



**THE  
LAND  
WARFARE  
PAPERS**

No. 14      NOVEMBER 1992

**Marshal Tukhachevsky and the "Deep Battle":  
An Analysis of Operational Level Soviet Tank  
and Mechanized Doctrine, 1935-1945**

**Peter J. Vlakancic**

A National Security Affairs Paper  
Published on Occasion by

**THE INSTITUTE OF  
LAND WARFARE**

ASSOCIATION OF THE  
UNITED STATES ARMY  
Arlington, Virginia

**MARSHAL TUKHACHEVSKY AND THE “DEEP BATTLE”:  
AN ANALYSIS OF OPERATIONAL LEVEL SOVIET TANK  
AND MECHANIZED DOCTRINE, 1935-1945**

by

Peter J. Vlakancic

**THE INSTITUTE OF LAND WARFARE  
ASSOCIATION OF THE UNITED STATES ARMY**

## **AN AUSA INSTITUTE OF LAND WARFARE PAPER**

In 1988 the Association of the United States Army (AUSA) established within its existing organization a new entity known as the Institute of Land Warfare. Its purpose is to extend the educational work of AUSA by sponsoring scholarly publications, to include books, monographs and essays on key defense issues, as well as workshops and symposia. A work selected for publication as a Land Warfare Paper represents research by the author which, in the opinion of the editorial board, will contribute to a better understanding of a particular defense or national security issue. Publication as a Land Warfare Paper does not indicate that AUSA agrees with everything in the paper but does suggest that AUSA believes the paper will stimulate the thinking of members and others concerned about important defense issues.

### **LAND WARFARE PAPER NO. 14, NOVEMBER 1992**

#### **Marshal Tukhachevsky and the "Deep Battle": An Analysis of Operational Level Soviet Tank and Mechanized Doctrine, 1935-1945**

by Peter J. Vlakancic

A 1992 graduate of the United States Military Academy, Peter J. Vlakancic wrote this research paper while still a cadet. Commissioned a second lieutenant in the Armor branch of the United States Army, he is undergoing the Armor Officer Basic Course at Fort Knox, Kentucky. Following completion of that training, he will be assigned to the 1st Armored Division in Germany. A native of Queens, New York, Lt. Vlakancic served with the 320th Chemical Company, U.S. Army Reserve, prior to entering the the U.S. Military Academy.

This paper represents the opinions of the author and should not be taken to represent the views of the Department of the Army, the Department of Defense, the Institute of Land Warfare or the Association of the United States Army or its members.

Inquiries regarding Land Warfare Papers should be directed to: Association of the United States Army, Institute of Land Warfare, 2425 Wilson Boulevard, Arlington, Virginia 22201, telephone 1-800-336-4570 or 703-841-4300.

#### **Acknowledgment**

The author gratefully acknowledges the many contributions of Major General Edward B. Atkeson, USA Ret., to the preparation of this paper for publication. (Gen. Atkeson is a senior fellow at AUSA's Institute of Land Warfare and an author and private consultant on national and international security affairs.)

## CONTENTS

Foreword.....	v
Introduction.....	1
The Concept.....	1
The Period of Solidification.....	2
The Period of Stagnation.....	4
The Period of Rebirth.....	8
Operation Bagration.....	14
Doctrinal Confirmation: The Manchurian Campaign.....	17
A Final Note of Credit.....	20
Notes.....	21
Appendixes	
A. Soviet Pre-Purge Tank Formations.....	26
B. Soviet Pre-War Tank Formations.....	28
C. Soviet Tank Formations of the Great Patriotic War.....	30
Maps	
1. The Soviet Offensive, Kharkov (12-19 May 1942).....	9
2. Operation Uranus (19-23 November 1942).....	12
3. Operation Bagration (22 June-28 August 1944).....	15
4. Soviet Offensive in Manchuria (9-20 August 1945).....	18
Tables	
1. Doctrine of <i>Gluboky Boi</i> Assault Echelons.....	2
2. Doctrine of <i>Gluboky Boi</i> Tank Groupings and Missions.....	3
3. Soviet Concepts for Control of Armored Reserves 1942.....	11
4. Soviet Organization for Operation “Bagration” 1944.....	16

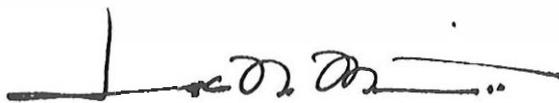
## FOREWORD

While the Army's future leaders are learning their basic military skills in precommissioning education and training programs (ROTC, USMA, OCS and Army National Guard OCS), opportunities may arise for individual research of defense-related topics. This Land Warfare Paper, prepared by Second Lieutenant Peter J. Vlakancic, USA while he was a cadet at the U.S. Military Academy, is such a research endeavor. Its publication here reflects the Association's goal to encourage individuals in precommissioning programs to undertake the research of defense issues and to develop their professional military writing skills.

The Land Warfare Paper prepared by Lieutenant Vlakancic is an examination of one facet of Soviet Marshal Nikolayevich Tukhachevsky's extensive influence on operational doctrine — that concerned with deep operations by armored units. It is particularly significant in light of U.S. armored and mechanized operations in the Persian Gulf War. But it is also significant in connection with the very tenuous thinking believed to be taking place in inner circles of planners in Moscow. While not many Russian officers can afford much time contemplating doctrinal matters these days as the old empire is falling apart, there are indications that a few long-range thinkers are looking further, perhaps to the end of the century.

True to their doctrine of the last 70 years, Russian planners are believed to be again looking to history for lessons and guides for developing the forces of the future. The big counteroffensives of the Great Patriotic War, Moscow, Stalingrad and Kursk continue to draw attention and commentary. As Lieutenant Vlakancic points out in this paper, there were significant differences in those campaigns, and many of the successes of the better ones can be traced to Marshal Tukhachevsky's thinking.

Lieutenant Vlakancic's monograph will be of interest to military historians and force developers alike. Those interested in the evolution of the operational art will find this work stimulating and professionally rewarding.



JACK N. MERRITT  
General, USA Ret.  
President

November 1992

# MARSHAL TUKHACHEVSKY AND THE "DEEP BATTLE": AN ANALYSIS OF OPERATIONAL LEVEL SOVIET TANK AND MECHANIZED DOCTRINE, 1935-1945

## Introduction

*Gluboky boi*. Those two words vividly describe the doctrinal concept of Marshal of the Soviet Union Mikhail N. Tukhachevsky. In English we would call it "deep battle."<sup>1</sup> Although promulgated by the marshal and his students throughout the Red Army in the early 1930s, it was not to survive Stalin's purges. Nor was the marshal. The death of Tukhachevsky, along with hundreds of junior commanders who might have put the doctrine into practice, heralded a period of intellectual stagnation and the disastrous performance of the Red Army in the opening battles of the Great Patriotic War. Nevertheless, the doctrine of *glubokyboi* would see a rebirth in the struggle with Germany and would be employed with telling effect during the later stages of the conflict.

