axis, however, the relative weight of the *activity* of assault and bomber aviation during this period was not great (26 percent). For the eight days of the operation, each serviceable assault aircraft flew an average of six sorties, and bombers flew an average of four.

The objectives of assault and bomber pressure throughout the entire operation were the enemy forces which were attacking on the battlefield in the Tagino, Gnilets, Samodurovka, Snova, Ponyri 1, and Protasovo 2 regions. Depending on the operational situation and the importance of the targets, assault aircraft and bombers employed different operational procedures. They either attacked frequently in small groups or a large number of aircraft delivered powerful strikes simultaneously. Thus, while repelling a 6 July tank attack against the 13th Army's left flank, more than 200 aircraft were thrown simultaneously into a small front sector.

Ground forces highly valued the work of aviation on the battlefield. In a number of instances enemy attacks were thwarted thanks to our air operations. Thus on 7 July enemy tank attacks were disrupted in the Kashara region (13th Army). Here our assault aircraft delivered three powerful attacks in groups of 20-30, which resulted in the destruction and disabling of 34 tanks. The enemy was forced to halt further attacks and to withdraw the remnants of his force north of Kashara.

Assault aviation and bomber operations against enemy forces during the day were supplemented by intense night attacks. During the intense battles on the ground the 16th Army's night bombers and long-range aircraft flew more than 400 sorties each night, while light aviation operated against enemy forces on the battlefield and long-range bombers operated chiefly against force concentrations in the Novopolevo and Glazunovka regions and against the Briansk, Orel, and Karachev railroad stations.

Aviation played an important role in our forces' fierce struggle to hold on to the Kursk bulge, which included not only direct actions against enemy combat equipment and personnel but, above all, the creation of necessary conditions for ground force operations, that is, protecting the ground forces against enemy air strikes.

The Germans, who had repeatedly and successfully employed aviation as a first echelon which had paved the way for their tank groups, were preparing to exploit this very procedure this time as well. Together with a large number of powerful 'Tiger' tanks and 'Ferdinand' self-propelled guns, they prepared air strikes more powerful than in past operations. According to statements by officers who were captured before the operation, placing great faith in their aviation, the Germans did not doubt the superiority of their aircraft in the air.

However, the enemy reliance on effective aviation assistance for their attacking forces was not justified. To a considerable degree during the first days of the operation our aviation had already paralyzed German air operations and, subsequently, proved to be master of the skies. Even during the first day of the German offensive, when air superiority was in the enemy's hands, he was unable to take full advantage of his might because of the strong resistance from our fighters. The 175 group air battles conducted by our aviation during the first day of the battle attest to this resistance; 279 enemy aircraft were shot down during these battles, which is equivalent to one plane shot down for every 15 enemy sorties.

In spite of being locked in sustained combat with enemy fighters along the approaches to the battlefield, a considerable portion of our fighter aviation nevertheless penetrated to the forward edge of the defense and successfully fought enemy bombers attacking our ground forces. During the first day of combat 118 planes were shot down, that is, around 10 percent of the enemy's entire bomber fleet. Our fighter attacks, which were accompanied by heavy enemy losses, reduced the effectiveness of German bomber operations against our forces. Several times during the day enemy bombers, under pressure from our fighter attacks, hurriedly dropped their bombs outside the target area and left the battlefield.

Thus, beginning with the first days of the operation, our fighters put up such resistance to enemy bomber aircraft that the latter were unable to sup-

press our defensive fire weapons. This made it possible for our ground forces to use the power of their fire effectively to destroy the advancing enemy and above all his tanks.

As has been already pointed out, the main efforts of assault and bomber aviation were directed toward destroying the advancing enemy's strike force, that is, his tanks, motorized infantry, and self-propelled artillery. Although assault aircraft and day bombers were not fully used during the operation, particularly during its first days, nevertheless they were of great assistance to the ground forces in exhausting and routing powerful enemy tank and mechanized groups.

According to the judgment of our forces and statements from German prisoners, our air operations against ground forces inflicted heavy losses on the enemy. Assault aircraft armed with hollow-charge bombs (which had just become part of their armament, the antitank bombs weighing 1.5 kilograms) were particularly effective. As experience demonstrated when they struck tanks, these bombs penetrated armor and caused fires. Assault aircraft, each carrying 200 such bombs, were a powerful asset in the struggle against enemy tanks, not only when concentrated in columns but also where combat formations were dispersed. In individual instances small assault groups destroyed 15-20 enemy tanks each in a single sortie. Thus on 8 July six Il-2s attacked enemy tank concentrations in the Iakovlevo region. Antitank bombs were dropped in two passes from an altitude of 600-800 meters, and then missiles and machine-guns were fired from lower altitudes. According to observations by our air crews, as many as 15 enemy tanks caught fire, and there were four powerful explosions resulting from the attack.

During the Kursk defensive battle our aviation inflicted aircraft losses on the enemy from which he was unable to recover during the entire summer campaign. According to information from the air armies, from 5 through 18 July 1943 1,022 air battles were fought, during which around 1,400 enemy aircraft were destroyed or damaged.

SOME QUESTIONS CONCERNING THE COMBAT EMPLOYMENT OF AVIATION

The struggle for air superiority

The struggle for air superiority occupied a central place in the work of our day aviation throughout the entire operation. This is clearly reflected in Table 32.

Despite the fact that 60 percent of all aviation effort was directed at the struggle for air superiority, this mission was resolved along the Orel axis only on 7-8 July and along the Belgorod axis on 11 July. Up to this time, despite our aviation's numerical superiority, we did not have air superiority.

During the entire air operation the struggle for superiority by both sides

TABLE 32: DAY SORTIES BY AIR ARMY

	Air Armies			
	2d	*17 th*	*16th*	*Total*
Day sorties	**9,804**	**2,808**	**6,151**	**18,763**
of which				
for troop cover	**3,683**	**165**	**1,800**	**5,648**
to accompany assault aircraft and bombers	**2,226**	**1,216**	**2,057**	**5,499**
to attack airfields	**85**	**70**	.	**155**
to achieve air superiority				
sorties	**5,994**	**1,451**	**3,857**	**11,302**
percentage	**61**	**52**	**62**	**60**

was conducted exclusively by means of battles by fighter aviation over the battlefield. Important combat methods such as operating against and blockading airfields were not employed at all. While employing the same means in conducting the struggle for air superiority, the two sides used completely different procedures in resolving this struggle.

As the basis of its fight for superiority, enemy fighter aviation attempted to tie down our aviation on the approaches to the battlefield by active operations, thereby supporting the combat operations of its bombers and ground forces. To achieve this aim strong fighter groups were dispatched to the battlefield before its ground forces' most intense combat began and also several minutes before its bombers attacked. Having first cleared the necessary region of our fighters, small groups of its fighters then advanced 10-15 kilometers and intercepted our aircraft on the approaches to the battlefield. During the remaining time only small groups of 'hunter' aircraft were sent to fight our assault aircraft and bombers on the latter's probable flight paths. While in the air the fighter groups had reliable radio communications with their airfields, which were used extensively to strengthen his forces in the air. At the beginning of the operation the enemy rarely used procedures such as patrolling over his troop dispositions or direct escort of his bombers. However, when his aviation lost the initiative he had to resort to escorting his bombers.

While conducting the struggle for air superiority over the battlefield, our fighter aviation pursued two goals: to prevent enemy aircraft from reaching their objectives and to protect our assault aviation and bomber operations. In this regard, our fighter operations were aimed at protecting the ground forces by continually patrolling above the battlefield and by escorting assault aircraft and bombers direct, that is, essentially carrying out passive missions. While protecting operations by our forces and aircraft, our fighters were, in fact, tied to the objectives they were covering and, as a result, their efforts were dispersed. Therefore, although our fighters usually outnumbered enemy fighters in the skies, the latter achieved superiority for

the necessary period of time by concentrating their efforts in a single, small, front sector.

Despite the fact that the operational combat procedures used by our fighters reduced the effectiveness of our struggle for air superiority, they were not the sole reason that prevented us from exploiting our numerical superiority during the initial days of the operation. At the beginning of the battle the enemy succeeded in maintaining his air superiority, because on 5 July his aviation was still operating intensively. Moreover, the weak organization of the control of our fighters in the air by our aviation corps and division commanders was significant.

The main deficiency in the control of fighter aviation was that ground radio control of fighters over the battlefield had not been organized by the time combat operations began. Radio guidance and control stations had been allocated, but during the first days of the operation it was discovered that they were unsuitable when attempts were made to effect control from them. During this period of intense air combat fighters were controlled from the command posts of aviation formation commanders, which were located 50-60 kilometers from the battlefield. These commanders had to make decisions on strengthening forces in the air without personally observing the air situation or the operations by their pilots but rather on the basis of reports transmitted by radio from pilots in combat and from ground force command posts. Given the existence of a great many reports, it was difficult to assess the situation correctly, and decisions were not always appropriate.

In the conditions of intense air combat, personal participation in combat by aviation formation commanders or their deputies to control the fighters by radio would have been of great assistance to the pilots and their commanders. While being guided by their instructions, it would have been easy to avoid a number of blatant errors made by our fighters during combat. The most frequent and blatant error, easily eliminated from the ground, was that while operating in large groups (12-18 aircraft), our fighters willingly engaged in battle against small groups of enemy aircraft, thereby tying themselves down in battle and sometimes leaving their patrol areas.

During the subsequent days of the operation, a procedure was established for the functioning of radio guidance stations and fighter division commanders were sent there daily. Nevertheless, control of fighters from the ground remained weak until the end of the operation. One of the reasons for the poor work of the radio stations was that the elementary rules of radio exchange were not followed in the light of the large number of stations operating on a single frequency. As a rule, transmitters were turned on without the fact that the frequency was occupied being taken into consideration, and, as a result, two and sometimes even more radio stations were often operating simultaneously. There were instances when the frequency was occupied by the transmission of information which was not directly related

to guidance issues (such as weather reports and reports on air operations) and which could have been transmitted on another frequency. All these resulted in our having a significant number of flight personnel with their radio receivers deliberately turned off during flight.

Besides the deficiencies in the organization of control over fighters, during the operation there were instances of weak flight crew training in surveillance during flight. Thus on 6 July 1943, 12 La-5s were patrolling in the Iakovlevo region (Belgorod axis), while at the same time 2-3 kilometers away, 18 Ju-88s were bombing our forces on the Belgorod-Oboian' highway. It must be said that, as a result of inattentive and sometimes negligent attitudes on the part of crews toward air surveillance, fighters not only did not carry out their missions but also suffered significant losses. Thus on 5 July, while protecting the flight of four Pe-2 bombers in the Korocha region, four Iak-ls [Yak or Yakolev] encountered two Me-109s. Feeling their advantage in strength, the pilots reduced their air surveillance. The enemy fighters took advantage of this and in one attack shot down two bombers and one fighter. On 8 July, eight Iak-ls in the Provorot' region noticed two Me-109s off their flight path. Paying no attention to the enemy aircraft, our fighters continued their own flight. Seizing a convenient moment, the German fighters attacked our aircraft and shot down three Iak-ls.

Deficiencies in organizing the struggle for air superiority led to the fact that our fighters expended considerably greater effort in carrying out this mission than did the enemy. Thus, according to data from the Central Front's Air Defense Headquarters, from 5 through 12 July 2,071 enemy sorties were recorded along the Orel-Kursk axis, while our fighters flew 4,050 sorties during this time.

The operational employment of aviation

A characteristic feature of the employment of aviation in this operation was that, despite the enormous number of aircraft which participated in it, both sides refrained from attacks against rear-area objectives. Important objectives such as railroad trains, large troop concentrations and airfields were hardly subjected to air attack either during the preparation for or the conduct of the operation. During the preparatory period this was explained by both sides' desire to conceal their readiness for the operation and to economize their forces so that when active operations began these forces could be provided with the greatest assistance from the air.

Despite our aviation's prolonged preparation for combat operations, during the first day of the operation it was not adequately employed. Although planning envisioned the decisive commitment of the main mass of aircraft to combat at the beginning of the German offensive, this did not actually happen.

At dawn on 5 July, instead of conducting a powerful counter-aviation preparation along the Belgorod axis, the 2d and 17th Air Armies delivered strikes against enemy airfields. An attack against the airfields before the commencement of the enemy offensive undoubtedly made sense but this should have been done taking into account that the aircraft had to be ready to act against enemy forces at they moment they shifted to the offensive. In this situation it would have been expedient to attack enemy airfields on 4 July, before darkness fell. This would have ensured more effective operations against the airfields and, furthermore, would have made it possible at dawn on 5 July to fully exploit all aviation on the battlefield. As a result, the correlation of forces on the ground and in the air at the beginning of the German offensive could have abruptly changed in our favor.

Along the Orel axis the 16th Air Army committed its forces into battle very indecisively. Not only did it not participate in the counterpreparation but, at the beginning of the German offensive, it was limited only to fighter sorties to repel enemy aircraft. In fact, intensive operations by all types of aircraft began at 0930 hours on 5 July, that is, after the implementation of the plan for the combat employment of aviation. This explains the insignificant activity of the 16th Air Army's combat operations during the first day of the operation.

The main reason for the feeble activity on the part of our aviation before and at the beginning of the enemy offensive was that the air command was not completely sure that the enemy would launch the offensive on the morning of 5 July. This explains the fear, observed at the beginning of the operation, of a premature expenditure of forces, which led to the 17th and 2d Air Armies' operations against the airfields, to the 16th Air Army's indecisive commitment of its aviation to combat, and to the extraordinarily weak activity of all air armies on the night of 5 July.

Both sides' renunciation of attacks against rear-area objectives during the

TABLE 33: DISTRIBUTION OF AIRCRAFT SORTIES BY MISSION AND TIME

	Sorties					*Of These*	
	Force						
Missions	*2d AA*	*17th AA*	*16th AA*	*LRA*	*Total*	*Day*	*Night*
Attacking ground forces	**5,042**	**2,962**	**3,453**	**2,082**	**13,539**	**6,484**	**7,055**
Air superiority	**5,994**	**1,451**	**3,857**	**78**	**11,380**	**11,302**	**78**
Attacks on enemy rail transport	.	.	.	**139**	**139**	.	**139**
Recce	**422**	**298**	**241**	.	**961**	**961**	.
Totals	**11,458**	**[4,711]**	**7,551**	**2,299**	**26,019**	**18,747**	**7,272**

Note: **corrected figure in square brackets.**

operation is explained by the concentration of maximum air efforts on the battlefield. This is confirmed by the data in Table 33.

As already pointed out, during the operation and especially at its beginning our assault aircraft and day bombers were used insufficiently. They flew fewer than 25 percent of the sorties, despite the fact that they constituted more than 50 percent of the air fleet. There were instances when operations by assault and especially by bomber formations were limited during the intense ground battles; sometimes there were no air operations at all.

The weakest intensity in assault aviation and bomber combat operations was observed at the beginning of the operation. This was explained by the absence of fighter escorts, since these were occupied with protecting the ground forces. It should be noted that, given our superiority over the enemy in the number of fighters, they should have been able to provide reliable protection for ground force operations and also for assault aviation and bomber aircraft. However, this was not accomplished during the initial days of the operations only because there were serious deficiencies in fighter operations.

One of the main deficiencies in fighter operations was that fighters employed passive methods for fighting enemy aircraft (immediate cover and escort). As a rule, large groups of fighters (18-30) sent out to protect ground forces on the battlefield were bound to specific objectives which were often situated behind the front line and they could not fulfill any other missions. In reality, they could have carried out such missions as clearing the air of enemy aircraft in front of or on the flanks of the patrol region before the arrival of our assault aircraft and bombers to attack enemy forces, accompanying assault aircraft and bombers to their targets during pursuit in the patrol region, etc. without prejudice to their protection of ground forces. It is perfectly understandable that the fulfillment by fighters of such missions while protecting the ground forces would have made it possible to employ assault and bomber aviation more extensively and thus provide greater support to the ground forces in the repulsion of the offensive by enemy motorized and mechanized forces.

The deficiencies in the employment of aviation which were observed at the beginning of and during the operation were gradually ironed out. Thus during the second half of the operation, despite considerable fighter losses and the resulting decrease in our ability to protect assault aircraft and bombers, the intensity of fighter combat activity increased. While the 2d Air Army's assault aircraft and bombers flew 220-240 sorties daily during the period of 6-7 July, after 12 July the number increased to 300-350.

Rather than resulting from a decrease in the demand for fighters to accompany them (itself resulting from a decrease in enemy air resistance), this increase in the intensity of assault aviation and bomber activity resulted from an improvement in the organization of air combat operations. This

manifested itself first and foremost in the transition by fighters to patrolling in small groups echeloned by altitude and in the transition by assault aircraft and bombers to concentrated strikes by large groups (40-100 aircraft) against enemy forces.

At the same time, fighter groups began to be assigned to clear the air of enemy aircraft before their own planes reached the target area (16th Air Army), and assault aircraft and bombers were protected in the target area by fighters patrolling over the battlefield (17th Air Army).

All these measures increased the effectiveness of air operations and somewhat reduced the number of fighters required to accompany assault aircraft and bombers. Nevertheless, the combat intensity of assault aircraft and bombers remained low until the end of the operation, and therefore the entire potential of our assault and bomber aviation was not fully realized.

As the experience of this operation demonstrated, despite the comparatively short time the aircraft were over the target, concentrated strikes by large groups of assault aircraft and bombers had a powerful effect on enemy forces. This is explained by the fact that with such a method of operation crews could function in a calmer atmosphere, since antiaircraft artillery did not usually conduct organized fire when there was strong pressure from the air, and our fighters were usually successful in tying down enemy fighters.

According to ground forces' reports and crew observations, concentrated strikes by large groups of aircraft not only had a powerful effect on enemy forces but also sharply increased the morale of our own forces.

During the operation the main mass of aircraft was employed predominantly along axes of the most active ground force operations. However, maximum concentration of air effort along these axes was still not achieved. Thus during the most intense ground fighting in the Voronezh Front aviation operated along two axes (Oboian' and Korocha), and only by 13 July were the efforts of the 2d and 17th Air Armies concentrated on one region (Kazach'e, Nizhnii Oskochoe, and Verkhnii Ol'shanets). Moreover, on 6 July operations by the 2d Air Army's assault aviation were shifted from the Oboian' axis to the Northern Donets River, south of Belgorod, to destroy river crossings. In other words, operations were shifted from the main ground forces axis to a secondary one.

A key deficiency in air operations was that during the entire operation aviation operated at almost uniform intensity, and in these circumstances the intensity for the fighters was at a maximum every day. Despite the fact that the existing situation on the ground required an increase in the intensity of air operations on specific days, this was not achieved since the fighters, on whose operations the assault aircraft and bombers depended, were unable to increase their number of sorties. Some increase in the number on days of intense fighting was achieved at the cost of assault aircraft and bombers, which led to a lessening of fighter protection for their combat operations.

This, in turn, resulted in heavy losses. Thus as a result of a slight increase in the intensity of the 2d Air Army's assault aviation and bomber operations, losses for the 100-150 sorties on 8 and 12 July increased more than twice.

The control and cooperation of aviation with ground forces

Control of aviation formations in air armies was fulfilled as follows. In the 16th Air Army at the beginning of the German offensive an air representative was sent by the deputy air army commander with an operational group and radio station to the 13th Army's command post. By having a direct link with the 13 th Army commander and radio communications with the headquarters of aviation formations, the air representative personally summoned aircraft forward to the battlefield.