To understand the impact of the concept, one must examine Soviet tank and mechanized doctrine at the operational level between the years 1935 and 1945. Although *gluboky boi* stressed close cooperation among all arms, it focused particularly on the most mobile arms. A comparison of the organization and methods of employment of tank and mechanized units before the purge with those in the latter stages of the war reveals how Tukhachevsky's ideas survived to guide Soviet forces to victory. We will review three different periods. The first is 1935-1937, during which the tenets of *gluboky boi* were solidified into doctrine and published in field regulations. The second is the period of doctrinal stagnation, 1937-1942, during which the Red Army either ignored Tukhachevsky's concepts or was unable to implement them effectively. The third encompasses the period of rebirth of *gluboky boi*, from late 1942 until the end of the war, and the victories achieved under its guidance.

## The Concept

*Gluboky boi*, as Tukhachevsky outlined it, envisioned a four-echelon offensive in depth. The first echelon consisted of aircraft for gaining control of the air and bombing enemy positions. The second echelon, composed of shock groups with a mixture of tanks, infantry, and artillery, was to punch a hole in the enemy line. The third echelon was the heart of *glubokyboi*. Here mechanized units were to aggressively exploit the breakthrough and to drive deep into the enemy's rear, with a mission of encircling enemy units and vital rear area centers. The fourth echelon consisted of reserves which would follow the third echelon and consolidate its gains. The 1936 regulation (PU-36) summarized the intent with the words, "The enemy is to be paralyzed in the entire depth of his deployment, surrounded and destroyed."<sup>2</sup>

**TABLE 1**

**Doctrine of *Gluboky Boi*  
Assault Echelons**

<b>Echelon</b>	<b>Composition</b>	<b>Purpose</b>
First	Aircraft	Gain air superiority, bomb enemy positions
Second	Combined arms shock groups	Punch through enemy lines
Third	Mechanized units	Exploit breakthroughs
Fourth	Reserves	Consolidate gains

While the concepts of *gluboky boi* were present within Red Army circles as early as the 1920s, it was not until Tukhachevsky codified them in regulations that the army could organize to meet the demands of this style of warfare. Earlier works, such as *Field Regulations (Ustav) of 1929*, *Tactics of Mechanized Higher Formations of 1932* and *Temporary Instructions on the Organization of Deep Battle of 1933* all focused on independent tank formations.<sup>3</sup> However, they gave only vague guidance to the units. Further, they could not be fully implemented due to a shortage of tanks in the Red Army.

**The Period of Solidification**

In March 1935, *Instructions for Deep Battle* (a precursor to PU-36) was approved by the Supreme Military Council. By that time, tanks and other armored vehicles would be available in quantity due to the progress of Stalin's second Five-Year Plan, implemented in 1933.<sup>4</sup> The new document gave specific guidance on the role of tanks in the application of the new doctrine.<sup>5</sup> There would be two major roles for tanks, the first to create a breakthrough in conjunction with infantry and artillery and the second to exploit the breakthrough by driving deep into enemy territory.<sup>6</sup> The pace of the exploitation phase would not be set by the foot infantry but by masses of tanks and mechanized or truck-borne infantry. When PU-36 came out the next year it said:

Mechanized formations, composed of tanks, self-propelled artillery and infantry in troop carriers can carry out *independent* operations out of touch with other arms, but may also be employed in cooperation with them.<sup>7</sup>

This document set forth three roles and classifications of tank units.<sup>8</sup> With the leading elements NPP (*Nieposredstviennoy Poddierzhki Piechoty* or immediate infantry support) tank groups provided direct support to infantry engaged in rupturing the enemy line. According to PU-36 the tanks were "... to ensure that the infantry (could) move forward by neutralizing the enemy's machine guns."<sup>9</sup> NPP groups, consisting of light tanks and armored cars, supported infantry advances up to 1.5 kilometers. These were followed by a second line with DPP (*Dalshey Poddierzhki Piechoty* or long-range support) tank groups. The DPP tank group was designed to engage enemy centers of resistance, such as machine guns and infantry groups, located between 1.6 and 2.5 kilometers from the forward line. They were composed of heavier tanks such as the giant T-35 and medium T-28 tanks. Finally, the heart of *gluboky boi* rested with a third element, the DD (*Dalnogo Dieystviya* or long-range action) tank group. DD groups would bypass enemy centers of resistance, exploiting gaps created by NPP and DPP groups. DD groups would capture key terrain and disrupt enemy reserves, artillery and controlling headquarters. To perform this type of mission, the groups were equipped with fast tanks, such as those of the BT series.<sup>10</sup>

**TABLE 2**

**Doctrine of *Gluboky Boi*  
Tank Groupings and Missions**

<b>Title</b>	<b>Composition</b>	<b>Function</b>
Immediate infantry support (NPP)	Light tanks and armored cars	Assist in rupturing enemy lines (up to 1.5km deep)
Long-range support (DPP)	Medium and heavier tanks (e.g., T-28 and T-35 tanks)	Engage centers of resistance 1.6 - 2.5km deep
Long-range action tank group (DD)	High-speed tanks (e.g., BT series tanks)	Exploit gaps created by NPP and DPP

The different missions assigned explain much of the organization of the Red Army's tank units during this period. PU-36 called for four main armored organizations.<sup>11</sup> The first, the moto-mechanized corps, numbering four by 1937, had two mechanized brigades and one motorized rifle brigade (Appendix A), with some 500 (mostly BT model) tanks. This type of corps would be used in a DD (long-range action) role at the *front* (army group) level.

The most numerous armored units were the tank brigades, of which there were about 25 by 1937. These were the backbone of the Red Army's tank forces. The brigades had four battalions of 32 tanks each (Appendix A). The tanks were either of the medium T-28 or heavy T-35 type. These provided the mass of the DPP (long-range support) groups.

The last two types of units were the mechanized and moto-mechanized brigades (Appendix A). The mechanized brigade was a small version of the mechanized corps, but was also suitable for the leading DD role. For this it was equipped with BT tanks. The moto-mechanized brigade was intended for the NPP (immediate infantry support) role and was equipped with T-26 light tanks. Besides these four main armored organizations, nearly every rifle division had at least a company of tanks, and each cavalry division a regiment of 190. These were mostly BT types, intended to perform in the DD role.<sup>12</sup>

These organizations were never tested in combat. They participated in huge maneuvers, such as those held near Minsk in September 1936. Some foreign observers were impressed with the size of the Red Army's armored units but not with their employment. As a British observer remarked:

There was little skill shown in the handling of these forces, which appeared just to bump into one another! <sup>13</sup>

Clearly, the intent behind PU-36 had not yet filtered down to the junior level. That would have required more time.

## **The Period of Stagnation**

But there would be no time. On May 11, 1937, Marshal Tukhachevsky was replaced as First Deputy Commissioner for Defense; one month later, he was executed on Stalin's orders.<sup>14</sup> His death was but part of a widespread purge of the Red Army, lasting until 1941. Eleven of 13 army commanders were shot, along with 57 of the 85 corps commanders and 110 of the 195 division commanders.<sup>15</sup> Not surprisingly, the survivors avoided any possible association with Marshal Tukhachevsky. *Gluboky boi* would share the fate of its father. Commanders, promoted more often than not for their political reliability rather than their ability, shunned Tukhachevsky's ideas like the plague.

But there was more. The rejection of *gluboky boi* was accelerated in the Red Army through a misinterpretation of experiences in the Spanish Civil War against the Loyalists and again in the invasion of Poland. The Soviets sent more than 700 T-26 and BT tanks to Spain to support the Republican forces.<sup>16</sup> The two battles most influential for the future of Red Army tank doctrine were the Battles of Esquivas, on October 29, 1936, and Jarama, in March 1937. In both cases the Soviets tried to conduct versions of *gluboky boi*. But due primarily to ineffective cooperation between the Soviet tanks and the Spanish Republican infantry, the tanks soon outstripped the slower-moving foot troops. In both instances the tanks, under General D.G. Pavlov, made spectacular gains, but were unable

to consolidate their gains without the aid of infantry.<sup>17</sup> Pavlov concluded that there was no place for large independent armored formations in a future war and that tanks should be used solely in the NPP (infantry support) role.

This conclusion, coupled with the rejection of anything having to do with Tukhachevsky, spelt a recession for *gluboky boi*. In Pavlov's view, the first thing to be done was to break up the four moto-mechanized corps and to distribute the tanks among the rifle divisions. The issue was laid before the Supreme Military Council in July 1939 by a special commission.<sup>18</sup> However, an event occurred which kept the moto-mechanized corps in existence for a few more months.

The event was the battle at Khalkin-Gol, Manchuria, which pitted Soviet troops against Japanese forces between August 20 and 31, 1939. General Georgi K. Zhukov, commanding the Soviet forces in the region, routed the Japanese defenders using an adaptation of Tukhachevsky's ideas. Although most of the 500 tanks under his command were split up among the infantry according to post-purge doctrine, Zhukov did retain one tank brigade, the 6th, as a complete unit.<sup>19</sup> With it he executed a double envelopment in which the Japanese 23rd Infantry Division and part of the 7th Infantry Division were encircled and destroyed.<sup>20</sup> While not as ambitious as *gluboky boi* might have made it, the Russian victory demonstrated the advantage of retaining independent tank formations for rapid exploitation and pursuit.

Unfortunately, the battle received less attention in Moscow than it deserved. Operations in Poland, commencing on September 17, 1939, were more influential regarding the future of large moto-mechanized corps. During the employment of these units in "combat," the 15th and 25th Moto-Mechanized Corps of the Byelorussian *Front* ran into trouble. The principal problems pertained to supplying the huge formations. That and the lack of experience of the corps commander sealed the fate of the ill-starred venture.<sup>21</sup>

On November 21, 1939, the Supreme Military Council again considered the utility of these formations.<sup>22</sup> They concluded that the moto-mechanized corps should be disbanded and that they should be replaced by four mechanized divisions, each with 275 tanks organized into two mechanized and one tank regiment (Appendix B).<sup>23</sup> The remaining tanks belonging to the moto-mechanized corps were divided among the rifle divisions, to be used in the NPP (infantry support) role.

The new mechanized division was a more balanced unit than the one it replaced, but it was not meant to be employed independently. Rather, its regiments and component battalions were designed to be parcelled out to rifle divisions and used to support the infantry.<sup>24</sup> By the beginning of 1940 there was no armored formation in the Red Army designed for independent operations. This sad state of affairs would be the nadir of the Soviet tank corps. Certainly it was a far cry from the halcyon days of Tukhachevsky's concepts and theories. This would become plainly evident in Finland from November 1939 to March 1940. There the Red Army employed its tanks in a purely infantry support role.

The heavy tank brigades involved in cracking the Mannerheim line were broken down into battalions which were distributed among rifle divisions.<sup>25</sup> *Gluboky boi* was replaced by a slow methodical offensive doctrine which put the tank arm of the Red Army on a leash, tied to the pace of the infantry.

But things would change. Between mid-1940 and the German invasion of the Soviet Union on June 22, 1941, the Red Army leadership had to consider their own poor performance in Finland in juxtaposition with the German successes in the lowlands and France in the spring of 1940. The concept of using tanks en masse had evident value. The new marshal of the armored forces, General Pavel Rotmistrov, understood the mistakes of the Red Army. He advocated a total policy reversal, arguing:

Tanks must be employed in masses. The best situation for a tank commander is to be in command of large groups, a brigade, a corps, an army. These are splendid instruments in an offensive. A concentration of a *thousand tanks* — this is the dream of every tank commander.<sup>26</sup>

Rotmistrov struck a favorable chord with his superiors. The minister of defense, S. K. Timoshenko, reversed the earlier decision to break up the large mechanized corps.<sup>27</sup>

The Soviet mechanized corps structure of 1940 reveals a massing of tanks on a scale never seen before (Appendix B). Each such corps was authorized 1,031 tanks, 268 armored cars and 36,000 men, organized into two tank and one motorized division.<sup>28</sup> Nine of these formations were created during the latter half of 1940, and a further twenty were created between February and June 1941.<sup>29</sup>

Despite this apparent reversion to Tukhachevsky's ideas, there were significant problems which would haunt the Russians through the initial stages of the war with Germany. The units would prove too large for effective control. The units were intended to be used en masse, but the commanders appointed to lead them lacked experience in dealing with such large organizations. The purges had eliminated the most promising and experienced leaders.

Another problem was to find the tanks to create the units. The Soviets decided to sacrifice their separate tank battalions as well those battalions organic to the infantry divisions.<sup>30</sup> This severely weakened the infantry divisions and eliminated the possibility of an NPP role for tanks. Even with a total of approximately 24,000 tanks in the Red Army by 1941, some of the mechanized corps had no tanks at all, and many were as much as 90 percent understrength.<sup>31</sup> Of the 29 corps in existence by June 1941, only four were at full strength, but even these were not immune from leadership problems.