In spite of this sufficiently rapid ability to summon aviation to the battlefield, tactical cooperation with ground forces was not always achieved. There were instances when aircraft were late in attacking or did not attack where the ground forces needed them. Thus on 6 July during the preparation of the 17th Guards Rifle Corps' counterattack the air strike called for by the air representative at the 13th Army's command post coincided neither in time nor place with ground operations. This was explained by the rapid change in the ground situation, which required not only that aviation be swiftly called but also that the time and the place of the attack be refined while the aircraft were approaching the battlefield. The air representative, located on the army command post, was not able to do the latter.

The control of aviation in the 2d Air Army was organized in a considerably worse fashion. Despite the fact that the combat employment plan envisioned the dispatch of air representatives to the ground armies which were operating along the enemy's offensive axes, they were not dispatched at the beginning of the operation. As a result, the control of aviation formations was accomplished from the 2d Air Army's headquarters, that is, isolated from the ground forces. Consequently, air strikes were often late since data concerning the ground situation and air operation targets were transmitted through *front* headquarters, which took considerable time.

On 9—10 July the 2d Air Army deputy commander and deputy chief of staff were sent to the 1st Tank Army and the 5th Guards Tank Army as air representatives. These measures, however, did not improve cooperation between aviation and ground forces, since the role of the air representatives, who did not have communications with aviation formations, boiled down to their preparing reports for the 2d Air Army command concerning the ground and air situation.

Owing to the poor designation by ground forces of the front line, there were a number of instances where aviation operated against its own forces. This operation, as well as a number of previous ones, demonstrated that

during intense combat the battlefield is clouded with smoke and dust for 10—15 kilometers and therefore identification panels cannot be seen from the air. The best means for identifying one's own forces are rockets, which during the final days of the operation were used as the principal means for identifying the forward line.

A major deficiency in the control of aviation was that during the operation air army commanders assigned missions to aviation formations primarily for each flight and even for flights of separate groups of aircraft. With this type of assignment of missions, the commanders of large aviation formations such as corps were essentially removed from command and performed the role of dispatchers. In these conditions not only did corps commanders not have to make decisions about the employment of their aviation formations but they also often did not have time to organize combat flights because of the untimely assignment of missions by air army commanders.

The untimely assignment of missions was a frequent phenomenon in this operation, and often a mission was assigned to aviation formations only a few minutes before they were to begin to carry it out. Thus at 0615 hours on 9 July the 2d Air Army's 1st Assault Aviation Corps received coded combat instructions which assigned the mission to be over the target at 0700 hours. On 10 July this same corps received instructions at 0410 hours that they were to attack at 0530 hours, and on 11 July they received instructions at 0450 hours that they were to attack at 0530 hours. It is perfectly understandable that in all of these cases it was impossible to execute the assigned missions, since there was hardly enough time before delivering the strikes to transmit the instructions to aviation divisions and regiments. It should be noted that delays in transmitting orders to corps and divisions mainly occurred because air armies received missions from *front* headquarters late; missions nearly always reached air army headquarters at 0200-0300 hours, while air operations began at 0430-0500 hours.

GENERAL CONCLUSIONS

1. A characteristic feature of the air situation during the Kursk defensive battle was that our aviation had numerical superiority in aircraft over the enemy during the entire operation. This superiority was achieved thanks to foresight on the part of our High Command.

2. During the preparation for the defensive operation the *conduct of* continuous air reconnaissance acquires exceptionally great importance. Air reconnaissance must not only establish the fact of the enemy's preparation for an offensive but must also determine his force groupings and the moment of their movement into jumping-off positions for the offensive.

Specifically, the main deficiency in air reconnaissance during the preparation for this operation was the fact that surveillance was conducted mainly of roads in the enemy's operational rear, and the surveillance of troops in the immediate vicinity of the front line was accorded little attention. This led to a failure to determine the time the enemy occupied the staging area, and, as a result, aviation did not conduct air operations directed at disrupting the enemy offensive, even though the plan for the combat employment of aviation envisioned these. This is also the reason why the air counterpreparation was not conducted.

3. The compilation of a plan for the combat employment of aviation which indicated all possible enemy attack axes and which detailed the assignment of missions to aviation formations with respect to operations for each of the planned variants in the overall planning of the defensive battle was fully justified. A plan for the combat employment of aviation should not only coordinate air operations and ground force operations but should also reflect the problems of cooperation between aviation and ground forces and indicate that air representatives be sent by the air army to all probable enemy offensive axes.

The planning of air combat operations should not end with the compilation of a plan for its employment, as was done during the preparation of this operation. The compiled plan should, from time to time, be refined on the basis of reconnaissance data concerning changes in the combat situation and instructions from the *front* command.

4. Success in the struggle for air superiority was achieved not only by numerical superiority in aircraft, their quality, and flight personnel training but also by the correct organization of the fight against enemy aircraft. In this operation, despite numerical superiority in aircraft (more than 1.5 times in fighters), we did not have air superiority during the first half of the operation. The main reason for this was that our fighters struggled for air superiority passively, while enemy fighters employed active measures.

While struggling for air superiority, aviation must shift its operations to enemy territory and, while there, extensively employ the method of free search, destruction and blockading of aircraft at airfields. It is useful for large groups of fighters to be above the battlefield and to clear the air completely of enemy aviation during operations by our assault aircraft and bombers, with only a small number of the fighters escorting these aircraft.

5. This operation demonstrated that strikes by small groups of assault aircraft and bombers are not very effective. A greater effect is achieved when assault aircraft and bomber aviation deliver concentrated strikes in large groups (4(1-100) against smaller area targets. Such strikes not only strongly affect enemy morale and inflict considerable material damage but also

reduce considerably one's own aircraft losses. The greatest effectiveness of concentrated strikes by assault aircraft and bombers is achieved when air operations are coordinated with ground force operations with respect to time and place. Therefore before aviation delivers each strike it is necessary to coordinate carefully questions concerning the cooperation between aviation and ground forces.

10

Engineer Support of the Defensive Operation

Engineer support played an important role in the July 1943 defensive operation on the Orel-Kursk and Belgorod axes. Careful preparation of the terrain with respect to fortifications and the emplacement of obstacles during the preparatory period of the operation as well as combat work by engineer forces in cooperation with other arms in the mass use of mines and explosives during the operation contributed significantly to the defeat of the German forces, which were armed with a large quantity of the latest weaponry.

The conclusions cited below with respect to engineer support of the Voronezh and Central Front defensive operation are instructive not only for officers of engineer forces but also for officers of the principal combat arms. When studying this material it is important to consider the uniqueness of the situation in the struggle for the Kursk bulge. Conclusions with respect to engineer support should not, therefore, serve as a template for other defensive operations.

MISSIONS OF ENGINEER FORCES AND ENGINEER SUPPORT

The preparatory period

The principal missions during the preparatory period of the defensive operation were:

- fitting out the terrain with fortifications to the entire depth of the army and *front* defensive belts;
- organizing obstacles, in the first place mines and especially antitank mines, to the entire defensive depth;
- preparing the road network, bridges, and crossings to ensure the arrival, evacuation, and maneuver of forces during the operation;

- ensuring troop control by building command and observation posts and secondary posts for the control of *fronts*, armies, and formations from the force branches;
- guaranteeing secrecy of force regroupings, and camouflaging their concentration and the disposition of combat formations and individual objectives of operational significance;
- training engineer units and subunits for mobile obstacle detachment operations in cooperation with other combat arms and, in particular, with mobile antitank reserves during the operation and also preparing for the maneuver of army and *front* engineer reserves;
- conducting engineer reconnaissance in cooperation with all other types of reconnaissance and ensuring full exploitation of the results of this reconnaissance in the decisions of combined-arms commanders;
- assisting forces in their performance of engineer work; and
- ensuring engineer supplies, in particular, those which contribute to the stability of the defense (antitank and anti-personnel mines, explosives, barbed wire, etc.).

During the period of the defensive operation

During this period, the principal missions of army and *front* engineer forces were:

- reconnoitering enemy engineer measures during the period of his offensive;
- bringing minefields in the operational depth to combat readiness;
- creating massive mixed minefields by engineer units and formations;
- emplacing obstacles along tank routes by mobile obstacle detachments;
- fighting enemy infantry and tanks, using mines and explosives, in cooperation with other combat arms;
- creating new defensive lines in the operational and tactical defensive depth;
- supporting combat operations by the principal combat arms;
- conducting maneuver by engineer forces and means; and
- supplying forces with engineer materials.

FORTIFICATION OF THE TERRAIN

The fitting out of the terrain

With respect to fortifications this consisted of the following:

- organizing a series of defensive belts which ensured the stability and persistence of the defense and freedom of maneuver by operational reserves throughout the entire defensive depth;
- fitting out the entire defensive depth and each belt individually in anti-tank, anti-personnel, and antiaircraft respects;
- establishing cut-off positions to repel enemy tank and infantry attacks and preventing the enemy which had wedged into the defense from spreading out toward the flanks;
- emplacing obstacles, especially mine-explosives, to the entire defensive depth and, in the first place, along dangerous tank axes:
- digging trenches, communications trenches, slit trenches, and shelters to ensure freedom of maneuver by personnel and fire assets along the front and in the depth, preservation of human life, and successful repulsion of enemy tank, infantry, and air attacks; and
- concealing the actual trace of the defensive belts and lines (or parts of them) and simulating false engineer work.

Defensive work in the Central and Voronezh Fronts began during late March 1943 and continued for three to three and a half months, that is until the very beginning of the German offensive.

Engineer work was conducted by the troops in accordance with instructions issued by the *front* commanders in March 1943. These instructions assigned to forces the missions of creating a firm, deeply echeloned defense based on a developed system of defensive belts and lines with the extensive use of mining.

The operational depth of the defense

The number of defensive belts and their traces [outlines] and mutual disposition were dictated by operational-strategic considerations, terrain conditions, and also the probable nature of operations by an enemy who possessed large masses of tanks. The last required the creation of tank-proof lines, regions, and cut-off positions, which would make it possible to conduct sustained combat to destroy enemy tanks in the defensive depth in the event that the main defensive belt was penetrated. To achieve this end natural tank-proof barriers were extensively exploited.

In the final analysis, taking into account all the information on the

situation, the layout of the defensive belts approximated to the requirements of the *1943 Draft Field Regulations.* Main defensive belts were set up in both *fronts*, a second defensive belt was 10-15 kilometers from the forward edge of the main belt, and an army rear defensive belt was 12-15 kilometers from the forward edge of the second belt. Thus the overall depth of the army defense reached 25 kilometers.

The first and the second *front* rear defensive line, as well as the intermediate and cut-off defensive belts, were prepared behind the army rear defensive belt. The overall depth of the *front* defense, which consisted of six lines, reached 130-150 kilometers (see Map 4).

Extensively developed reconnaissance work preceded the construction of the fortifications. During the reconnaissance much attention was devoted to the selection of the forward edge of the defensive belts and to the protection of flanks and junctions.

Usually the forward edge of the main defensive belt was established as a result of combat operations in February-March 1943. Subsequently, as a result of verification checks, it was sometimes necessary to shift the forward edge to other lines (Voronezh Front), which resulted in additional loss of time and energy necessary to re-equip the terrain.

When selecting the forward edge of the second and army rear defensive belts, particular attention was paid to the exploiting of natural barriers, which sometimes resulted in large gaps between the defensive belts. This required additional engineer measures to deal with the large gaps. Thus the aim to exploit as fully as possible the Psel River in the Voronezh Front, which was tank-proof, led to the decision to pull back the army rear belt along the Oboian' axis to a depth of up to 35 kilometers from the forward edge of the second defensive belt. This, in turn, required the creation of an intermediate belt, which ensured protection of the important point of Oboian'. Mixed army commissions coordinated the defense of army junctions and this was monitored by *front* commissions. If necessary, *front* Military Councils amended, as appropriate, decisions by the army command.

On the instructions of the *Stavka* of the Supreme Command, the organization of the defense at the junctions between *fronts* was coordinated twice by mixed *front* commissions.

To ensure the stability of the defense and to prevent the penetrating enemy from spreading out into the rear and to the flanks, the most important populated points not part of the system of defensive belts were adapted for defense and cut-off positions were also created. At the beginning of defensive work in the Voronezh Front the preparation of three such cut-off positions was envisioned within the bounds of the army depth and then, during the work, a series of cut-off and intermediate positions were established. Furthermore, the fitting out of fortifications took place in such a

manner that cut-off positions could be developed in many places if necessary.

Cut-off positions played an important role during the defensive combat. Thus in the Central Front, when the enemy penetrated the main defensive belt in a narrow sector and approached the second belt, the flanks of forces remaining in the main belt outside the penetration sector were reliably covered with regard to fortifications.

The principal fortified position prepared in defensive belts was the battalion defensive region. *Front* engineer forces headquarters established a standard list of defensive works to be built in each battalion region for the purpose of uniformity.

The defensive trench system

In comparison with previous years, a new feature in the fortification system was the development of a system of trenches and communications trenches. Trenches were joined together into a gradually developed system, and, by the beginning of the German offensive, the defense of all Central and Voronezh Front armies consisted of a developed system of trenches and communications trenches. On average, two or three trench lines were constructed in the main defensive belt and up to four lines on the most important axes (the 22d Guards Rifle Corps of the Voronezh Front's 6th Guards Army), and up to 8 kilometers of trenches and communications trenches per kilometer of frontage were constructed in the main defensive belt of the Central Front's 13th Army.

The distance between the second and the first trenches reached 200-250 meters, 200-250 meters between the third and the second trenches, and 150-200 meters between the fourth and the third trenches. Trenches were joined together into the rear by communications trenches, with an average of two or three communications trenches per company defensive region.

Remote [forward] firing positions for heavy machine-guns were used in some sectors of the Voronezh Front. Such remote firing positions were deployed in front of the forward trench line, 100-150 meters from it (52d Guards Rifle Division). They were open, well-camouflaged machine-gun trenches, equipped with slit trenches or dugouts. The purpose of such positions was to open sudden fire when the enemy launched his attack. In essence, these trenches performed the role of the simplest concealed firing points (SOT-*skryvaiushchikhsia ognevykh tochek).*

In the trench system two or three reserve open areas were set up in the vicinity of each firing position. Shelters such as slit trenches, niches, and trench air-burst shelters were extensively used as well.

An example of a highly developed trench system with a large number of

defensive works and obstacles was the 325th Rifle Division of the Voronezh Front's 6th Guards Army (see Map 27).

The density of fortifications

A considerable number of reinforced light earth-and-timber pillboxes *[DZOT]* were built in the Voronezh Front's defensive system. There was an average of six or seven of these pillboxes per kilometer of frontage in the main defensive belt.

Table 34 shows the density of fortifications and obstacles created per kilometer of frontage in the main defensive belt by the efforts of all Central Front's combat arms during the preparatory period of the operation.

TABLE 34: DENSITY OF FORTIFICATIONS IN THE MAIN DEFENSIVE BELT (PER KM OF FRONTAGE)

Army	*Number*
13th	
Artillery positions	**19**
Mortar positions	**32**
Antitank positions	**24**
Machine-gun positions	**23**
Rifle trenches	**39**
Command posts (all types)	**21**
Dugout-shelters	**65**
Antitank obstacles (in kms)	**2**
Anti-personnel obstacles (in kms)	**3**
Trenches and communications trenches	**8**
70th	
Artillery positions	**7**
Mortar positions	**20**
Antitank positions	**17**
Machine-gun positions	**18**
Rifle trenches	**22**
Command posts (all types)	**9**
Dugout-shelters	**42**
Antitank obstacles (in kms)	**1.5**
Anti-personnel obstacles (in kms)	**1.5**
Trenches and communications trenches	**4**

During this period fortified belts and lines were created for Voronezh Front forces, amounting to as much as 1,400 kilometers. Up to 22 percent of the *front's* area was prepared in this manner. There were up to four battalion defensive regions for each 100 square kilometers of *front* area.

The following figures characterize the principal engineering work accomplished throughout the Voronezh Front: 491 kilometers of antitank (nonexplosive) obstacles; 637,500 antitank and anti-personnel mines; 593 kilo-

meters of wire obstacles; 4,240 kilometers of trenches and communications trenches; 28,058 rifle trenches; 55,864 antitank rifle, light machine-gun, and heavy machine-gun trenches; 4,720 anti-shrapnel nests; 3,915 earth-and-timber machine-gun pillboxes; 9,331 artillery positions; 26,759 mortar positions; 5,322 command and observation posts; and 17,505 shelters [blindages] and dugouts.

The fulfilment of the engineer work plan

By the beginning of the German offensive the plan for engineer works, as devised by the Voronezh Front command, had been fulfilled as follows. With respect to earth-and-timber pillboxes and anti-shrapnel nests, the plan had been overfulfilled by approximately twice; with respect to artillery and antitank positions it had been fully implemented; with respect to mortar positions it had been 80 percent implemented; and with respect to trenches and communications trenches it had been 65-70 percent implemented.

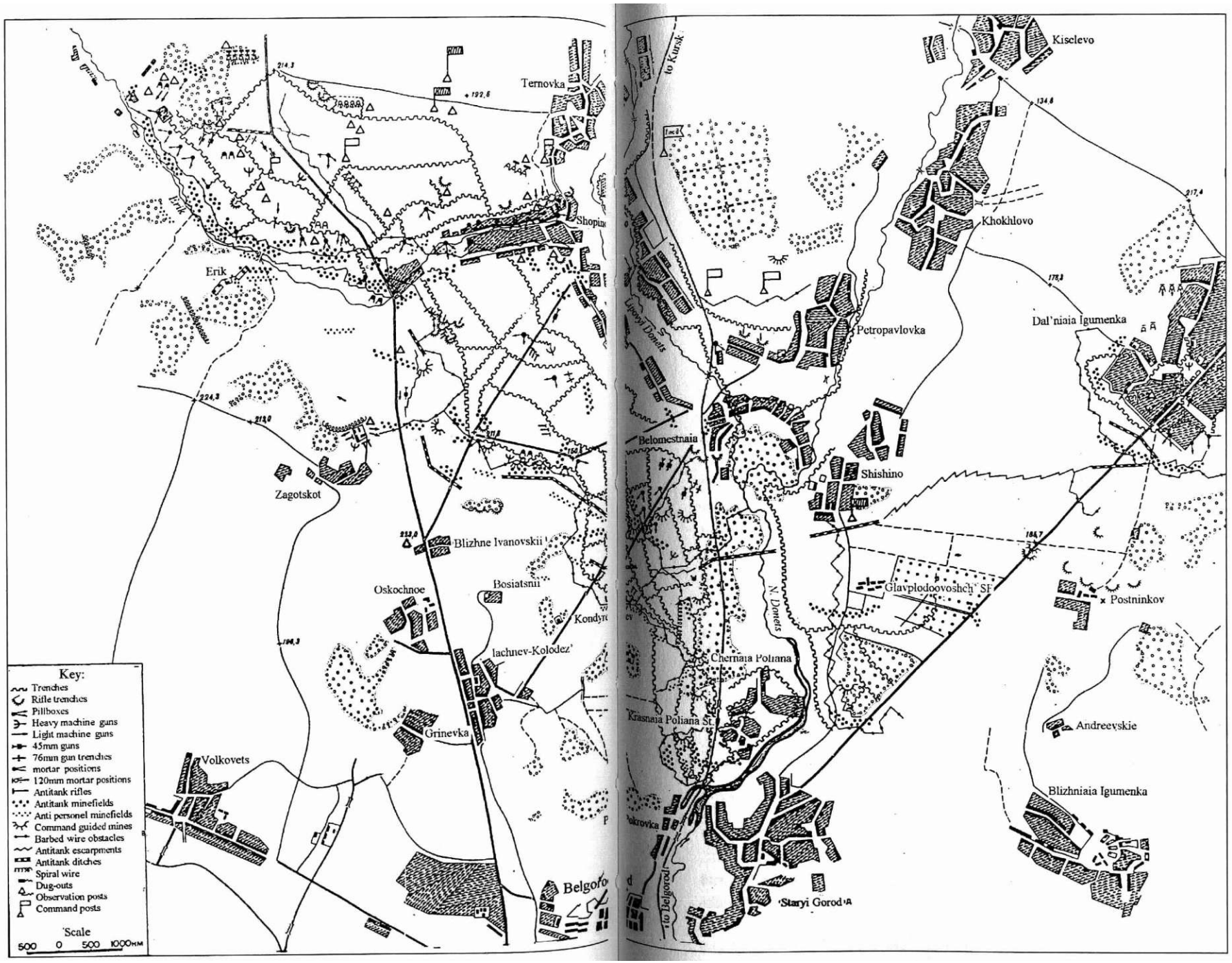
Defensive work was done according to priorities established by the *front* command. Works protecting control and observation, main and reserve firing positions, first-line trenches, and obstacles along the principal axes received top priority. Works in the defensive depth, second- and third-line trenches, and obstacles along secondary axes received lower priority.