The creation of these units pointed towards a willingness by the High Command to apply Tukhachevsky's theories, but the units turned out to be unmanageable behemoths which drained the rest of the army, especially the infantry divisions, of badly needed tanks.

Without the aid of the NPP tanks, the infantry formations were incapable of breaching enemy lines, and thus of setting the stage for insertion of the mechanized corps as envisioned by *gluboky boi*. The High Command had only the roughest idea of the practical uses of these units and allowed them simply to maneuver awkwardly about the battlefield. This was one of the principal reasons for the German successes in the initial stages of Operation Barbarossa.

The mechanized corps did little to stop the onslaught of the German Army. With 24,000 tanks (compared to 3,000 for the Germans), the Red Army should have been able to put up a better defense than it did. The inept leadership and poor training in the mechanized corps resulted in many of the mass encirclements of 1941. Some of the men had only two hours of driving experience before going into battle.<sup>32</sup> This was the case with the Red Army's 6th, 16th and 23rd Mechanized Corps, which were annihilated during the first series of engagements. The 9th, 22nd and 19th Mechanized Corps had lost 95 percent of their tank strength by the third day of the war.<sup>33</sup> A fairly detailed account of Soviet tank and mechanized units in action during this initial period of the war can be found in Bryan Fugate's *Operation Barbarossa: Strategy and Tactics on the Eastern Front, 1941*. Since the operations of these units (if they can be called "operations") were essentially defensive in nature, they have little relevance to this review.

By the end of August 1941, the majority of the mechanized corps had ceased to exist, and tank replacements were diverted to the rifle divisions which were recreating their own tank battalions. Thus, the tank was shifting back towards the NPP role. The most pressing matter was the necessity for strengthening the infantry divisions with mobile firepower. The mechanized corps were officially disbanded in September 1941, and the Soviet High Command began forming independent tank brigades and battalions to be used primarily in close cooperation with the infantry.<sup>34</sup> These tank brigades (Appendix C) were relatively small, with only 48 tanks and about a thousand men, reflecting an intent to distribute them among the rifle divisions.

An excellent example of the Red Army's use of these units in battle during this period is the Moscow counteroffensive during the winter of 1941-42. During this operation there was no attempt to use independent tank brigades to exploit breakthroughs made by the infantry. Almost without exception, they were used to support infantry formations against German strongpoints. Reserve-Colonel Begishev described the practice this way:

Tank brigades and separate tank battalions sent into operations requiring NPP tank support were often employed in small groups and distributed uniformly amongst rifle divisions and regiments. As, for example, all of the 50 tanks, which supported the 33rd Army ... were uniformly distributed amongst divisions, with 10 tanks in each.<sup>35</sup>

Again, the result was a slow and methodical offensive lacking the high tempo of *gluboky boi*.

Emboldened by successes gained in the counteroffensive that winter, the Red Army prepared for further offensive action in the coming spring. The General Staff realized that if they were to attain a truly strategic offensive, they needed to separate a portion of the tanks from the NPP role and to revert to the employment of independent tank and mechanized formations.<sup>36</sup> As a result, the tank corps, and even a tank army, made appearances in April and May 1942.<sup>37</sup> The organization of the tank corps (Appendix C) was based upon tank and motorized brigades rather than divisions, as with the 1940 mechanized corps. The tank corps were the rough equivalents of German *panzer* divisions in size, with 168 tanks and about 8,000 men each. The tank army organization varied between two and three tank corps, with several rifle divisions added for support.<sup>38</sup> This was a clear shift in offensive capability for the Red Army. It revealed an intent to employ significant mechanized units independent of the infantry.

The Red Army launched a series of counteroffensives in early 1942, with the main effort directed at the recapture of Kharkov (Map 1). The South-West *Front*, under Marshal Semen Timoshenko, had two tank corps, the 21st and 22nd, which were to exploit any breakthrough achieved by the 23 rifle divisions participating in the offensive.<sup>39</sup> The offensive began on May 12, but would result in failure. Despite some initial successes and breakthroughs in some areas, there was little coordination between the tank corps and the rifle divisions. The tank corps missed an opportunity to exploit gaps created by the 28th Army on May 14.<sup>40</sup> Although the Germans might have contained exploitation of these gaps anyway, the lack of coordination killed any chance for success with *gluboky boi*. As matters transpired, the corps were thrown into the battle in penny packets to save hard-pressed rifle divisions. As a result, a major portion of the 875 tanks with which the South-West *Front* began the offensive was destroyed.<sup>41</sup>