Defensive work was accomplished chiefly by forces from the Directorate for Defensive Construction [LYAY], and the local population was enlisted for work primarily on the front lines. It should be noted that an insufficient number of local inhabitants were enlisted for work in the army defensive belt.

Front engineer forces headquarters controlled and assisted in setting up army defensive belts by means of special instructions, visits by staff officers to the lines (an average of two or three visits per month), and also by the filing of reports. Army chiefs of engineer forces and their staffs controlled the course of defensive construction direct. Furthermore, special commissions were created from army staff officers, which periodically checked the quality and volume of work being carried out, the condition of camouflage, etc.

The principal deficiencies in the fortification of the terrain were:

- insufficiently thought out selection of the forward edge [of the defense] on the ground by some unit and subunit commanders, as a result of which it was necessary to shift the forward edge after control checks [command inspections], this resulted in loss of time and efforts in re-equipping the terrain;
- the inability of many platoon and squad commanders to determine correctly the location of firing points, as a result of which the field of vision



Map 27: Defensive works and engineer obstacles in the 375th Rifle Division's defensive sector

and field of fire from the trenches were inadequate; this necessitated a shift of firing positions;

- insufficient attention on the part of combined-arms commanders to carrying out precisely the requirements of regulations when erecting fortifications, and their inadequate fitting out in a combat sense and with respect to logistics and sanitation;
- inadequate work tempos, particularly during the first 2 to 3 weeks, and weak exploitation of the services of the local population; and
- inadequate development of trenches and communications trenches during the first month of the preparatory period.

Engineer work during the operation

During the operation it became necessary to create new defensive lines. In particular, such a line was created in the Central Front to intercept the German main attack to prevent the Germans from spreading out in the operational depth. This line ran along the Verkhnee Smorodnoe, Banino, and Igino axis.

The *front* command allocated three rifle divisions for defensive work on this line. From 9 through 12 July these divisions completely concealed all firing means, dug the first-line trenches, and began to dig the second-line trenches. Communication trenches were extended to company commander observation posts and, in some locations, to battalion commanders' command and observation posts. While establishing the defense, special attention was paid to the construction of trenches, whose overall length, together with communications trenches, amounted to 60 kilometers along this line.

During the defensive operation in the Voronezh Front engineer work also continued on *front* rear lines and cut-off positions.

Conclusions

By the beginning of the German offensive the defensive system as a whole was a powerful complex of engineering measures, which responded to the requirements of Red Army combat regulations and the experience of the Great Patriotic War.

The prepared defense was deep, antitank, anti-artillery, and antiaircraft, with the greatest density of works and obstacles on the main dangerous tank axes. While well-prepared in an engineering sense, it had enormous importance in the outcome of the defensive battle.

A decisive factor which conditioned the survivability and stability of the defense was the extensively developed trench system, which ensured the opportunity for extensive maneuver by weapons and personnel along the

front and into the rear within the bounds of the given defensive belt and also led to only modest losses in personnel and equipment.

The presence of a large number of trenches, slit trenches, and shelters permitted our forces to maneuver weaponry freely and, while protecting personnel, to repel attacks by enemy aviation, tanks, and infantry successfully and with great losses to the enemy.

The preparedness of lines for a tough defense made it possible for forces to resist the enemy's considerably superior forces stubbornly and for the *front* command to maneuver its operational reserves freely. The well-equipped defensive lines with cut-off positions and antitank regions played a large role in repelling enemy attacks and denied him the opportunity to widen his penetration wedge by spreading out along the flanks.

The pillboxes, whose density in the main defensive belt averaged six to seven light and reinforced earth-and-timber types per kilometer of frontage, played their role to the fullest in all instances where they were positioned advantageously on the terrain and well camouflaged.

Poorly camouflaged earth-and-timber pillboxes, disposed directly along the forward edge, were put out of action during the air and artillery preparation and thus were suppressed by the beginning of the enemy attack. However, machine-gun crews from the pillboxes moved along the trenches into the reserve open positions, from which they continued to conduct fire.

MINE-DEMOLITION OBSTACLES [MINEFIELDS]

Obstacles of all kinds, and especially mine-demolition [minefields], were used extensively during the Central and Voronezh Fronts' defensive operations. Mining during these operations attained an unprecedented scope, amounting to as many as 200,000 antitank and anti-personnel mines per army. During the preparatory period of the operation engineer forces established continuous mining along the forward edge of the main defensive belt and mined the main dangerous tank axes in the defensive depth. Such large-scale mining work required great intensity, skill, and training on the part of engineer forces.

The organization of obstacles during the preparatory period

Engineer forces were assigned the following missions for organizing obstacles during the preparatory period of the defense:

- to create continuous antitank and anti-personnel barriers in front of the forward edge of the defense;
- to echelon obstacles into the rear along dangerous tank axes;

- to create a system of operational obstacles in the defensive depth using all types of mine and explosive; and
- to create antitank engineer reserves for maneuver of engineer equipment, mines, and explosives.

These missions originated from the principal aim - to deliver the main attack against the enemy in front of the forward edge and, in the event that his battered forces penetrated, to defeat them definitively in our defensive depth.

Large mining parties began to work during the beginning of May 1943. All engineer forces were thrown forward to create continuous obstacles in front of the forward edge of the defense. The tempo of mining may be judged by the number of mines laid every day per army, where, on certain days, a daily average of 5,000—8,000 antitank and anti-personnel mines were laid (6th and 7th Guards Armies).

The principal mission of completely covering the forward edge of the defense in the Voronezh Front was completed on 4 July. Table 35 shows the number of mine types which were emplaced:

TABLE 35: MINES ON THE VORONEZH FRONT

Army	*A T mines*	*AP mines*	*Artillery Shells*
38th	**56,723**	**68,992**	**11,446**
40th	**59,032**	**70,994**	**6,377**
6th Guards	**89,888**	**63,843**	**9,162**
7th Guards	**66,745**	**85,140**	**3,441**
69th	**19,542**	**17,146**	
Front **total**	**291,930**	**306,115**	**30,426**

By 4 July in the Central Front more than 50,000 antitank mines and 28,000 anti-personnel mines, around 1,000 varied fougasse [land] mines, and 50 delayed action mines had been laid in the 13th Army's defensive belt. In addition, around 50 kilometers of wire obstacles were set up, of which 10 kilometers were electrified.

More than 30,000 antitank mines, more than 28,000 anti-personnel mines, and around 700 fougasse mines were laid in the 70th Army's defensive belt. In addition, around 6 kilometers of antitank ditches and up to 30 kilometers of one-way tank ditches [escarpments] were dug, up to 65 kilometers of wire obstacles were set up, and 10 flood dams were built.

Around 20,000 antitank mines, 1,000 anti-personnel mines, and 70 delayed-action mines were prepared (at second and third degree of readiness) in the Central Front's operational obstacle zone.

By 4 July the following mine and obstacle work had been carried out in the Voronezh Front's defensive depth:

- 361 bridges had been prepared for destruction by various means;
- 315 delayed-action mines had been laid along main roads and bridges. These mines had been placed in groups with various delay periods. The mines on bridges were designated for recurring explosions. Specifically, upon the withdrawal of our forces the bridge blew up in the usual manner and the explosion of each delayed-action mine was prepared, taking into account that it should occur either while the enemy was trying to rebuild it or afterwards, when the enemy was using it; and
- 27 airfields on *front* territory were prepared for destruction and to be converted into obstacles. Runways, various structures, and approaches to these airfields were mined. In all, 1,284 antitank mines, 1,500 anti-personnel mines, and 134 delayed-action mines were laid at the airfields. Specially organized combat engineer and mine teams were in constant readiness to bring all established obstacles into combat readiness and to carry out the destruction of each airfield.

By the beginning of the German offensive, in spite of the large number of obstacles which were created, the Voronezh Front's engineer obstacles plan was under-fulfilled by 15 percent with respect to mining (85 percent of the planned mines had been delivered but only 65 percent had been laid) and, with respect to other types of obstacle, no more than half the plan had been fulfilled.

Before the commencement of the operation, considerable attention was devoted to the preparation of engineer forces and obstacles for action during the operation.

Stavka of the Supreme High Command Order No. 0396, dated 2 July 1943, stressed the importance of mining, maneuver by engineer forces and equipment, and the importance of cooperation among all combat arms in this regard.

Mobile obstacle detachments *[POZ - podvizhnye otriady zagrazhdenii]* were created beforehand to construct mine and explosive obstacles during the course of the operation. These detachments, organized on the basis of one or two per rifle division, were each composed of one or two sapper [combat engineer] platoons with 400-600 mines and 2-5 motor vehicles or carts.

Detachments (mobile obstacle detachments) consisting of one sapper platoon or company with 1,000-1,500 mines (some on motor vehicles and some in field depots) were created in armies to be at the disposal of chiefs of engineer forces. Detachments were moved by motor transport. The number of detachments varied. Thus five detachments, consisting of a sapper platoon or company, were created in the Central Front's 13th Army during the preparatory period and, when the enemy launched the offensive, an additional three engineer obstacle battalions were created, which were fully earmarked to operate as mobile obstacle detachments. Up to six different

engineer companies were allocated for the creation of mobile obstacle detachments in the 70th Army.

The chiefs of the *front's* engineer forces each had several engineer battalions in their reserves to organize obstacles during the operation. Thus the Voronezh Front's chief of engineer forces had four such battalions, each of which had 2,000-5,000 mines and up to 500 kilograms of explosives, and each of which was provided with transport. During the operation these battalions carried out a series of combat missions associated with operational mining.

In addition to the reserve of mines in armies, a *front* reserve was also created to supply mobile obstacles detachments with mines. In the Voronezh Front in particular a depot was created at the Engineer Sapper Brigade with 10,000 antitank mines and a transport reserve amounting to 10 motor vehicles. Furthermore, another 82,000 antitank mines were concentrated in reserve in other depots.

Conclusions

By the beginning of the German offensive the defense system possessed a large quantity of mine-demolition obstacles. These were emplaced not only in front of the forward edge and in the main defensive belt but also in the operational depth, and, unlike previous operations, all types of Red Army mine and explosive were employed extensively.

The number of mines laid in armies along main axes ensured a mining density of up to 1,500 antitank and 1,700 anti-personnel mines per kilometer of defense frontage, which made it possible for mines to cover all primary dangerous tank axes.

The extensive network of minefields, the high density of mines in them, and the mobile obstacle detachments, which were created in advance and were provided with mines and transport for maneuver, contributed significantly to the frustration of the Germans' summer offensive in 1943 along the Orel-Kursk and Belgorod axes.

Mine-demolition obstacles during the defensive operations

The experience of the Central and Voronezh Fronts' defensive operations confirms the enormous importance of mine-demolition obstacles during an operation. During the German offensive sappers from these *fronts* laid up to 100,000 mines and high explosives (not counting those which had been laid earlier). Of this number, up to 40,000 were laid in the Central Front from 7 through 12 July, and more than 55,000 were laid in the Voronezh Front from 5 through 18 July.

The enemy suffered heavy losses in personnel and especially heavy losses

in tanks from these mine-demolition obstacles. Thus from 5 through 18 July 635 tanks and 4,752 enemy soldiers and officers were blown up by our mines in the Voronezh Front's penetration sector. The enemy suffered his greatest losses during the penetration of the forward edge.

From 5 through 12 July in the Central Front 396 tanks, 24 self-propelled 'Ferdinand' guns, and around 4,000 officers and soldiers were blown up by mine-demolition obstacles.

The effect of mining the rear of the defensive belt was greater during the operation than that from minefields laid beforehand along the forward edge. While 350-400 antitank mines were necessary to blow up one tank along the forward edge, in the rear only 120-150 mines were necessary (Voronezh Front). Such a difference in the scale of losses is explained by the fact that mining during the process of withdrawal occurred along already designated axes, while along the forward edge a considerable proportion of the minefields were in sectors where no enemy tanks operated at all.

During the operation German tank attacks were often disrupted thanks to skillfully laid minefields along probable enemy tank routes. Thus in the Voronezh Front, for example, 22 tanks were blown up during one large-scale attack in the region of the Kreida junction and the German attack was thereby frustrated. On 11 July the enemy attacked our positions in the Miasoedovo region, but after nine tanks blew up in the minefield, he halted the attack and turned back. Seventy enemy tanks attempted to penetrate our positions in the Dubrava region but ran into a minefield and, as a result, ten tanks blew up and the enemy attacked no further in this region.

The operations of mobile obstacle detachments

As a rule, combined-arms commanders assigned missions to these detachments. The commanders and staffs of engineer battalions (brigades) from which these detachments were detailed were responsible for the control of detachment operations.

Each mobile obstacle detachment was assigned an operational sector where it conducted engineer reconnaissance and prepared mining in cooperation with other combat arms.

During the operation detachments fulfilled the following missions:

- bringing to combat readiness mine-demolition obstacles which had been prepared at a second or third degree of readiness;
- destruction of bridges and other objectives subject to destruction in the event of a threat of enemy capture;
- closing passages in our obstacles; and
- laying mine-demolition obstacles along tank attack axes and in front of enemy tanks which had penetrated into our defenses.

As a rule, mobile obstacle detachments operated in cooperation with rifle, artillery, tank, and mortar units. They achieved the best results when cooperating with the artillery. The Voronezh and Central Front defensive operations provide many examples of successful cooperation between these detachments and mobile antitank artillery reserves.

Minefields laid in the area of effective antitank artillery fire were most effective. When encountering a minefield, enemy tanks began to search for passages or attempted to turn back and these reactions created favorable conditions for our guns.

Furthermore, the positioning of minefields in the zone of effective artillery fire had great importance in ultimately finishing off enemy tanks which had been blown up by mines, since in many instances the Germans attempted to evacuate these tanks to the rear.

During the operation sappers often successfully operated independently while creating mine-demolition obstacles and covering their obstacles with fire from their personal weapons. Thus there were instances in the Voronezh Front when minefields were laid in isolation and sappers covered the emplaced obstacles with fire from their own antitank rifles, machine-guns, and rifles.

Mobile obstacle detachments inflicted serious losses on the enemy in personnel and especially in tanks. During combat operations in the Central Front from 5 through 9 July a single special designation guards engineer brigade blew up and destroyed 140 German tanks and self-propelled guns and up to 2,500 soldiers and officers, including up to 600 men killed on electrified obstacles.

This brigade organized and trained numerous mobile obstacle detachments. By skillfully maneuvering mine-demolition obstacles and creating false minefields at night and by aptly combining them with actual ones, these detachments inflicted serious damage on the enemy. In cooperation with infantry and artillery, but often independently, detachments repulsed enemy tank attacks.

Side by side with mobile obstacle detachments, operations by small groups of sappers proved to be highly effective methods of fighting enemy tanks in the Voronezh Front. Such sapper groups, armed with engineer and other means for fighting tanks, skillfully operated along enemy tank movement routes or penetrated into the enemy rear and knocked out a considerable number of enemy tanks.

The methods employed by sappers in the struggle against tanks were extremely varied and in each individual instance depended on the existing situation, the number and types of tank, the nature of the terrain, the position of their own forces, and the firing of antitank weapons. Therefore the matter of selecting methods for fighting was often determined by the sappers themselves.

On the basis of the successful employment of small sapper groups against enemy tanks, operations by sapper-tank hunters were extensively practiced in engineer units. A peculiarity of sapper-tank hunter operations was not only their waiting in ambush for tanks but also their search for encounters with tanks in the designated sector, for which it was often necessary to penetrate into the enemy's immediate rear, tank concentration points, and everywhere that enemy tanks could be encountered. Thus the main attack objectives of sapper-tank hunters were isolated groups of tanks and individual tanks which had penetrated into our defensive depth, tank concentration areas in jumping-off positions and refueling points, tanks which were completing movement in the enemy's tactical depth, and also tanks which had been damaged or blown up by mines, which were to be completely destroyed.

Fighting tanks in close battle required bravery, cunning, resourcefulness, self-confidence, initiative, and trust in their own strength on the part of tank hunters. Therefore only the best and most well-trained sappers who possessed the enumerated qualities were selected for tank hunter groups.

The entire course of combat operations demonstrated the advantages of operations by small sapper and tank hunter groups, which permitted the most effective employment of engineer means against tanks, especially in the case of shortages of mine-demolition weapons.

Top-secret equipment [TOS - [sredstva] tekhniki osoboi sekretnosti]

Obstacle means such as top-secret equipment were also employed during defensive operations to destroy enemy personnel and equipment.

In the Voronezh Front the 211th Special Mining Battalion created obstacles along the forward edge of the 6th Guards Army's (Voronezh Front) defensive belt, which demonstrated that great results could be achieved with only minor expenditures of forces and weapons. During combat the enemy lost 15 tanks, a motorcycle company, which was completely blown up, and up to two infantry battalions in remote-controlled minefields which this battalion had laid.

Tank destroyer dogs

Dogs were a highly effective means for blowing up tanks. Operations by a platoon of these dogs in the defensive belt of the 67th Guards Rifle Division (Voronezh Front) serve as an example. In a single incident in which 16 dogs were expended (four of which were killed before they reached the tanks) the platoon used dogs to blow up 12 enemy tanks.

Conclusions

1. Engineer forces with their mine-demolition equipment played an important role in frustrating the German offensive in the summer of 1943.

The enemy suffered heavy losses in our mine-demolition obstacles which had been emplaced in advance along the forward edge and in the defensive depth, and in obstacles which mobile obstacle detachments laid during the defensive operation.