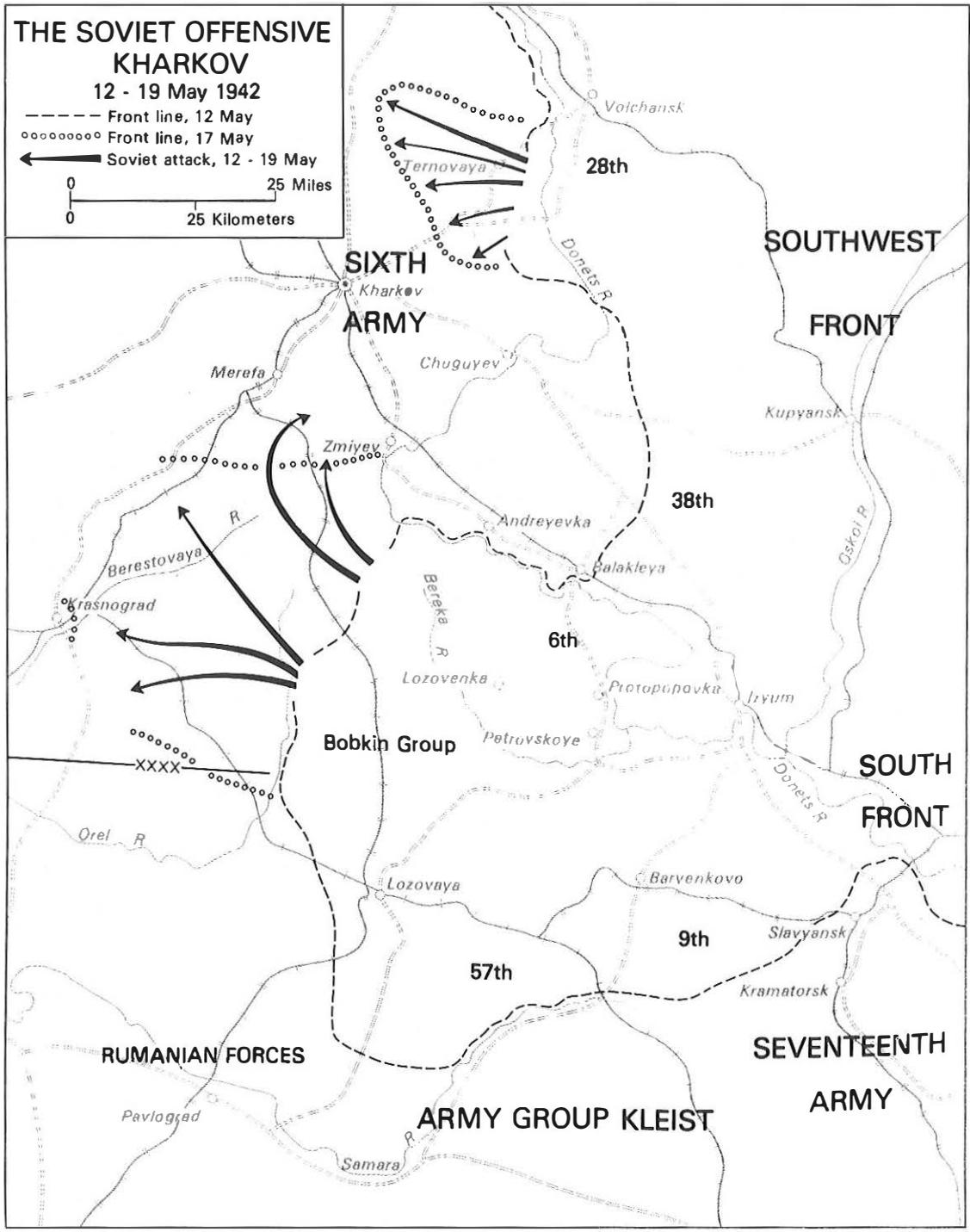
## The Period of Rebirth

It seemed for a while that the Red Army would never learn to handle tanks within the framework of Tukhachevsky's theory. But the mistakes of the spring of 1942 would not be lost upon the Red Army. The chief marshal of tanks and mechanized forces (and deputy commander of defense), Yakov N. Fedorenko, issued an order governing the employment of armored formations in June 1942.<sup>42</sup> The influence of Tukhachevsky was evident:

The armored corps is a basic unit and will be reserved for the execution of strategic missions. ...

It is forbidden to place armored corps under the command of armies and split them up for the purpose of reinforcing infantry. ...

In an offensive operation ... an armored corps has the mission of massing its forces for a *deep thrust*, enveloping the enemy's **main**



**Source:** Earl F. Ziemke and Magna E. Bauer, *Moscow to Stalingrad: Decision in the East* (Washington, DC: Center of Military History, U.S. Army, 1985).

forces, encircling them, and destroying them in cooperation with the air force and with other ground units. ...

An armored corps may drive ahead of the other friendly forces and penetrate the enemy sector to a depth of 25 to 30 miles, provided that a second wave is sent through the gap.<sup>43</sup>

By the fall of 1942, the rebirth of Tukhachevsky's theories was underway, although there would still be problems.

A clear indication of this was the emphasis the Red Army now placed upon differentiating the roles of various armored units and on keeping tank and mechanized units independent. This harked back to the different roles Tukhachevsky stipulated for tanks. The NPP tank units were represented by the old tank battalions in the rifle divisions. These would be broken down to fight with the infantry as companies only in the direst of circumstances.<sup>44</sup> Besides these units, the NPP role would be fulfilled by independent tank battalions, regiments and brigades under the RGK (*Rezerv Glavnogo Komandovaniya* or High Command Reserves).<sup>45</sup> The RGK epitomized STAVKA's (Supreme High Command's) desire to prevent the misuse of tanks by infantry commanders. The units were assigned to army commanders generally for use as they saw fit, but cautions were voiced against using them piecemeal. Another NPP unit created by the end of 1942 was the "independent tank breakthrough regiment" (Appendix C), usually equipped with KV-1c heavy tanks, with a purpose evident in the name.<sup>46</sup>

At the other end of the spectrum were tank and mechanized units subordinate to the reserve of the Supreme High Command or RVGK (*Rezerv Verkhnego Glavnogo Komandovaniya*) which would be used exclusively as "mobile groups."<sup>47</sup> The concept of the mobile group was not new. Rather, the groups served essentially the same role as DD tanks under *gluboky boi*. That meant that they would be responsible for exploiting any breaches made in the enemy line. They included both tank and mechanized corps (the mechanized corps were introduced during the winter of 1942-43 and were composed of three mechanized brigades and one tank brigade). They were usually subordinate to army or *front* headquarters, depending on the size of the operation. An army might be allocated two tank brigades, or possibly a tank or mechanized corps, as its mobile group. When the mission was completed, the RVGK would recover control of the units and refit them for future operations. Until 1944 the tank and mechanized corps had no organic maintenance units.<sup>48</sup>

Later tank armies were created under RVGK for use as mobile groups at *front* level. The organization and employment of the units were promulgated in a number of orders, the key one being *Prikaz Naradanogo Komissara Oborony* (People's Commissariat for Defense Order) No. 325 (referred to as NKO 325), released on October 16, 1942.<sup>49</sup> The order reiterated the Fedorenko directive, but more importantly, with Stalin's signature, it made Fedorenko's ideas officially part of Red Army doctrine. This was a significant step by the Red Army to mold Tukhachevsky's theories into practical doctrine.