2. The following conclusions may be reached based on the combat operations of mobile obstacle detachments:

- mine-demolition obstacles employed during combat by mobile obstacles detachments acquired the characteristics of active fighting means;
- when enemy tanks wedged into the defensive depth, mobile obstacle detachments paralyzed their maneuver and inflicted heavy losses upon them;
- detachment operations created favorable conditions for the destruction of enemy tanks which had penetrated into the defense, by artillery and mortar units, and by units of the antitank reserve;
- the most effective detachments were used in cooperation with artillery fire, and the most effective minefields were emplaced in the area of effective antitank artillery fire and antitank rifle fire;
- detachment operations clearly exhibited extensive maneuver by engineer forces and means and, moreover, detachment operations supported maneuver by other combat arms, especially mobile antitank artillery reserves; and
- mobile obstacle detachments covered the entire depth of the army defensive belt by means of mining, while protecting the flanks, junctions between units and formations, and also gaps between minefields which had been laid earlier.

The allocation, assembly, and training of mobile obstacle detachments in rifle divisions, corps, armies, and *fronts* should be conducted in advance. Transport required to move the detachments and obstacles to the necessary axes should also be planned and allocated in part beforehand.

3. Operations by small sapper-tank destroyer groups are one of the effective means of fighting enemy tanks.

4. Top-secret equipment and tank destroyer dogs are highly practicable means of destroying enemy personnel and especially combat equipment.

5. Along with their smooth operation and simple structure and employment, the experience of the defensive operation demonstrated the inade-

quate power of our antitank mines. For the most part, our antitank mines knocked enemy tanks out of action for a short period (the time necessary to repair tracks). There were also several instances of the poor camouflaging of minefields, which reduced the combat value of this means of fighting enemy tanks and infantry.

ROAD AND BRIDGE WORK: BASED ON VORONEZH FRONT INFORMATION

The preparatory period of the operation

Roads: Serious attention was devoted to the construction of roads and bridges for the supply, evacuation, and maneuver support of forces as the object of important engineer work. Thus from 28 March through 5 July 1943 engineer units and forces prepared more than 3,000 kilometers of roads. More than half the roads were prepared for traffic involving 30-60-ton tanks.

Table 36 shows the condition of the *front* road network as of 5 July.

TABLE 36: ROADS ON THE VORONEZH FRONT

Road Sector	*Overall Length (km)*	*Average depth of Road Network (km)*	*Serviced by Whom*
Unit	**780**	**15-40**	**Troop engineer units**
Army	**1,000**	**40-120**	**Units of the *front* road service**
Front	**1,310**	**40-100**	**Units of the *front* road service**

Bridges: During this period, engineer units built, rebuilt, and reinforced up to 250 bridges, with a total length of around 6,500 meters. This represented an average of more than 2 meters of bridge for every kilometer of road. If earlier existing bridges are taken into account, then there were up to 4 meters of bridge for every kilometer of road.

Thus more than half the necessary number of bridges were either newly built or reinforced and rebuilt. Only 5 percent of the total bridges had a load capacity of up to 16 tons, and the remainder had a load capacity of 30-60 tons. The latter constituted up to 50 percent of the total number of bridges, and their length constituted up to 30 percent of the total length of bridges.

During the conduct of the operation

From 5 through 17 July up to 15 kilometers of road were built or repaired in the *front*, since the existing road network, which was constructed during the

preparatory period, fully supported the defensive operation, and favorable weather contributed to good road conditions.

During the operation it was necessary to build, reinforce, and rebuild 58 bridges, with a total length of more than 1,000 meters and a load capacity of between 30 and 60 tons. Only seven of these bridges could bear less than 16 tons.

The building, repair, and reinforcement of bridges during the operation was carried out in timely fashion and supported necessary force maneuver. A deficiency in the organization of road work was the poor use of the local population for this work.

MASKIROVKA [DECEPTION AND CAMOUFLAGE]: BASED ON VORONEZH FRONT INFORMATION

Requirements with respect to *maskirovka* measures during the preparatory period were established in a series of orders to *front* forces and in special instructions on camouflaging defensive lines and troop concentration regions. While fulfilling these instructions the forces erected around 1,500 false works.

Furthermore, special engineer units carried out the following measures:

- camouflaged four large rear fuel bases and four special designation objectives;
- prepared 883 prefabricated dummy [mock-up] tanks and 220 prefabricated dummy aircraft;
- organized three false tank concentration regions with 95 dummy tanks erected in them; and
- constructed 13 false airfields with dummy aircraft constructed in them.

Besides active *maskirovka* carried out by *front* engineer units, armies prepared more than 1,000 dummy guns and 120 dummy tanks in accordance with the instructions mentioned above.

The deficiencies in *maskirovka* during the preparatory period of the operation were the absence of camouflage for defensive work, inadequate development of a false forward edge, and poor *maskirovka* discipline of forces in the defensive lines and in concentration regions.

As a result of our forces' poor *maskirovka* discipline, the enemy had a sufficiently exact notion of the profile of our defensive lines and the location of firing positions before his offensive.

Special engineer force measures for the *maskirovka* of special rear area objectives and for the creation of false airfields and false tank groupings were crowned with success since they accounted for 90 percent of enemy retalia-

tory action, thereby averting the bombing of actual fuel depots. Enemy air reconnaissance was unable to detect important concealed rear area objectives and therefore did not bomb them.

ENGINEER RECONNAISSANCE

The preparatory period of the operation

To achieve greater purposefulness in the work of engineer reconnaissance, in April 1943 the headquarters of the Voronezh Front's engineer forces issued instructions concerning the organization and conduct of engineer reconnaissance. These instructions were subsequently supplemented and made more concrete.

These documents assigned the following missions to engineer reconnaissance:

- assist in the revelation of the enemy's true intentions in various *front* sectors in cooperation with the reconnaissance of other combat arms;
- determine the most dangerous tank axes; and
- reveal new enemy methods of fighting and the presence of new enemy engineer means.

The most effective methods of conducting engineer reconnaissance under the given specific conditions were the following: the organization of fixed [immobile] observation posts and the allocation of sapper groups as a part of combined-arms reconnaissance, the conduct of reconnaissance using special engineer reconnaissance groups, the exploitation of intelligence data from other combat arms, especially aviation, and the interrogation of prisoners and deserters.

By exploiting all these types and methods of engineer reconnaissance in cooperation with intelligence from other combat arms, we succeeded in determining the concentration of enemy bridging parks and the construction of bridges in timely fashion, and, at the end of June, discovered that the enemy was preparing passages through his obstacles.

Engineer reconnaissance information helped the command to discover the enemy's offensive intentions, the axis of his proposed penetration, the location of probable crossings, and preparations for the forcing of the Northern Donets River.

Moreover, two to three days before the offensive began, the Central Front's engineer reconnaissance discovered passages made by the Germans in their own obstacles and, on the night of 4-5 July, movement by German obstacle clearing groups to make passages in our obstacles. On the basis of statements by a captured German sapper, the hour of the attack was

established (0430 hours on 6 July, as designated by the Germans), which, to a considerable degree, weakened the element of surprise of the enemy offensive.

The period of defensive operations

When the enemy launched the offensive, engineer reconnaissance was assigned additional new missions. Reconnaissance was required to detect and determine the following:

- engineer measures employed by the enemy;
- means by which enemy tanks could overcome the water line and our obstacles and also the working methods of sappers accompanying the tanks;
- the method and procedures for forcing the Northern Donets River and the employment of crossing means and methods of erecting bridges;
- enemy procedures for consolidating captured terrain;
- new types of engineer weaponry and equipment;
- enemy use of camouflage measures; and
- the effectiveness of our obstacles.

The supervision of engineer reconnaissance was carried out by the *front* engineer forces headquarters (under a single authorized officer) solely by means of personal conversations on a direct line with army engineer forces headquarters and without troop visits, which undoubtedly narrowed the limits of supervision.

According to Voronezh Front information, the main types and methods of conducting engineer reconnaissance during this period were:

a. Mobile observation posts, which were organized in each rifle regiment, and, in addition, army forces created two or three supplementary posts in each rifle division. For example, seven supplementary posts were organized in the 69th Army, and eight were organized in the 5th Guards Tank Army.

b. Engineer reconnaissance groups consisting of three or four men who operated in the enemy's immediate rear area and, together with reconnaissance, carried out diversionary work in accordance with the division commanders' tasking. These groups blew up bridges, mined roads, and blew up enemy tanks and motor vehicles, thus disrupting traffic on his lines of communication.

c. Interrogation of prisoners. Nineteen prisoners were interrogated, of whom ten were sappers from eight different sapper battalions.

d. Examination of captured documents.

e. Exploitation of information from combined-arms intelligence and other combat arms intelligence.

Engineer reconnaissance data were immediately reported to the combined-arms commander, who could promptly take appropriate measures.

While supporting the combat activities of its own forces on the battlefield, the engineer reconnaissance system studied enemy engineer combat methods and engineer support of individual types of offensive combat and operation.

Conclusions

1. Engineer reconnaissance assisted the command to determine correctly the axes of enemy main and secondary attacks and to detect promptly and determine correctly possible locations of enemy crossings and the concentration of his crossing equipment.

2. Enemy engineer measures were detected in a timely fashion during the defensive operation, and important materials on engineer support for his offensive operations were generalized.

3. The organization, armament, and combat capability of enemy engineer units, as well as new types of engineer armament and mine, were revealed.

4. The most effective type of engineer reconnaissance activity during the operation was that of reconnaissance groups and mobile observation posts.

5. Among the deficiencies in engineer reconnaissance was the fact that enemy mine clearing along the forward edge of our defense was not fully disclosed.

THE WORK OF ENGINEER FORCES HEADQUARTERS

During the preparatory period of the defensive operation, *front* headquarters, with the participation of engineer forces headquarters, prepared a series of orders and operational planning documents which specified the missions of *front* forces with respect to the fortification and strengthening of the defense, the organization of operational obstacles, road and bridge work, and the refinement of engineer work plans. A series of orders and instructions was also prepared for the technical implementation of this work, for combat training, and for operational *maskirovka,* and control was organized for the fulfillment of all defensive work.

During the defensive operation the staffs of *front* engineer forces restructured their work in accordance with the requirements of the situation.

Supervision was accomplished by means of staff officer visits to the most important defensive sectors. Instructions were transmitted and information gathered by means of telegraph as well as by personal contact between engineer chiefs and subordinates and by dispatching liaison officers to specific locations.

To expedite the processing and summation of operational engineer information, clerks from all headquarters departments were gathered into the operational department, which accelerated the compilation of information, the preparation of decisions, and the compilation of reports.

The headquarters of army engineer forces, which were located in sectors of combat operations, directed the combat activity of engineer units. Having managed, on the whole, to cope with their missions of struggling, in complex circumstances, with an enemy who had wedged into our defense, headquarters in some instances displayed insufficient mobility in control and in ensuring operational communications.

In general, during the preparatory period and the conduct of the defensive operation engineer headquarters coped with the missions of organizing mass engineer work and of supervising the combat activity of engineer forces.

A serious deficiency in staff work was the inadequate regulation of the communications and information system, especially when the situation changed. One of the reasons for this was the fact that headquarters and units were not supplied with communications and transport means.

During maneuver by engineer units and formations on a *front* scale, the absence of long-range radio communications was felt particularly painfully. Brigade headquarters were supplied with battalion-type radio stations which did not permit them to maintain communications with higher headquarters nor with brigade units, which were often operating at a considerable distance from headquarters.

Engineer headquarters and engineer chiefs were poorly supplied with transport. Thus division and corps engineers had no transport, and *front* and army engineer forces headquarters had no authorized vehicles. This often placed them in a very difficult position, making personal visits and supervision difficult.

GENERAL CONCLUSIONS

Central and Voronezh Front engineer forces successfully coped with their assigned missions during the defensive operations. At the same time, they conducted an enormous amount of intensive work and exhibited combat bravery and displayed good training.

The skillful operations of engineer units, along with their successful use

of obstacles and the inflicting of serious losses on the enemy by mine-demolition means, played a significant role in the failure of the Germans' summer offensive.

Equipped with mine-demolition means and antitank and automatic weapons, engineer forces were able, in cooperation with other combat arms and especially artillery and in some cases independently, to resolve combat missions for the destruction of enemy equipment and personnel.

By detailing mobile obstacle detachments, engineer forces were capable of extensively maneuvering their forces and means. The active struggle of engineer units against enemy tanks and personnel was clearly reflected in the operations of these detachments.

The great amount of work accomplished during the preparatory period of the operation to increase engineer awareness in all combat arms contributed to the enormous and purposeful engineer work done by forces to create a modern, deeply echeloned antitank, anti-artillery, and antiaircraft defense.

The extensively developed system of trenches and communications trenches completely justified itself. It made it possible to wear out the enemy and bleed him white in front of the forward edge of the main defensive belt, thereby protecting personnel and maintaining our troops' combat capability.

Timely engineer preparation of all elements in the operational defense and the correct distribution of forces and means into the depth led to the complete ruin of the enemy's operational-strategic plans. Having lost much time in gnawing through the main defensive belt and having lost hundreds of tanks to the fire of all types of gun and on minefields along the forward edge of and within the main defensive belt, the enemy had no freedom of maneuver in the rear of our defense.

The prepared system of obstacles in the defensive depth, the presence of a series of rear defensive belts and cut-off positions, and the separate defensive centers and strong points, which [our] troops had prepared and occupied beforehand, and also the decisive counterstrokes by our formations (especially tank formations), which operated along routes which had been prepared beforehand by engineers, delayed the offensive by superior enemy forces, which had slowly begun to advance into our defensive depth with enormous losses to him.

The staunchness of our forces, the engineer preparation of the terrain, and the skillful maneuverability of forces and engineer forces and means denied the enemy the opportunity to widen the base of his penetration wedge and reduced the tempo of his advance in the rear until the German offensive finally bogged down.

11

The Maneuver of Mobile Antitank Reserves in a Defensive Operation[1]

During the July 1943 defensive operation on the Belgorod-Kursk and Orel-Kursk axes, mobile antitank artillery reserves played a considerable and, in some sectors, a decisive role in the repulse of mass enemy tank attacks. Long before the beginning of the German offensive the Central and Voronezh Front commands had already devoted great attention to the creation and preparation of mobile antitank artillery reserves and, during the course of the operation itself, skillfully employed them to counter the enemy's tank attacks.

Study of the rich experience gained by forces in the struggle with enemy tanks during this operation will be very beneficial in the training of officers in all branches of the Red Army forces. While studying this material one should take into account that it touches only on questions concerning the employment of mobile antitank artillery reserves, which constituted an important part of the successful antitank defense during the Central and Voronezh Fronts' defensive battles.

THE FORMATION OF THE ANTITANK DEFENSE

While preparing to repel the anticipated enemy offensive, the Central and Voronezh Front commands paid special attention to the organization of an antitank defense in which the main place was assigned to all types of artillery. Consequently, the following guiding principals were proposed as the basis for organizing the antitank defense:

1. Artillery fire was the primary means of antitank defense, and all remaining means used in cooperation with artillery fire were secondary.

2. Main groupings of antitank weapons were deployed along dangerous tank axes. This excluded the disposition of artillery, which was cordoned

and spread across the entire front and conceived as a distinctive 'fence' of guns.

3. Deep echelonment of antitank weapons by and along lines, which achieved a high density of antitank artillery weapons along dangerous tank axes.

4. Extensive use of a system of antitank strong points *[PTOPs]* which were prepared for all-round defense and mutually supported one another with fire. In this regard special attention was paid to the cooperation of all fire assets located within the *PTOP* and to mutual coordination with the antitank obstacle system as well as the fire of heavy infantry guns and mortars.

5. Cooperation of all artillery, which was positioned in covered [indirect] firing positions, with means and fire of the antitank defense (the preparation of massed fire on possible tank concentration areas, on their movement routes both in front of the forward edge and in the rear, and to protect the flanks and junctions of the antitank strong points).

6. Participation of all divisional artillery and High Command Reserve artillery [*R(V)GK*\ in the struggle against enemy tanks by direct fire. Accordingly, all firing positions of this artillery were prepared for such a type of firing and, furthermore, gun-battery firing positions were deployed close to dangerous tank axes.

7. Use of guards mortar units in the fight against the tanks.

8. Timely planning of extensive maneuver of divisional artillery and High Command Reserve artillery by fire and on wheels.

9. Allocation of strong mobile antitank reserves in rifle divisions, corps, and, especially, in armies and in *fronts*, as the maneuver means of the antitank defense.

The density of antitank weapons

The principal efforts in the organization of antitank defenses in the Central Front were directed at the creation of maximum densities of antitank fire in the defensive sector of the 13th Army and in the neighboring 48th and 70th Armies, particularly on their flanks adjoining the 13th Army. Table 37 shows the achieved artillery densities per kilometer of front.

While examining Table 37 one should consider that the saturation of antitank weapons on the left flank of the 48th Army and the right flank of the 70th Army were approximately the same as on the 13th Army's front.

The depth of the antitank defense along these armies' axes (without *front* antitank reserves) reached 30—35 kilometers and was arrayed in three to four main lines. Thus, for example, the density of antitank artillery weapons on

TABLE 37: ARTILLERY DENSITIES (PER KM OF FRONTAGE)

Component Armies	*Front width (km)*	*Quantity*	*Density per km of frontage*	*Overall Density per km of frontage*
48th Army	**40**			
AT and regimental guns		**321**	**8.0**	
Divisional and reinforcing guns		**183**	**4.6**	
Total guns		**504**		**12.6**
13th Army				
Front width (km)	**32**			
AT and regimental guns		**587**	**18.3**	
Divisional and reinforcing guns		**854**	**26.7**	
Total guns		**1,441**		**45.0**
70th Army				
Front width (km)	**62**			
AT and regimental guns		**411**	**6.6**	
Divisional and reinforcing guns		**406**	**6.6**	
Total guns		**817**		**13.2**
65th Army				
Front width (km)	**82**			
AT and regimental guns		**392**	**4.8**	
Divisional and reinforcing guns		**251**	**3.0**	
Total guns		**643**		**7.8**
60th Army				
Front width (km)	**92**			
AT and regimental guns		**219**	**2.4**	
Divisional and reinforcing guns		**178**	**1.9**	
Total guns		**397**		**4.3**
Grand totals				
Front width (km)	**308**			
AT and regimental guns		**1,930**	**6.3**	
Divisional and reinforcing guns		**1,872**	**6.0**	
Total guns		**3,802**		**12.3**

the 13th Army's front per kilometer of front, including 45mm and 76mm regimental and divisional guns, reached 7.5 guns in the first line, 3.2 guns in the second, and 12.2 in the third line.

The density of antitank artillery weapons, which constituted around 23 guns per kilometer of front through the entire depth of the 13th Army's defense with an overall artillery density (without mortars) of 45 guns per kilometer in the first line, provided full defensive stability to that army. With the flexible maneuver of antitank artillery weapons such a defense should have successfully resisted massed enemy tank attacks.

It should be noted that so high a density of artillery weapons on an army

TABLE 38: THE VORONEZH FRONT: ARTILLERY DENSITIES

Component Armies	*Front width (km)*	*Quantity*	*Density per km of frontage*	*Overall Density per km offrontage*
38th Army	**80**			
AT and regimental guns		**159**	**2.0**	
Divisional and reinforcing guns		**194**	**2.4**	
Total guns		**353**		**4.4**
40th Army	**50**			
AT and regimental guns		**393**	**7.9**	
Divisional and reinforcing guns		**371**	**7.4**	
Total guns		**764**		**15.3**
6th Guards Army	**60**			
AT and regimental guns		**418**	**7.0**	
Divisional and reinforcing guns		**477**	**8.0**	
Total guns		**895**		**15.0**
7th Guards Army	**55**			
AT and regimental guns		**426**	**7.7**	
Divisional and reinforcing guns		**391**	**7.1**	
Total guns		**817**		**14.8**
Grand totals				
Front width (km)	**245**			
AT and regimental guns		**1,396**	**5.7**	
Divisional and reinforcing guns		**1,433**	**5.8**	
Total guns		**2,829**		**11.5**

scale is exceptional and far from typical for defensive operations in other situations.

The basis of the antitank defense was the antitank region (usually a rifle regiment sector). The regimental commander was appointed as chief of such a region and the artillery officer was his assistant. Each antitank region consisted of separate antitank strong points which were situated to provide mutual fire support. Subunit commanders of rifle regiments usually served as chiefs of the strong points and artillery officers served as their assistants. Each antitank strong point consisted of no fewer than four guns of various calibers and two or three antitank rifle squads.

In the Voronezh Front, as can be seen from Table 38, at the beginning of the German offensive, the maximum density of antitank artillery fire was created in the 6th and 7th Guards, and the 40th Armies' defensive sectors.

Thus the density of all artillery weapons along the axes of the expected enemy attacks reached 15 guns per kilometer of front, including 7.5 antitank and regimental guns per kilometer. If one counts the 1st Tank and 69th Armies and the 2d Guards Tank and 35th Guards Rifle Corps, which were

situated in second echelon and along rear defensive lines and which were subsequently committed to action, the artillery saturation comprised 20 guns and around 20 82mm and 120mm mortars per kilometer of front.

Such a density was normal for defense. One must note that by maneuvering artillery it was possible to create high densities along enemy main attack axes.

The depth of the antitank defense in the Voronezh Front reached 30 kilometers and it was formed in three or four lines. Antitank strong points formed the basis of the antitank defense. Each such point was headed by a commandant who was an artillery officer (a battery and sometimes a battalion commander or the chief of a rifle regiment's artillery). The composition and strength of antitank strong points varied and were determined by the importance of the axis, the nature of the terrain, and the presence of artillery weapons.

Antitank strong points were deployed along principal dangerous tank axes. Table 39 shows the disposition of antitank strong points *[PTOPs]* by lines.

TABLE 39: ANTITANK STRONG POINTS BY LINES

Army	*No. of Tank Axes*	*No. of PTOPs*	*Distribution of PTOPs by Line*	
			1st Line	*2d Line*
40th	**6**	**12**	**10**	**2**
6th Guards	**8**	**28**	**18**	**10**
7th Guards	**6**	**27**	**12**	**IS**

Mobile antitank reserves

Practice demonstrated that a system of antitank strong points in which artillery weapons were attached to designated terrain sectors and deprived of the capability for carrying out extensive maneuver did not fully resolve the problem of successfully fighting enemy tanks. Mobile antitank reserves play an exceptionally important role in the destruction of attacking enemy tanks which have penetrated into the rear through the antitank strong points. The Central and Voronezh Front commands considered this circumstance correctly and in a timely fashion. They created mobile antitank reserves in armies and in all formations. The combat training of these reserves was carefully thought out.

In his March 1943 instructions the Central Front artillery commander had already underscored the necessity for creating mobile antitank reserves. While implementing those instructions, each rifle division designated a mobile antitank reserve with a strength of no fewer than one artillery battalion and up to two companies of antitank rifles. The antitank reserve

was situated on one of the dangerous tank axes and had deployment lines which had been set up beforehand and were prepared so that they could occupy them in the shortest period after receipt of an agreed signal.

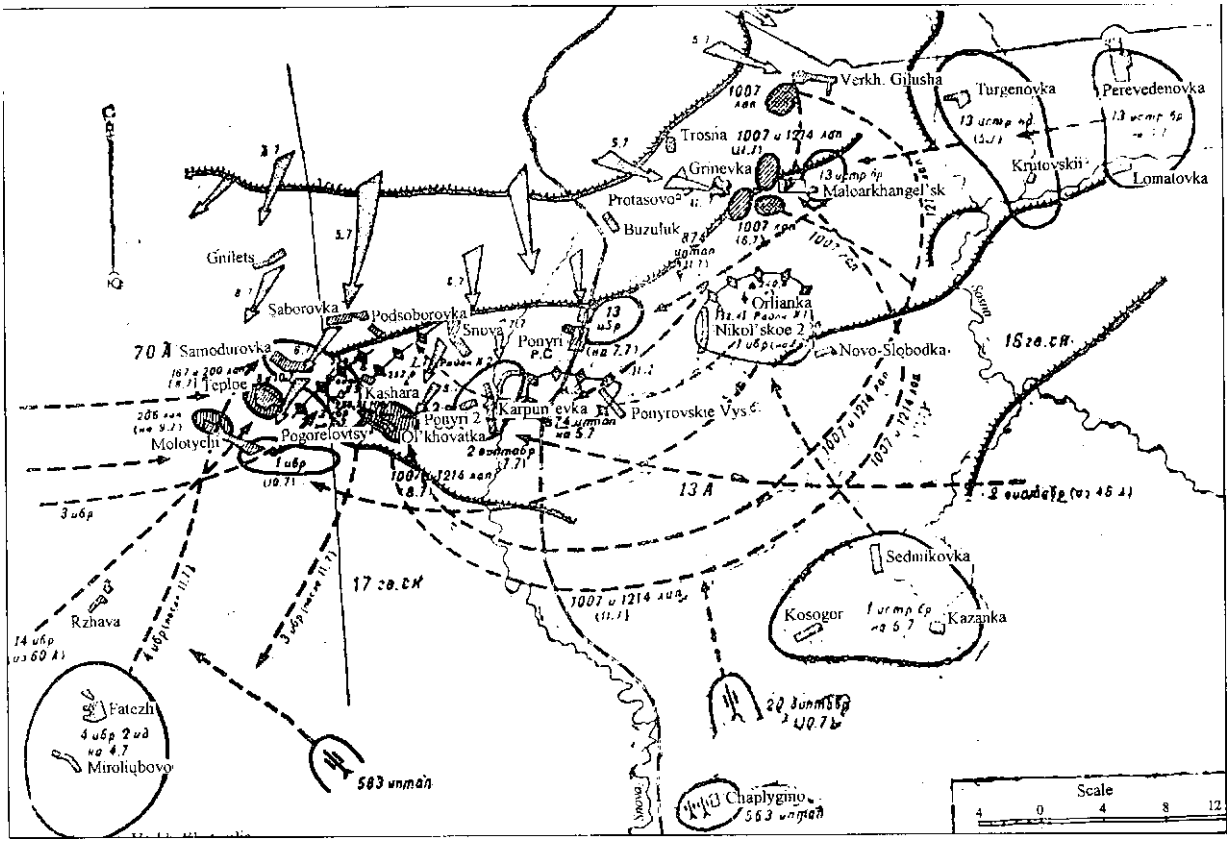
An antitank reserve with a strength no lower than one antitank artillery regiment was also allocated in each army. The reserve was constantly ready to occupy one of the previously prepared lines. Thus in the 13th Army the 874th Antitank Artillery Regiment, which was situated in the region of the railroad east of Karpunovka, was ready to occupy the following prepared areas: No. 1 - Hills 240.8 and 252.4; No. 2 - Snova and Hill 257.0; and No. 3 - Hills 238.5 and 238.1 (see Map 28). At this time areas Nos. 2 and 3 were located on the army's left flank with their front facing its neighbor [70th Army]. Artillery was moved forward into those areas to protect the junction between the 13th and 70th Armies.

By the beginning of the enemy offensive, a considerable quantity of antitank weapons were situated in the Central Front commander's reserve. The strength and grouping of antitank reserves is shown in Table 40 and on Map 29.

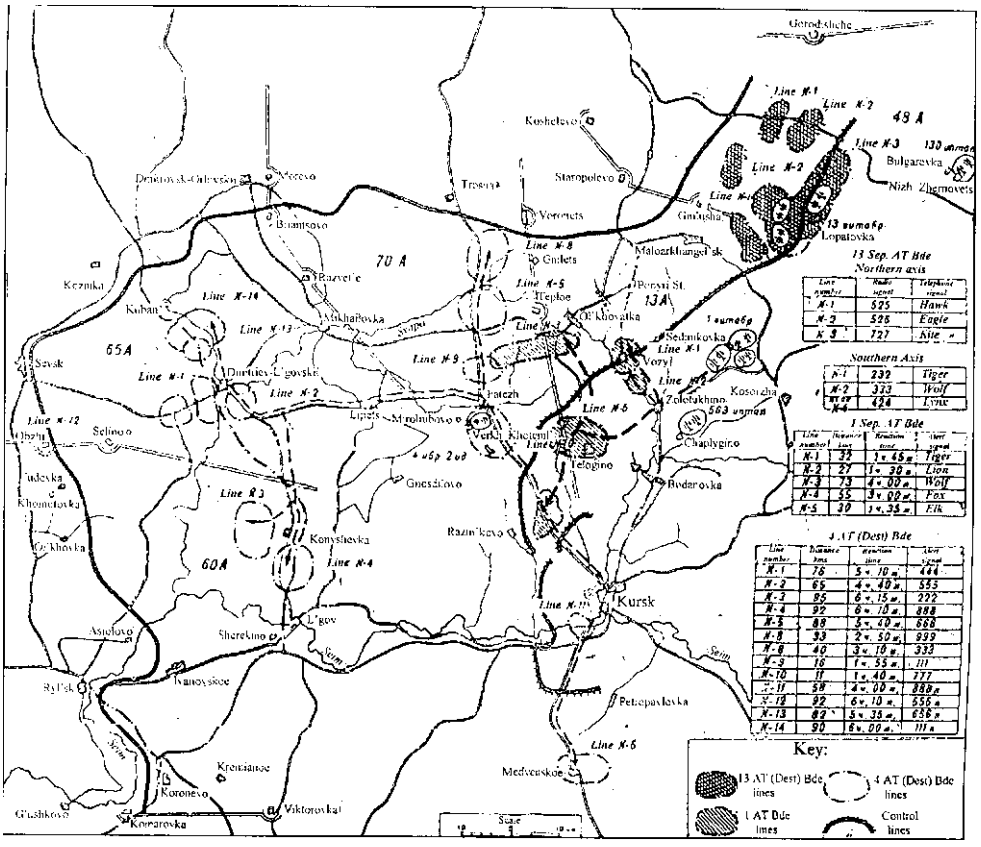
TABLE 40: ANTITANK RESERVES

	No. of Guns				
Formation	*45mm*	*57mm*	*76mm*	*Total*	*Concentration Area*
4th Destroyer Brigade (one regt)	**13**		**18**	**31**	**Fatezh, Miroliubovo, Verk. KhotemP (the junction of 13 th and 70th Armies**
1st Destroyer Brigade	-	**20**	**40**	**60**	**Sedmikovka, Kosorog, Kazanka**
13th Antitank Artillery Regiment		**20**	**40**	**60**	**Perevedenovka, Lomatovka [Lomatovka] (the junction of 48th and 13 th Armies)**
130th Antitank Artillery Regiment (RGK)	-	-	**24**	**24**	**Bulgarovka (48th Army)**
563d Antitank Artillery Regiment (RGK)	**24**		—	**24**	**Chaplino [Chaplygino] (13th Army)**
Totals	**37**	**40**	**122**	**199**	

The plan for the use of the *front* antitank reserve was compiled from an estimate of the likely tank attacks along any axis. As is shown by Map 29, each destroyer brigade had several previously reconnoitered and prepared lines along the most probable operational axes of enemy tanks. The roads to these lines were well reconnoitered and surveyed and special signals were



Map 28: **The maneuver of artillery antitank weaponry in the defensive battles in the Central Front, 5-11 July 1943**



Map 29: **Antitank defense lines and the march routes of the Central Front's mobile antitank reserves, 5 July 1943**

arranged to call for artillery fire on them. The *front* artillery staff had threefold communications with all formations and units of the *front* antitank reserve through liaison officers, radio communications by *front* headquarters channels, and radio communication by *front* artillery headquarters channels.

The Voronezh Front command also created mobile antitank reserves in divisions, corps, armies, and in the *front*. Their strength and composition wholly depended on the importance of a given axis. Thus, for example, in the 6th Guards Army's divisions, these reserves consisted of one or two batteries of 76mm guns, antitank rifle companies, automatic weapons companies, and 10-15 sappers [combat engineers] with reserves of antitank mines and explosives.

Armies had strong antitank artillery reserves. The 6th Guards Army had two separate antitank artillery brigades and two antitank artillery regiments. The 7th Guards Army had one separate antitank artillery brigade and one antitank artillery regiment.

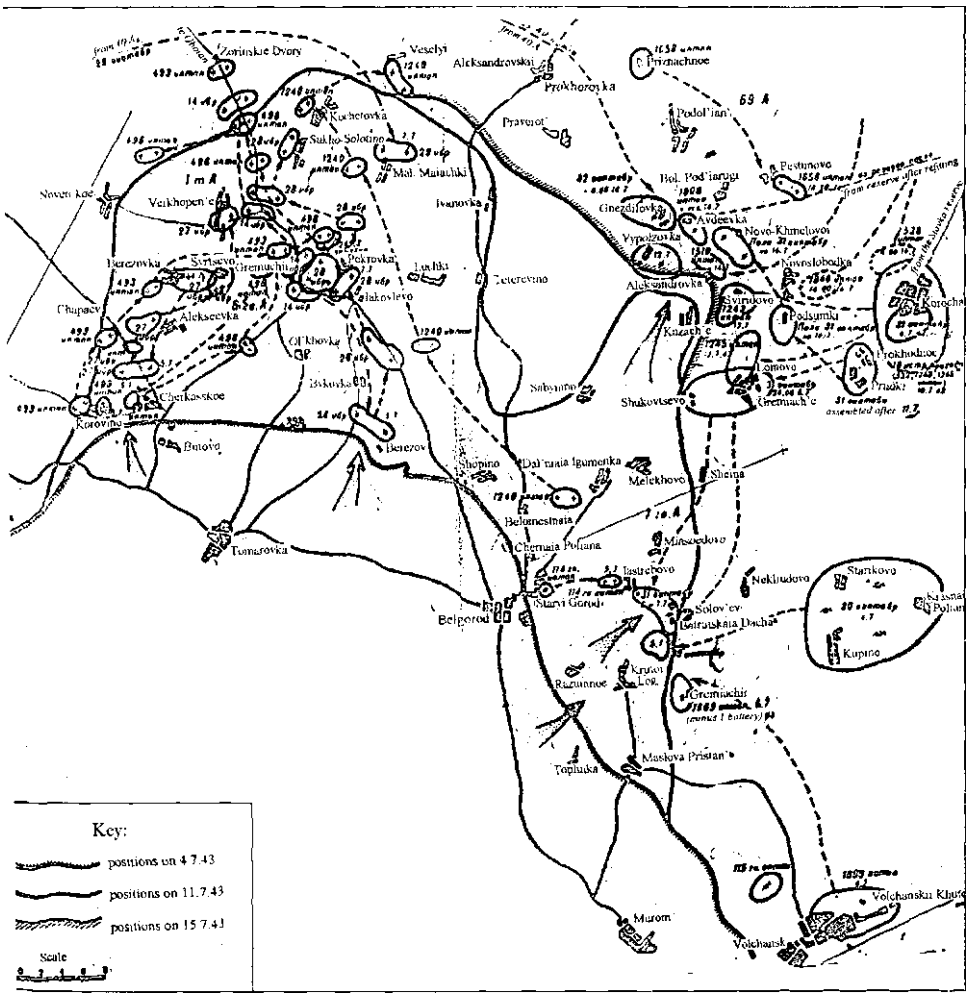
Antitank reserves were situated in prepared strong points (antitank regions) and were ready to maneuver.

The 6th Guard Army's antitank reserve occupied positions in the following regions (see Map 30): the 27th Antitank Artillery Brigade in Berezovka and Syrtsevo, the 28th Antitank Artillery Brigade in Pokrovka and the heights to the west straddling the Belgorod-Oboian' road, the 496th Antitank Artillery Regiment in the Gremuchii region, and the 493d Antitank Artillery Regiment in Sukhaia Wood and Hill 249.3.

The 7th Guards Army's antitank reserve was deployed as follows: the 30th Separate Antitank Artillery Brigade in the Starikovo, Kupino and Krasnaia Poliana region in the center of the army front, and the 1669th Antitank Artillery Regiment in the Volchanskie Farm region on the army's left flank.

The mobile antitank reserves of the Voronezh Front's armies also had deployment lines [positions] which had been prepared in advance, and all routes of anticipated maneuver were carefully reconnoitered, the time was calculated for the required movement of the reserves to new deployment lines, and signals to summon them were established. In the 7th Guards Army maneuver was also envisioned along the most dangerous tank axes (Belgorod and Volchansk) by antitank forces which were reinforcing rifle divisions. In the event of a penetration by large enemy tank forces, the 114th and 115th Guards Antitank Artillery Regiments, which were situated on the opposing flanks of the army, would throw themselves into battle, the former on the left flank and the latter on the right flank.

At the beginning of the operation the *front* antitank reserve consisted of two antitank destroyer brigades (20 45mm and 104 76mm guns), one mortar brigade (144 120mm mortars), and eight separate antitank rifle battalions (576 antitank rifles).



Map 30: **The maneuver of artillery antitank weaponry in the defensive battles of the Voronezh Front, 4-15 July 1943**

THE FIGHT OF ALL ARTILLERY CALIBERS WITH ENEMY TANKS

The antitank defense plan anticipated combat by artillery from covered [indirect] firing positions in the struggle with enemy tanks in front of the forward edge and when enemy tanks were wedging into the rear of our defense.

The former mission was fulfilled by artillery fire from main caliber and guards mortar units. These artillery weapons prepared in advance:

- long-range strikes against enemy tanks concentrated in assembly [waiting] positions;
- concentrated fire on any accumulation of enemy tanks, regardless of where they were situated;
- mobile barrage fire on enemy tank attack routes to the forward edge; and
- stationary barrage fire in front of the forward edge and guns firing direct from antitank strong points joined the struggle against the enemy tanks at the final line of stationary barrier firing.

Guns of all systems and calibers were charged with fighting enemy tanks in the depth of the defense. Divisional artillery and High Command Reserve artillery prepared concentrated fire on possible sectors of enemy tank penetration in advance. While doing so, they expected extensive shifting of the trajectories of artillery divisions and regiments to dangerous tank axes and wheeled maneuver from neighboring sectors. The resolution of these missions was supported by timely personal reconnaissance and the preparation and establishing of observation posts, firing positions, and probable march routes for wheeled maneuver.

The maneuver of the Central Front's antitank reserves

Antitank reserves played a considerable role in the defeat of attacking German forces, especially the tank and motorized forces and, at the same time, the antitank reserves' great maneuverability had particularly important significance.