**TABLE 3**

**Soviet Concepts for Control  
of Armored Reserves 1942**

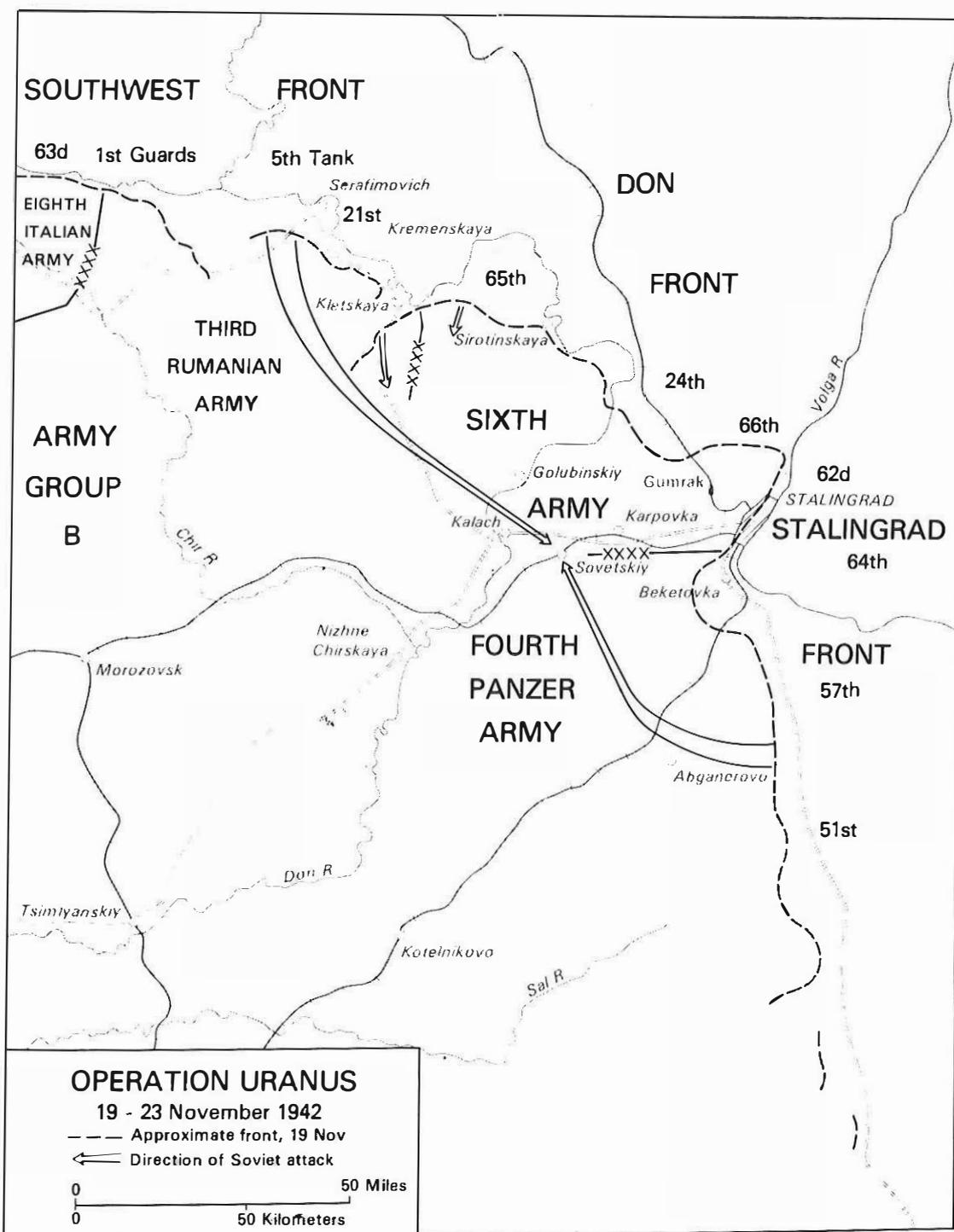
<b>Title</b>	<b>Composition</b>	<b>For Operational Use By</b>
Reserves of the Supreme High Command (RVGK)	Tank and mechanized corps (later tank armies)	<i>Front</i> (army group) or army commanders
Reserves of the High Command (RGK)	Brigade and smaller armed formations	Army commanders

NOTE: High commands (GK) were operational headquarters in the theater above *front*. The Supreme High Command (VGK — also called “*STAVKA*”) included Stalin’s personal staffs and the General Staff in Moscow.

The counteroffensive at Stalingrad in November 1942 reflected a marked attempt to follow the doctrine. Operation Uranus, the initial Soviet encirclement of the German 6th Army at Stalingrad, saw the first successful use of a tank army. This was the mixed-composition 5th Tank Army under General Romanenko. It was composed of the 1st and 26th Tank Corps, 8th Cavalry Corps and six rifle divisions.<sup>50</sup> Its mission was to encircle the German 6th Army by driving towards Kalach from its initial position near Serfimovich and to link up with the 57th Army (Map 2). This represented a distance of about 120 kilometers and would be a test of the Red Army’s ability to handle large armored formations.

The 5th Tank Army’s attack commenced at 0720 on November 19 with an initial barrage by more than 3,500 guns and mortars. The first assault echelon consisted of two rifle divisions.<sup>51</sup> By 1200 these units had succeeded in creating an enormous hole in the enemy’s line. The army mobile group, consisting of the 1st and 26th Tank Corps, moved through the gap about an hour later.<sup>52</sup>

It is important to note that the 5th Tank Army had its own infantry formations for punching a hole in the enemy’s line. This type of army was called a mixed-composition tank army. Thus, the tank army at this stage of the war was not considered as solely a mobile group. Rather, it contained a mobile group which would exploit the successes of its infantry and NPP components. Later versions of the tank army would dispense with rifle



**Source:** Earl F. Ziemke and Magna E. Bauer, *Moscow to Stalingrad: Decision in the East* (Washington, DC: Center of Military History, U.S. Army, 1985).

divisions and add extra tank and mechanized corps. They would rely on other combined-arms armies to create the gap, husbanding their strength to function as mass mobile groups for the theater commander.

Another concept introduced during the offensive was the forward detachment. Forward detachments were part of the mobile group and ranged ahead of the larger formation to seize key terrain and facilities such as bridges and important road intersections. They were usually brigade size or smaller, composed principally of tanks, with no more infantry than could ride on the backs of the tanks. Probably the most important forward detachment in the Stalingrad operation was a battalion of the 26th Tank Corps which seized the vital bridge over the Don at Kalach on November 22. The next day the rest of the corps linked up with the 4th Mechanized Corps of the 51st Army at Sovetski and completed the encirclement of the 6th Army.<sup>53</sup> The 5th Tank Army was able to cover more than 130 kilometers in just over three days and became a model for later Soviet high tempo offensives.

Throughout Operation Uranus, the Red Army proved that it was capable of handling its armored formations. A total of four tank corps, one mechanized corps and fifteen tank brigades were used by the Soviets in the manner prescribed by Fedorenko and Stalin. They in turn owed their inspiration to the tenets of PU-36 and its father, Tukhachevsky. The concept of far-ranging operations by independent mechanized formations was finally becoming a viable doctrine. With the completion of the campaign at Stalingrad in February 1943, the renaissance of Tukhachevsky's ideas was assured.

1943 saw refinements in the organization of tank armies. The objective was to make them fit the concept for mobile groups. Thus, rifle divisions disappeared from the structure. No longer would tank armies be burdened with relatively immobile infantry formations. Instead, they would be composed of two tank corps, a mechanized corps and an independent tank brigade, plus supporting self-propelled artillery, engineer and tank destroyer units (Appendix C). This brought the total number of tanks in the tank army structure to about 800.<sup>54</sup> Within Tukhachevsky's concept of *gluboky boi* it would become a true DD "long-range action" unit.