The presence of strong mobile antitank reserves at all *front* levels and their flexible maneuver permitted the delivery of attacks on the enemy where he posed the greatest threat. In all instances and everywhere the enemy ran up against the organized fire of antitank artillery units. While suffering immense losses in his main shock force — tanks, the enemy was forced to halt, bring up fresh forces, regroup along a given axis, or search for a weak spot in our defense. As a result the tempo of his offensive decreased sharply and his advance became slow and indecisive.

During the seven days of the offensive in the Central Front, the maximum enemy advance along the main attack axis was 15 kilometers, that is 2 kilometers per day. In the course of ten days in the Voronezh Front, the enemy advanced 42 kilometers along the main attack axis, which amounted on average to 4 kilometers per day.

Thus nowhere did the enemy succeed in entering the operational rear with his mechanized units. All his operations were reduced exclusively to

making a breech for the purpose of creating a gateway through which the mechanized and infantry formations could enter. The slowed offensive tempo and forced conditions permitted our command to carry out timely maneuver with mobile antitank means along the front by means of snatching units and formations from less threatened sectors and also from the rear (from second echelons and reserves).

The skillful and rapid maneuvering by antitank weapons from the rear and along the front played a decisive role in the repelling of mass enemy tank attacks.

The defensive battle for the Kursk bulge was a brilliant example illustrating the significance of a deep defense and echeloned reserves, particularly mobile antitank.

After a strong artillery and air preparation, at 0530 hours on 5 July the Germans launched an offensive along 13th Army's entire front and along the adjoining flanks of the Central Front's 48th and 70th Armies. The enemy delivered his main attack along and south of the Orel-Kursk railroad line and a secondary attack against Maloarkhangel'sk. The determination of the enemy's attack axes required the movement forward of antitank weapons from the *front* reserve.

On the call of the 48th Army commander, the 13th Antitank Artillery Brigade had been moved by 0700 hours on 5 July forward to previously prepared Line No. 1 (southern) in the Turgenevka and Krutovskii region at the junction with the 13th Army.

The 1st Antitank Artillery Brigade from the *front* reserve was operationally subordinated to the 13th Army artillery commander. The brigade received the mission to occupy a combat formation behind the army center along the second line in the Orlianka, Nikol'skoe 2, and Novo-Slobodka region and to prevent enemy tanks from penetrating from Maloarkhangel'sk and Buzuluk to Novo-Slobodka. Units of the 18th Guards Rifle Corps were occupying a defensive line to the right and the 874th Antitank Artillery Regiment, which was situated in army reserve, was being positioned to the left along the Ponyri heights and Karpun'evka line.

By the day's end on 5 July the enemy had managed to reach the second defensive line in several sectors at the junction of the 13 th and 70th Armies. By order of the *front* artillery commander, the 3d Destroyer Brigade, which had become part of the 70th Army, was moved forward on the night of 6 July into the region southwest of Pogorelovtsy, Hill 238.1, and Samodurovka with the mission to prevent a tank penetration from Snova, Saborovka, and Gnilets to Samodurovka and Teploe. Thus, on the first day of the enemy offensive, part of the *front* antitank reserve had already been moved forward to protect the junctions with the 13th Army. The enemy tank and motorized infantry advance had been stopped by the movement forward of antitank reserves and by energetic unit counterattacks.

On 6 July up to two infantry divisions and up to 250 enemy tanks developed an offensive toward Maloarkhangel'sk, which required the dispatch of strong antitank weaponry to that region. The 13th Antitank Brigade, which had been brought forward to the Maloarkhangel'sk region, was put at the disposal of the 13th Army artillery commander to restore the situation there. Furthermore, the 12th Artillery Division's 1007th Light Artillery Regiment was also transferred there.

The continuing bitter attacks by large masses of enemy tanks along the railroad line to Ponyri Station required that this sector of the front be reinforced with artillery. On the night of 7 July, the 13th Army commander transferred the 13th Antitank Brigade from the Maloarkhangel'sk region to the region of Ponyri Station to protect that important defensive node.

Having moved forward between 1800 and 2100 hours on 6 July in timely fashion to the Samodurovka region at the junction of the 13th and 70th Armies, the 3d Destroyer Brigade repulsed three powerful enemy tank attacks in a strength of from 70 to 150 tanks. Particularly bitter attacks took place on 7 July in the center and on the left flank of the 13th Army.

To reinforce the 17th Guards Rifle Corps, the 2d Separate Antitank Brigade was transferred from the 48th Army to the Ponryi 2 region on the instructions of the *front* artillery commander. At 1530 hours, that is only one and a half hours after it had formed for combat in the Kashara region, it had already joined battle with the enemy tanks.

The combat on 6 and 7 July demonstrated skillful and flexible maneuvering by antitank forces from passive *front* sectors to more active sectors. This maneuver played a great role in the repelling of the enemy attacks.

The enemy sought to develop his offensive on the left flank of the 13th Army and, therefore, on 8 July the army commander transferred the 1007th and 1214th Light Artillery Regiments and the 12th Artillery Division's 11th Mortar Brigade from the army right flank to the Ol'khovatka region on the left.

All day on 8 July particularly bitter combat raged in the Samodurovka region at the junction of the 13th and 70th Armies. The 3d Destroyer Brigade and the 378th Antitank Artillery Regiment repelled four enemy tank attacks, each 100 to 300 tanks strong. During that day of combat, the enemy lost 75 tanks (including 12 T-VI 'Tigers') in that sector.

In order to strengthen the junction with the 13th Army, the 70th Army commander issued an order to move the 1st Artillery Division's 167th and 200th Light Artillery Regiments forward into the Teploe region to conduct direct fire on the enemy. The 206th Light Artillery Regiment was moved forward into the Molotychi region on the night of 9 July.

The heavy losses which the enemy suffered in combat from 5-8 July forced him to regroup on 9 July.

After the regrouping, the enemy launched an offensive on 10 July from

the Kashara and Samodurovka region with more than one infantry division and supporting tanks. However, the 2d Brigade's destroyer regiments and the 12th Artillery Division's light artillery regiments successfully repulsed all the enemy attacks.

To reinforce the antitank defense at the junction of the 13th and 70th Armies, the 1st Destroyer Brigade, which previously had been situated in the 13th Army's center, was resubordinated to the 70th Army commander. The brigade formed for combat in the region east of Molotychi. This reinforcement of the junction of the 13th and 70th Armies played a significant role in combat on 11 July, when 70th Army units not only repelled all enemy attacks but also captured the Teploe region by successful counterattacks. On 10 July the 13th Army was reinforced by the 20th Separate Antitank Artillery Brigade, which had arrived from *Stavka* reserve.

On 11 July the enemy resumed his offensive in the general direction of Maloarkhangel'sk on the 13th Army's right flank. The stable situation on 13th Army's left flank permitted the transfer to the Maloarkhangel'sk region of the 1007th and 1214th Light Artillery Regiments and the 11th Mortar Brigade, which had earlier been sent to the left flank. On the same day, the 874th Antitank Regiment was dispatched to the Maloarkhangel'sk region. The enemy succeeded in capturing Grinevka, but his further attempts to penetrate into the rear of our defense were repelled by artillery fire.

Having suffered considerable losses, the enemy ceased his offensive on 12 July. In seven days of combat along a 45-kilometer front, the enemy succeeded in penetrating only 15 kilometers into our defense at the junction of the 13th and 70th Armies.

It should be noted that during the July defensive battles the Central Front's forces managed to maintain spare antitank reserves until the end of the enemy offensive by the extensive maneuvering of antitank artillery weaponry both from the rear of the defense and in units situated in less threatened sectors. Only on 11 July did the 13th Army artillery commander throw his antitank reserve, the 874th Antitank Regiment, into combat. Up to this time the 13th Army artillery commander maneuvered units which he had received from *front* reserve and also artillery units situated in less threatened *front* sectors.

Having employed a part of his reserve to reinforce his armies in the initial days of the offensive, the *front* artillery commander subsequently executed maneuver by antitank weaponry from less threatened *front* sectors to more threatened ones (the maneuver of the 2d and 13 th Antitank Brigades from the 48th Army to the 13th Army's sector, and so forth). While preserving part of his antitank reserve, the *front* artillery commander maneuvered all his *front* means, while ordering his army artillery commanders to maneuver their means instead of again reinforcing their partially expended antitank reserves. When the main axis of the enemy attack had been determined the

front artillery commander transferred the 14th Antitank Brigade (which was in the process of forming) and the 563d Antitank Regiment from the 60th Army to *front* reserve and resubordinated them, operationally, to the 2d Destroyer Brigade commander. These antitank assets were situated at the junction of the 13th and 70th Armies, ready to maneuver along dangerous tank axes. Furthermore, the 4th Destroyer Brigade and the 130th Antitank Regiment were still at the disposal of the *front* artillery commander.

Thus, at the moment the enemy was exhausted, our defense still had significant forces to repulse new enemy tank attacks.

The maneuver of the Voronezh Front's antitank reserves

The Voronezh Front's artillery also exhibited high maneuverability during combat operations (see Map 30).

On 5 July the enemy delivered a series of powerful attacks in the Cherkasskoe region and along the Bykovka axis against the 6th Guards Army's right flank and center. This required the successive commitment to combat from the army antitank reserve, initially, of the 493d and 496th Antitank Regiments (the former from the Korovino region and the latter from the Cherkasskoe region) and then at 1200 hours of the 27th Separate Antitank Brigade. While cooperating with the fire of antitank strong points, these antitank means delayed the enemy tanks which had penetrated our defense. The penetration of the large tank group into the region south of Bykovka required the movement there of the 28th Separate Antitank Brigade from the army antitank reserve.

The attack by strong tank groups along the 6th Guards Army's entire front did not permit the carrying out of maneuver at the expense of weakening other sectors of the army front. As a result, on the first day of battle the army artillery commander was forced to employ all his antitank reserve.

It was clear that the revealed axis of the enemy main attack also required reinforcement of the 40th Army's left flank. To do so, by order of the *front* artillery commander on 6 July, the 29th Antitank Brigade, the 222d Antitank Regiment, the 111th Guards Howitzer Artillery Regiment, and the 66th Guards Mortar Regiment were transferred from the 38th Army. In addition, the 12th and 869th Antitank Artillery Regiments and one guards mortar regiment were placed in the 40th Army commander's reserve.

Subsequently, beginning on 6 July, the rapid movement forward of antitank reserves began to cover the Oboian' axis firmly. Thus, on 7 July, while operating in accordance with the antitank reserve maneuver plan, the 14th Antitank Brigade of the *front* reserve was moved forward into the region of the road junction 3 kilometers southwest of Pokrovka. Along that line the brigade, together with part of the 28th Antitank Artillery Brigade, inflicted serious losses on the large enemy tank groups which were attacking along

the road northeast from Butovo. By the morning of 7 July the 29th Separate Antitank Brigade, which had been transferred from the 40th to 6th Guards Army, reached the Mai. Maichki region. In all, during the period from 6 through 9 July two antitank brigades, six antitank regiments, and a number of other artillery and mortar units were transferred from *front* reserve and from the 38th and 40th Armies (besides combined-arms and tank formations and units) to reinforce the 6th Guards and 1st Tank Armies, which were defending along that axis.

The German offensive aimed at penetrating along the Oboian' and Prokhorovka axes was repulsed on all attack axes chiefly by artillery fire of all calibers and especially by the artillery fire of the antitank regiments and brigades, which were flexibly maneuvering, depending on the nature of enemy tank operations. The maneuver of antitank artillery weapons permitted creation of high artillery densities along threatened axes and, at the same time, inflicted great tank losses on the enemy.

The maneuverability of antitank units and formations during this period resulted from close cooperation with the tank units of the 1st Tank Army and the separate tank corps.

On the 7th Guards Army's front the enemy delivered his attack along the Razumnoe and Miasoedovo axes against the army's right flank south of Belgorod. Considering the enemy's desire to develop success to the north and the northeast, the army artillery commander carried out the following artillery maneuver: he transferred the 114th Antitank Regiment from the Staryi Gorod region to the Iastrebovo region and moved the 30th Separate Antitank Artillery Brigade from the army reserve forward to a line 5 kilometers northeast of Krutoi Log with the mission of preventing enemy tanks from penetrating from Razumnoe. The 1669th Antitank Regiment was transferred from the Volchanskie Farm region to the Gremiachii region to prevent enemy tanks from spreading to the east.

Great attention was devoted to protecting the junction between the 6th and 7th Guards Armies. To this end the 31st Antitank Brigade and the 131st and 132d Separate Antitank Rifle Battalions were resubordinated from the *front* reserve to the 7th Guards Army commander. The 31st Antitank Brigade reached the Lomovo and Shukhovtsevo region on 5 July and on 6 July it moved forward into the Iastrebovo and Solov'ev State Farm region, where it fought for two days.

In view of the fact that the enemy on the 7th Guards Army's front developed the offensive in the direction of Melekhovo and further to the north, it was necessary to transfer part of the antitank artillery weaponry from the 7th Guards Army and *front* reserve to 69th Army. Thus on 7 July the 31st Antitank Brigade was shifted to that army and on 9 July two antitank regiments, the 27th Separate Gun Artillery Brigade and one guards mortar regiment were transferred. On 11 July the 10th Separate Antitank Brigade,

which had arrived from *Stavka* reserve, received the mission of protecting the Korocha region.

Since the enemy had captured the Sabynino, Kazach'e, and Melekhovo region by 11 July and was developing success to the northeast and the north, the 10th Antitank Brigade occupied an antitank defense on the Vypolzovka, Sviridovo, Podsumki, and Lomovo line at first light on 12 July, where it occupied a previously prepared defensive line.

The subsequent course of operations prompted new regroupings. Having replenished its equipment, on 14 July one regiment of the 31st Antitank Brigade occupied an antitank defense in the Podsumki region and another in the Novo—Khmelevoi region to protect the axis from Aleksandrovka, which was occupied by the enemy, to Bol. Pod'iarugi.

Furthermore, on the instructions of the *front* artillery commander, the 69th Army was reinforced by the 32d Antitank Brigade, which was transferred from the 40th Army, and a number of other units and formations from the 38th, 7th Guards, and 5th Guards Tank Armies. On 14 July three more antitank regiments (1008th, 538th, and 1846th) were transferred to the 69th Army. In all, during the period from 10 through 14 July the 69th Army was reinforced by 13 antitank regiments.

Encountering powerful antitank artillery strikes along all the axes and sectors of his offensive and suffering huge losses in tanks and personnel, the enemy shifted to the defense on 12 July along a considerable extent of the front, and by 16 July, completely exhausted, he fully ceased his offensive, going on to the defense along the entire front.

The successful maneuvering by mobile antitank reserves played a decisive role in the successful defeat of the enemy's attacking tank masses. At the same time it should be noted that the powerful tank attack the enemy delivered along a series of most important Voronezh Front axes forced the expenditure during the initial days of combat of all army antitank reserves and a considerable portion of the *front* reserves. The subsequent form of the enemy's offensive front and his main attack axes permitted the *front* command to carry out extensive maneuver by antitank forces from unthreatened sectors of the 38th and 40th Armies and the left flank of the 7th Guards Army.

The defensive battle demonstrated that antitank brigades and regiments were powerful antitank means, capable of carrying out extensive wheeled maneuver along dangerous axes and creating fire zones which were impassable by tanks.

To a significant degree the firepower of antitank units increased as a result of their cooperation with tank units. The cooperation of antitank brigades and regiments with guards mortar units, particularly when repelling combined enemy tank and infantry attacks, also proved to be highly effective. In this instance antitank guns destroyed enemy tanks and guards mortar sub-

units successfully conducted fire on infantry, cutting them off from the tanks.

GENERAL CONCLUSIONS

1. The July 1943 defensive battles fully confirmed that the basic antitank defense is artillery fire in combination with mortar and heavy infantry weapons fire, with a system of engineer obstacles and barriers, and also with the corresponding maneuver of engineer means of antitank defense.

2. The artillery defense must destroy attacking tanks:

- by massive fire from covered [indirect] firing positions before they reach the forward edge;
- by direct fire from antitank regions and strong points when they arrive at the forward edge; and
- by direct fire of antitank defense guns and all calibers of artillery, including massed, previously prepared fire from covered firing positions, during their penetration into the depth.

3. Mobile antitank reserves complete the defeat of tanks which have wedged into the rear. These reserves should be sufficiently strong and highly maneuverable. It is obligatory to include sapper units and subunits with materials for constructing antitank obstacles and also automatic weapons subunits and antitank rifles in mobile antitank reserves, whose nuclei are motorized and self-propelled artillery units and formations.

Practice shows that it is expedient to create mobile antitank reserves in divisions, corps, armies, and at the *front*. In armies it is expedient to have a mobile antitank artillery reserve consisting of no fewer than one antitank brigade.

4. For the successful employment of mobile antitank reserves dangerous tank axes must be determined and evaluated, principal decisions must be made, and a plan must be drawn up in several variants for the use of antitank reserves, all in timely fashion.

5. In order to ensure precise and continuous action by mobile antitank reserves in combat it is necessary in advance:

- to prepare probable deployment lines, to set up firing positions, observation points, and slit trenches for the crews in them, and to erect antitank engineer obstacles;
- to designate march routes for the arrival of the antitank reserve at deployment lines, to carefully reconnoiter them, and to determine the time

required for movement of the artillery forward to those lines; and

- to organize reliable communications and to establish alert signals, which would ensure the timely arrival of the mobile antitank reserve to the deployment line.

6. The practice of combat operations demonstrates that, besides mobile antitank reserves, the maneuver of antitank units and formations from less threatened front sectors to more threatened ones plays a significant role in the defeat of enemy tanks. Tentative planning of such maneuver by antitank means is executed in advance, and responsible units and formations must be forewarned about the maneuver and be prepared for it.

7. The principle of preserving one's own mobile antitank reserves in combat is observed to a maximum and, when reserves have been expended, it is necessary to take measures to re-create them from units which have been withdrawn from unthreatened or less threatened *front* sectors.

8. Mobile antitank reserves must operate in close coordination with the firing systems of antitank strong points, in coordination with defending infantry and counterattacking tanks, and with artillery and mortar fire from covered [indirect] firing positions.

9. Mobile antitank reserves are obliged to operate boldly and decisively, and their forms and methods of maneuver must be varied, flexible, and adapted to the situation.

Practice shows that the types of maneuver suited to the mobile antitank reserve can be the following:

- an encounter with enemy tanks at previously prepared lines and strong points;
- the creation of 'firing sacks' by means of the timely and suitable positioning of guns and antitank obstacles;
- an encounter by part of the force with penetrating enemy tanks on previously prepared lines with simultaneous maneuver by the other part of the force against his flank and rear; and
- operations from the march.

Each of these maneuvers produces the greatest results if it corresponds to existing conditions and is conducted in cooperation with our tanks and infantry and massed artillery fire from covered positions.

10. Any region occupied by mobile antitank reserves must have sufficient depth. Combat formations are echeloned and, in all instances, the unit or formation which is operating as a mobile antitank reserve must have its own reserve.

NOTES

1. This chapter is from *Sbornik materialov po izucheniiu opyta voiny, No. 10, ianvar'-fevral' 1944 g.* **[Collection of materials for the study of war experience, No. 10, January-February 1944] (Moscow: Voenizdat, 1944), 112-25.**

Appendix 1:
List of Abbreviations

Soviet

A	tank army
mA	tank army
ак	artillery corps
акп	artillery penetration corps
СК	rifle corps
mk	mechanized corps
тк	tank corps
kk	cavalry corps
cd	rifle division
кд	cavalry division
абр	artillery brigade
unmабр	antitank brigade
и5р	antitank (destroyer) brigade
с5р	rifle brigade
мбр	mechanized brigade
мс5р	motorized rifle brigade
т5р	tank brigade
unman	antitank regiment
an	artillery regiment
сп	rifle regiment
сап	self-propelled gun regiment
тп	tank regiment
с5	rifle battalion
мсб	motorized rifle battalion
тб	tank battalion
5-и ПТр	antitank rifle battalion
гв.	guards (prefix)
о	separate (prefix)

Soviet artillery

габр БМ	high-powered artillery brigade
ап	artillery regiment
нап	gun artillery regiment
анап	army gun artillery regiment
гап	howitzer artillery regiment
лап	light artillery regiment
мп	mortar regiment
амп	army mortar regiment
гв.мп	guards mortar regiment
сап	self-propelled artillery regiment

German

A	panzer army
mA	panzer army
ак	army corps
mk	panzer corps
nd	infantry division
md	panzer division
мд	panzer grenadier division
охр. д	security division
пп	infantry regiment
мп	panzer regiment
охр.пп	security regiment
мд„МГ"	'Death's Head'SS panzer grenadier division
мд„АГ"	'Adolf Hitler' SS panzer grenadier division
md„Paux"	*'Das Reich"* SS panzer grenadier division
мд„ВГ"	*"Grossdeutschland'* panzer grenadier division
„СС"	SS

Appendix 2: Key Soviet and German Command Personnel

Antonov, Colonel-General Aleksei Innokent'evich: 1st Deputy Chief of the Red Army General Staff and *Stavka* member

Bakharov, Major-General B.S.: Commander, 18th Tank Corps, 5th Guards Tank Army

Bogdanov, Major-General S.I: Commander, 9th Tank Corps, 2d Tank Army

Burdeiny, Major-General A.S.: Commander, 2d Guards Tank Corps

Burkov, Major-General V.G.: Commander, 10th Tank Corps

Chernienko, Major-General D.Kh.: Commander, 31st Tank Corps, 1st Tank Army

Chistiakov, Lieutenant-General I.M.: Commander, 6th Guards Army

Gagin, Lieutenant-General I.V.: Commander, 70th Army

Getman, Major-General A.L.: Commander, 6th Tank Corps, 1st Tank Army

Grigor'ev, Major-General V.E.: Commander, 16th Tank Corps, 2d Tank Army

Hoth, Colonel-General Hermann: Commander, Fourth Panzer Army, which made the principal German attack on the southern face of the Kursk Bulge

Katukov, Lieutenant-General Mikhail Efimovich: Commander, 1st Tank Army, which defended the southern face of the Kursk Bulge in CITADEL

Kempf, Colonel-General Werner: Commander, Army Detachment Kempf, which attacked the southeastern shoulder of the Kursk Bulge

Kirichenko, Major-General I.F.: Commander, 29th Tank Corps, 5th Guards Tank Army

Kluge, Field Marshal Guenther von: Commander, Army Group Center, which attacked the northern face of the Kursk Bulge in CITADEL

Konev, Army General Ivan Stepanovich: Commander, Steppe Front, which counterattacked in CITADEL

Krasovsky, Lieutenant-General S.A.: Commander, 2d Air Army

Kravchenko, Major-General A.G.: Commander, 5th Guards Tank Corps

Kriuchenkin, Lieutenant-General V.D.: Commander, 69th Army

Krivishein, Major-General S.M.: Commander, 3d Mechanized Corps, 1st Tank Army

Khriukin, Lieutenant-General T.T.: Commander, 8th Air Army

Manstein, Field Marshal Erich von: Commander, Army Group South, which attacked the southern face of the Kursk Bulge in CITADEL

Model, General Walter: Commander, Ninth German Army, which attacked the northern face of the Kursk Bulge in CITADEL

Moskalenko, Lieutenant-General K.S.: Commander, 40th Army

Popov, Major-General A.F.: Commander, 2d Tank Corps

Pukhov, Lieutenant-General N.P.: Commander, 13th Army

Rodin, Lieutenant-General Aleksei Grigor'ovich: Commander, 2d Tank Army, which defended the northern face of the Kursk Bulge in CITADEL

Rokossovsky, Army General Konstantin Konstantinovich: Commander, Central Front, which defended the northern face of the Kursk Bulge in CITADEL

Rotmistrov, Lieutenant-General Pavel Alekseevich: Commander, Sth Guards Tank Army, which spearheaded Steppe Front's counterstroke at Prokhorovka

Rudenko, Lieutenant-General S.I.: Commander, 16th Air Army

Shumilov, Lieutenant-General M.S.: Commander, 7th Guards Army

Sinenko, Major-General M.D.: Commander, 3d Tank Corps, 2d Tank Army

Skvortsov, Major-General B.M.: Commander, 5th Guards Mechanized Corps, 5 th Guards Tank Army

Sudets, Lieutenant-General V.A.: Commander, 17th Air Army

Vasilevsky, Marshal of the Soviet Union Aleksandr Mikhailovich: Chief of the Red Army General Staff and Representative of the *Stavka* on the southern face of the Kursk Bulge

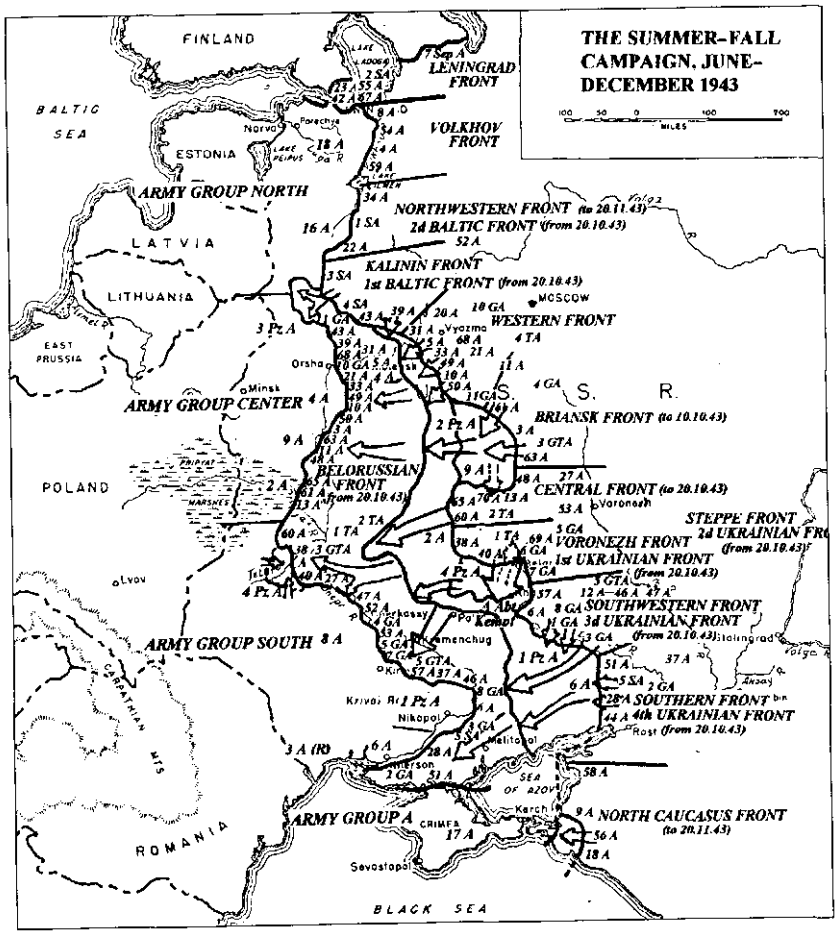
Vasil'ev, Major-General I.D.: Commander, 19th Tank Corps, 2d Tank Army

Vatutin, Army General Nikolai Fedorovich: Commander, Voronezh Front, which defended the southern face of the Kursk Bulge in CITADEL

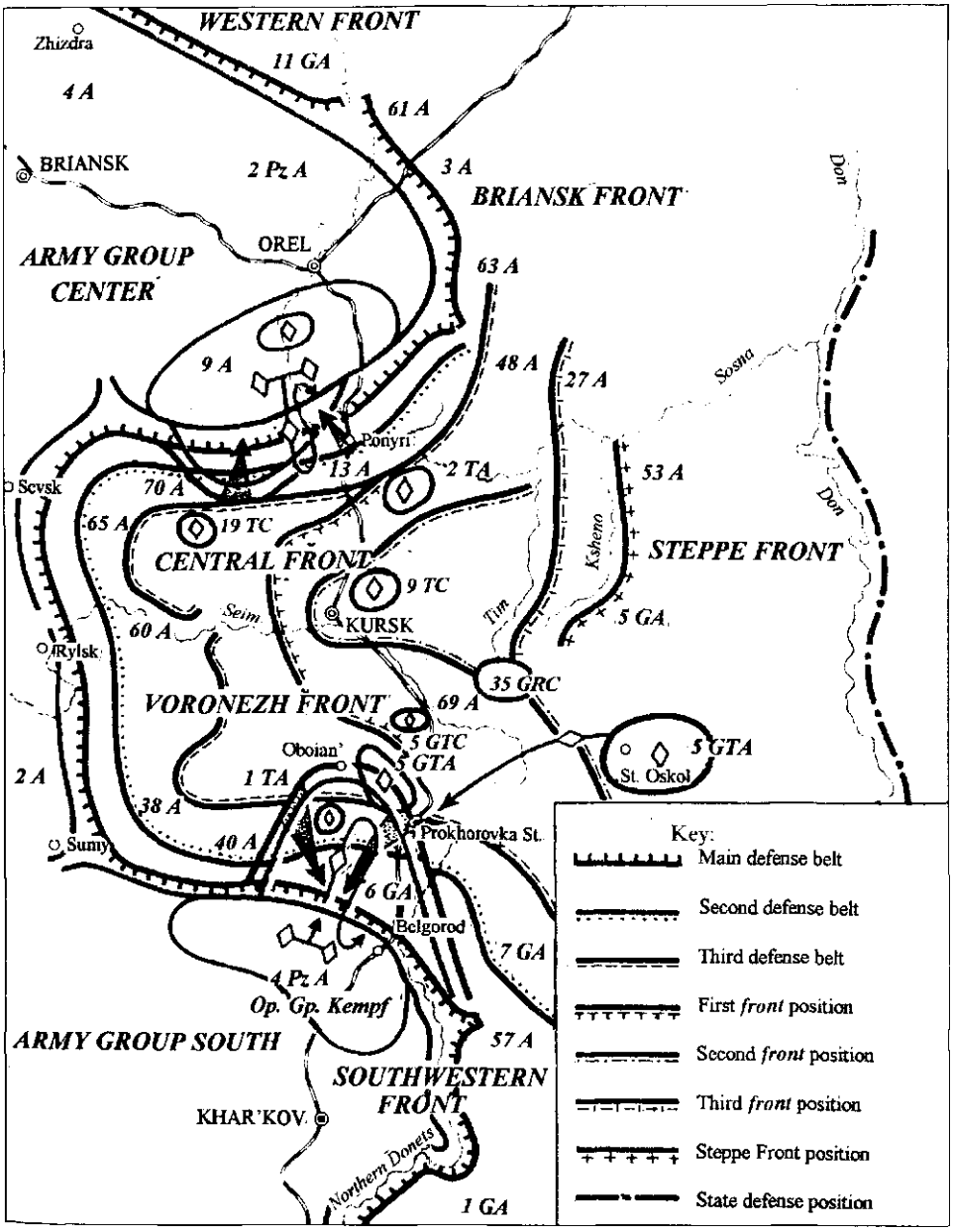
Zhadov, Lieutenant-General A.S.: Commander, 5th Guards Army

Zhukov, Marshal of the Soviet Union Georgi Konstantinovich: Deputy Commander of the Red Army and Representative of the *Stavka* for the northern face of the Kursk Bulge in CITADEL

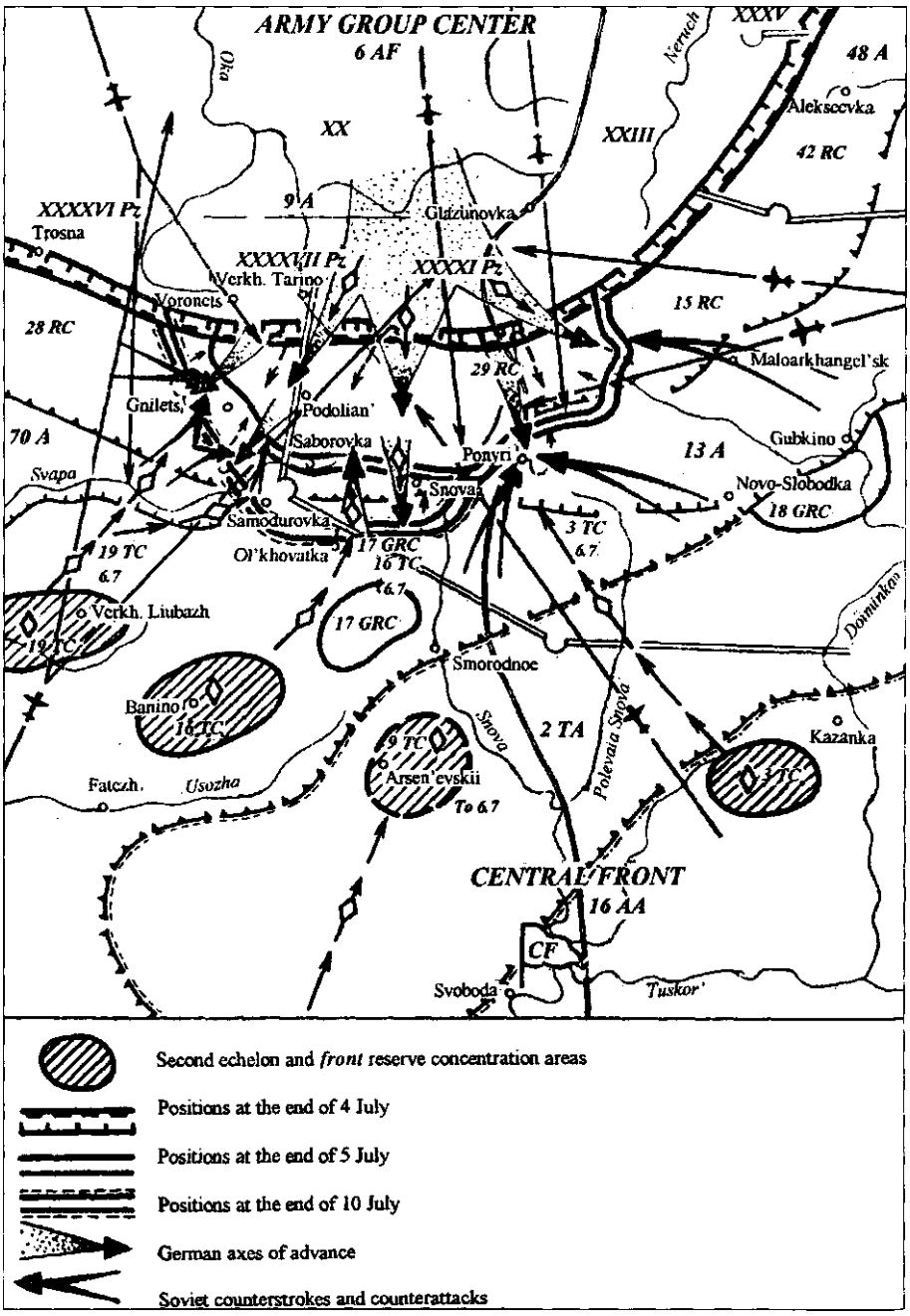
Appendix 3:
Editor's Maps



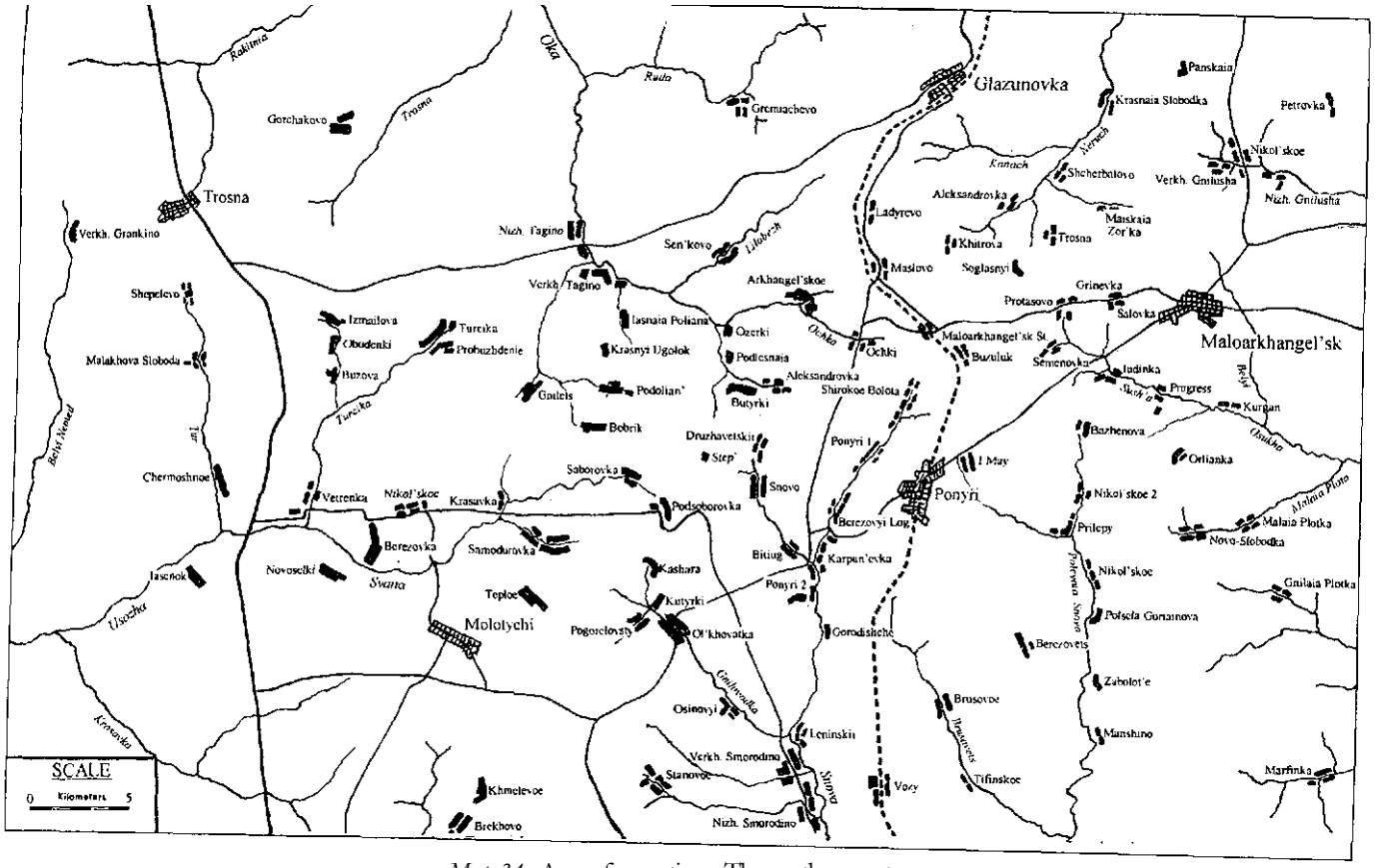
Map 31: The summer-fall campaign, June-December 1943