The first tank army reorganized under this "unified composition" was the 5th Tank Army, later to become the 5th Guards Tank Army (Appendix C). Created in April 1943, it would be followed by five more of its kind by the end of the year.<sup>55</sup> Every major offensive undertaken by the Red Army from mid-1943 until the end of the war would include at least one of these formations. In nearly all cases, elements of tank armies achieved the deepest penetrations on the offensive.

Concurrent with the development of the tank armies was the development of other armored formations to perform the NPP role. PU-36 stated:

If the forward edge of the main defended area lies in difficult tank country, the infantry attack, supported by artillery and *infantry support (NPP) tanks*, should precede the advance of the long-range (DD) tanks.<sup>56</sup>

While NPP units such as divisional tank battalions existed throughout the war, additional organizations were created in 1943 and 1944 to fulfill this role. One was the “independent tank breakthrough regiment” mentioned previously. In addition, 1943 saw the introduction of SAU (*Samochodno-Artilleriyskie-Ustanovki*), or self-propelled artillery, in the Red Army.<sup>57</sup> These weapons were easier to build than tanks since they had no turrets. As a general rule, designers were also able to mount heavier guns as well as thicker armor on turretless chassis. Commonly known as assault guns in the West, the SUs carried a large number of high explosive rounds for dealing with enemy infantry holding the front lines.<sup>58</sup>

The first assault gun, the SU-76, was a stopgap weapon, but those that followed — the SU-85, SU-100, SU-122, SU-152, ISU-122 and ISU-152 — were fine weapons which the Germans came to fear. The first SU organization was an independent regiment of 25 weapons, formed in December 1942.<sup>59</sup> Like the independent tank breakthrough regiment, the SU regiments came to be classified as light, medium or heavy. The units had 12 to 21 guns, depending on their classifications. By the end of the war a total of 150 of these regiments were in existence.<sup>60</sup> Another organization was the *ad hoc Tanko Samochodnie Gruppi*, or tank-SU group, introduced during the counteroffensive at Kursk.<sup>61</sup> The organization of tank-SU groups varied, but each contained at least one tank brigade and one SU regiment.<sup>62</sup> Along with an increased use of heavy tanks in the NPP role, SUs were also coming to be used in this capacity. Tukhachevsky would have appreciated this adaptation of new weaponry to his NPP concept, first set forth so many years before.

There is a wealth of examples of the effective use of armor in fulfillment of the concept of *gluboky boi* in the latter stages of the war. Two operations during this period highlight the similarity between Tukhachevsky’s vision and the armor doctrine developed by the Red Army. These are the Byelorussian operation in the summer of 1944 and the Manchurian offensive a year later.

## Operation Bagration

Operation Bagration, as the Byelorussian offensive was known, commenced on June 22, 1944. The strategic objective was to liberate Byelorussia, drive to the Vistula River and reach East Prussia, while simultaneously smashing the German Army Group Center.<sup>63</sup> (See Map 3.) Four *fronts* participated in the operation: the First Baltic, Third Byelorussian, Second Byelorussian and First Byelorussian, with a total of 5,200 tanks and assault guns.<sup>64</sup> The organization of these *fronts* for the offensive clearly reflected Tukhachevsky’s concept of DD groups in the numerous mobile groups created for the operation. Each *front* had its own mobile group for exploiting breaches made by the first echelon (see below).



TABLE 4

Soviet Organization for Operation Bagration, 1944<sup>65</sup>

<i>Front</i>	Mobile Group
1st Baltic	1st Tank Corps
3rd Byelorussian	5th Guards Tank Army 3rd Guards Mech. Corps 3rd Guards Cav. Corps
2nd Byelorussian	unknown tank brigade unknown tank brigade unknown SU regiment
1st Byelorussian	1st Guards Tank Corps 9th Tank Corps 1st Mechanized Corps 4th Guards Cav. Corps

One should note the use of cavalry corps in some of the mobile groups. In this role they would be organized in cavalry-mechanized groups (CMGs) consisting of one mechanized and one cavalry corps.<sup>66</sup> The tank corps of the 1st and 3rd Byelorussian *Fronts* served as mobile groups for designated combined-arms armies within the *front*.<sup>67</sup>

The Red storm which broke at 0500 hours on June 22 eventually engulfed the German Army Group Center in high-tempo action which did not cease until the end of July. The initial infantry assault was supported by tank brigades equipped with T-34/85s and T-34/76Cs (T-34s with 85- and 76mm guns) as well as medium SU regiments with SU-85s and SU-122s. These weapons overwhelmed the German line in six different sectors and paved the way for the mobile groups.<sup>68</sup> The mobile groups followed closely behind, ready to exploit the breaches. The timing of the insertion of the mobile groups varied depending on the situation.

The 5th Guards Tank Army, under Rotmistrov, was supposed to be committed on the fourth day of the offensive, after the 11th Guards Army had created an initial penetration of the enemy line. However, German resistance in the 11th Guards Army sector proved stiffer than expected, and the army could not create a hole wide enough for the 5th Guards to slip through. Displaying remarkable flexibility, the Soviets rerouted the tank army to the 3rd Byelorussian *Front* and exploited a gap that was initially created for that *front's* CMG.<sup>69</sup> The army proceeded to drive deep into the rear of Army Group Center, cutting off many enemy withdrawal and supply routes, as well as spreading terror and disruption among German rear echelon units. Disregarding activity on its flanks and maintaining rates of advance averaging 30-40 kilometers per day, the 5th Guards Tank Army captured the

vital communications center at Orsha, cut off the vital Minsk-Moscow motorway, crossed the Berezina River on July 1 at Borisov, and three days later retook Minsk.<sup>70</sup> With the capture of the city, nearly 100,000 soldiers of the 4th and 9th German Armies were trapped east of Minsk; these would be scooped up by the infantry of the 2nd Byelorussian *Front*.