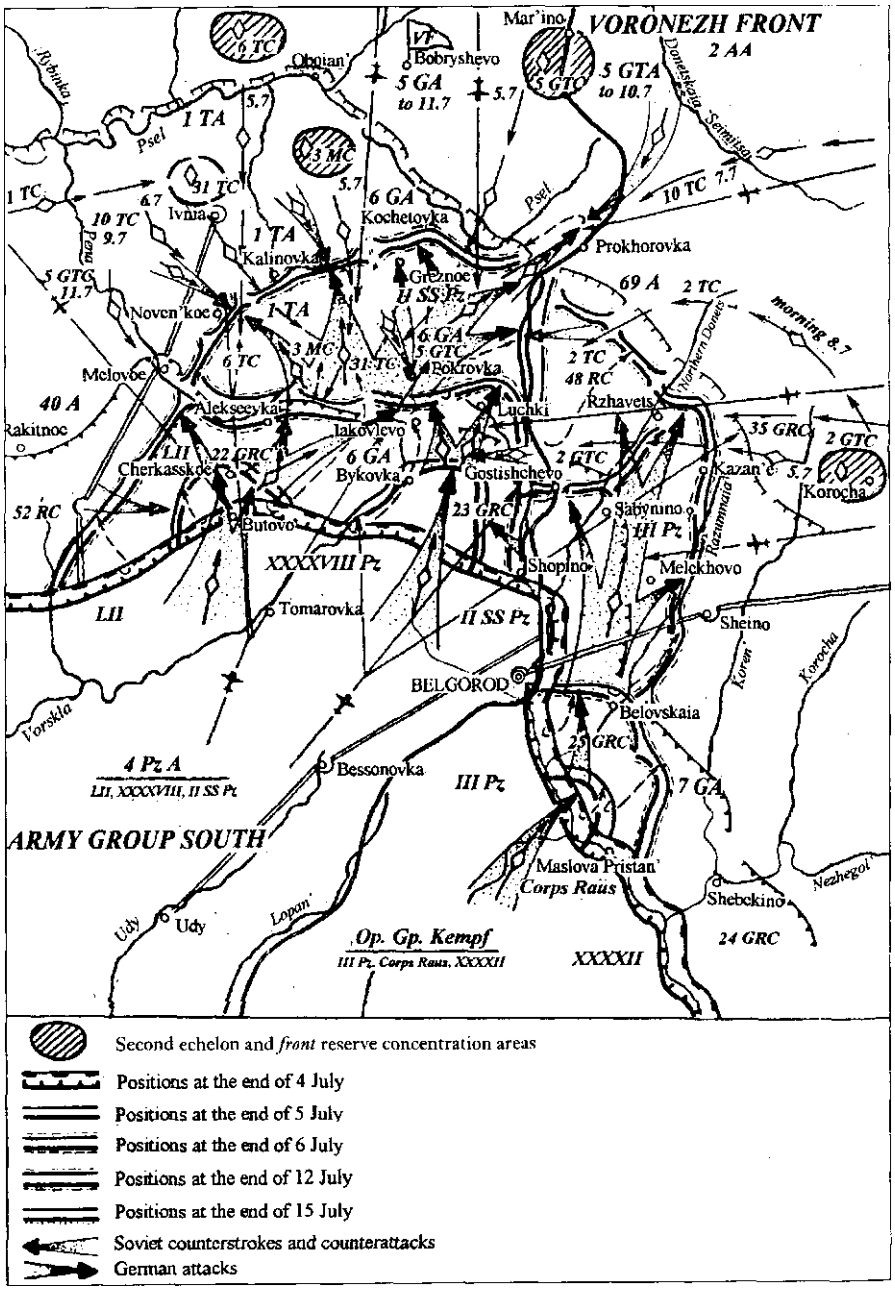
Map 32: **Soviet defensive actions in the Battle of Kursk, 5-23 July 1943**



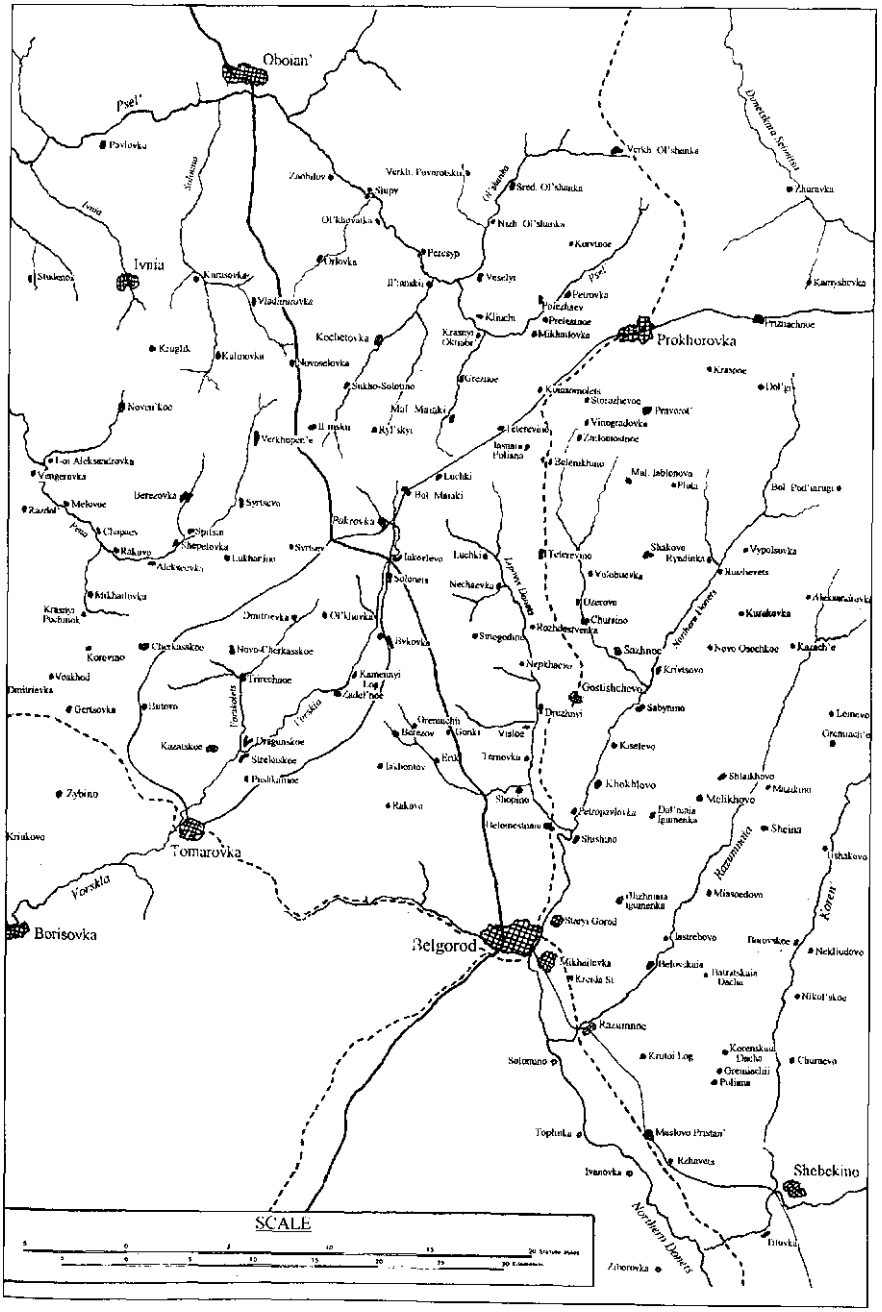
Map 33: The Battle of Kursk: The northern sector, 4-13 July 1943



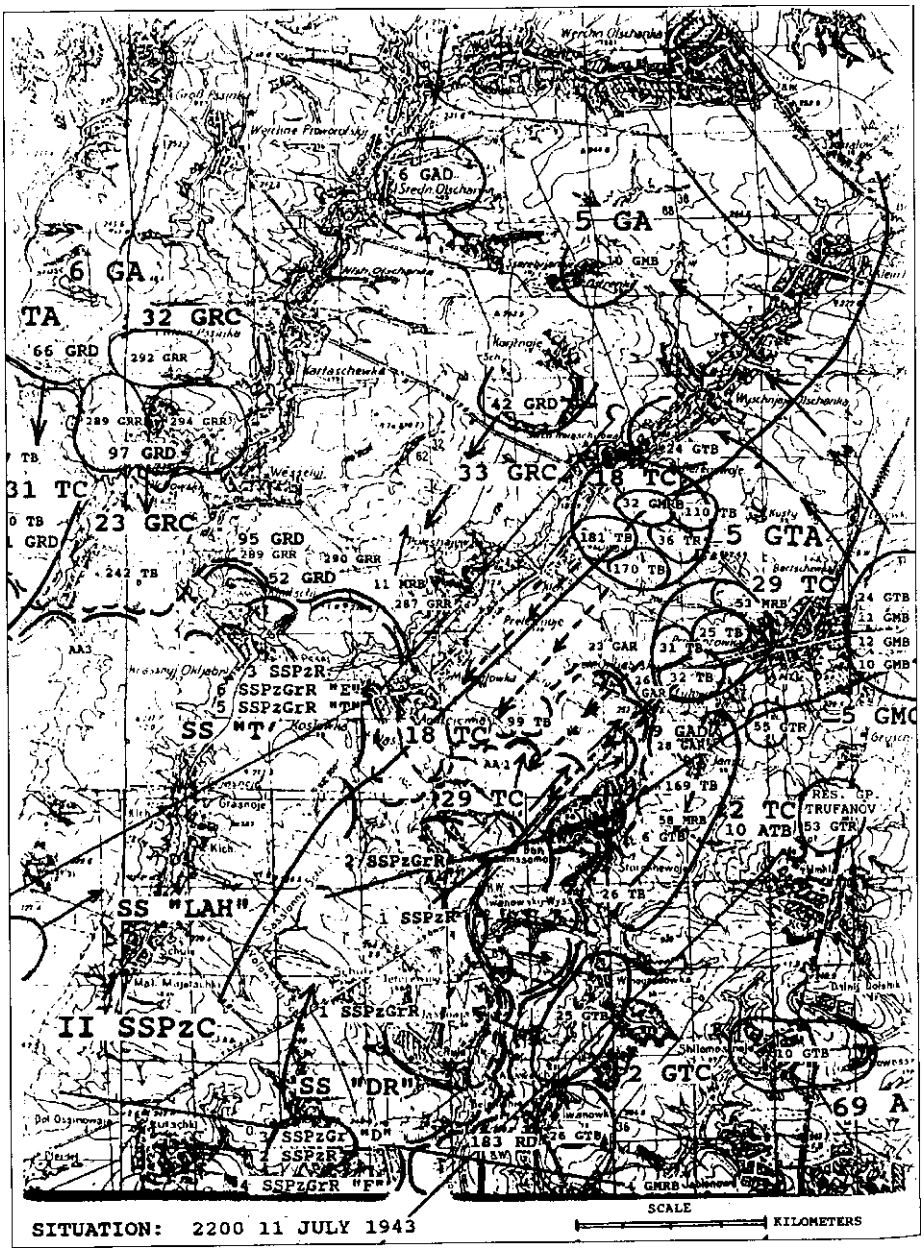
Map 34: Area of operations: The northern sector



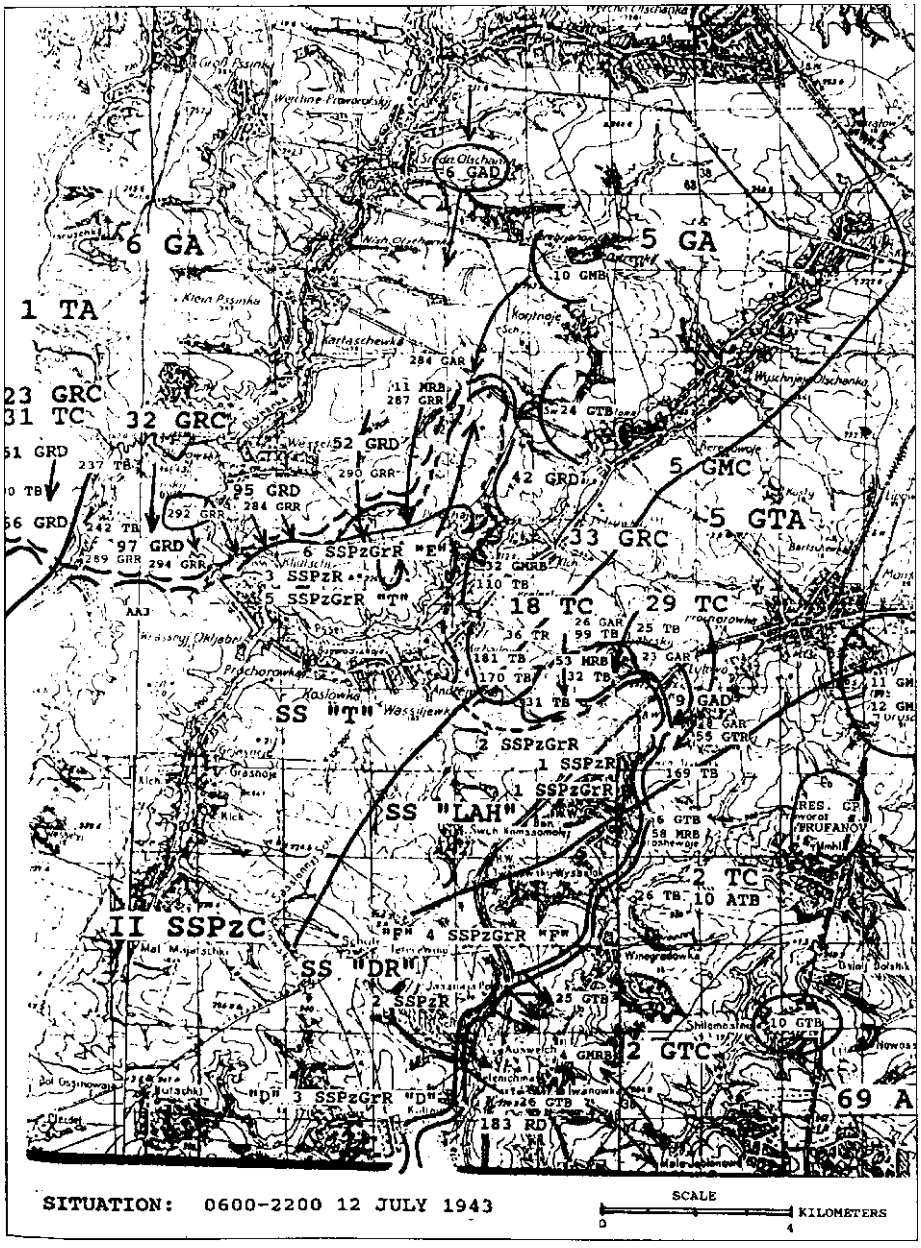
Map 35: The Battle of Kursk: The southern sector, 4-15 July 1943



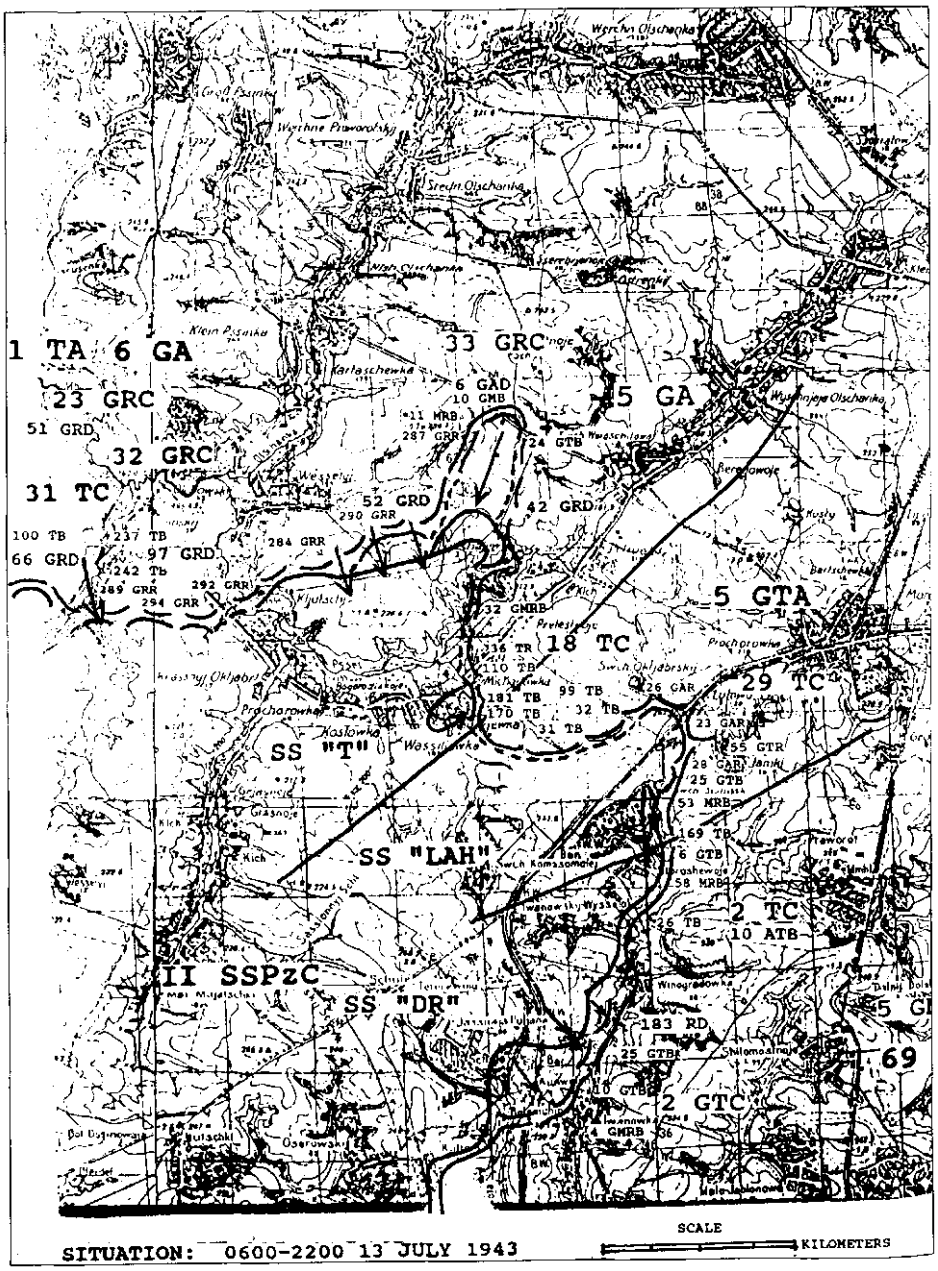
Map 36: **Area of operations: The southern sector**



Map 39: Climax at Kursk: The Battle of Prohkorovka (III)



Map 39: Climax at Kursk: The Battle of Prohkorovka (III)



Map 39: Climax at Kursk: The Battle of Prohkorovka (III)

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