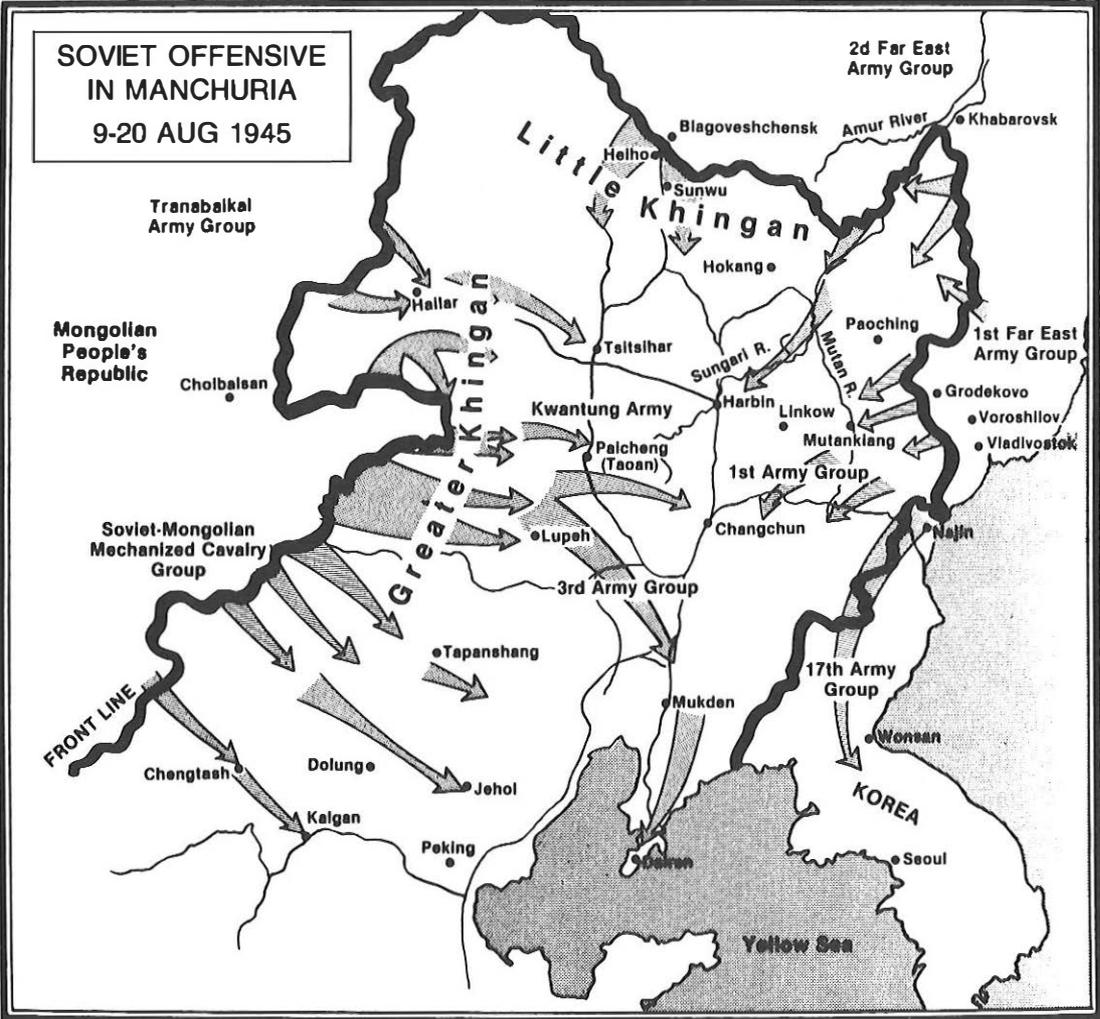
The 5th Guards Tank Army did not pause at Minsk. Rather, it drove on to Vilna, which it reached on July 13, and then nearly reached Riga on the Baltic coast by the end of August.<sup>71</sup> Considering its performance, the 5th Guards Tank Army was a DD formation in the fullest sense that Tukhachevsky had envisioned. During the operation, it covered nearly 600 kilometers in virtually nonstop action in less than two months. The Germans were unable to deal with such an onslaught. To a considerable extent this was due to Hitler's "stand fast" order, which facilitated the Soviets' use of mobile groups, but the magnitude of the Red Army victory must be recognized.

Throughout the operation the Soviets demonstrated that they were capable of handling large tank and mechanized units adeptly and within the spirit of *gluboky boi*. The 5th Guards Tank Army under Rotmistrov was not alone in reaping the laurels of victory. Other mobile groups of *fronts* and armies displayed similar dash and vigor, sometimes with even greater ingenuity. An example is the mobile group (1st Guards Tank Corps) (Appendix C) of the 65th Army under General Batov.<sup>72</sup> It had the task of breaking through the German 9th Army at Bobruysk, an area considered virtually impassable for tanks due to extremely marshy terrain. Batov surprised many observers when he dispensed with an infantry attack and instead sent the tank corps through the marshes using mats of twigs and sticks laid by engineers. The area was lightly held, and the 1st Guards Tank Corps, with its 193 tanks, was able to swing northwest of Bobruysk and cut off six German divisions.<sup>73</sup> By the end of the offensive in August, the German Army Group Center had ceased to exist, the Soviets were on the outskirts of Warsaw, and the end of the war was within sight. Much of the credit for the victory can be ascribed to the Red Army's effective use of its tank and mechanized formations. Mobile groups spearheaded the advance as soon as breaches were made for them in the enemy lines. They ranged deep into the enemy's rear, securing important objectives and obliterating the enemy's ability to react to the situation as it developed.

### **Doctrinal Confirmation: The Manchurian Campaign**

Another operation performed during the latter stages of the war serves to highlight the resurgence of Tukhachevsky's theories. This operation is the often-overlooked Soviet campaign in Manchuria, in August 1945. The offensive lasted a little over two weeks. Within this short period, the million-man Japanese Kwantung Army was virtually annihilated, and an area the size of Europe was seized by the Red Army.

For the Manchurian campaign, the Red Army deployed three *fronts* with a total of 3,700 tanks and 1,850 SUs. The *fronts* participating in the operation were the 1st and 2nd Far Eastern *Fronts* and the Transbaikalian *Front*.<sup>74</sup> Their deployments ranged from the



**Source:** COL T. N. DuPuy, USA Ret., and Paul Martell, *Great Battles on the Eastern Front: The Soviet-German War, 1941-1945* (New York: Bobbs Merrill Co., Inc., 1982).

deserts of Mongolia to the Pacific Ocean at Vladivostok (Map 4). A look at their composition again reveals the concept of mobile groups in action. The Transbaikal *Front* had two mobile groups, the 6th Guards Tank Army and the Soviet-Mongolian Cavalry-Mechanized Group.<sup>75</sup> The reason for two mobile groups was probably the extended frontage for which the organization had responsibility. The 1st Far Eastern *Front* had the 10th Mechanized Corps as its mobile group. While the 2nd Far Eastern *Front* had no mobile groups of its own, its 15th Army had a mobile group consisting of the 171st Tank Brigade.<sup>76</sup>

The concept of the operation saw the Transbaikal *Front* driving to Changchun to link up with the 1st Far Eastern *Front*, and then proceeding to Mukden to destroy the Japanese Kwantung Army and secure Manchuria. The 2nd Far Eastern *Front* had the task of mopping up any remaining Japanese resistance in the north after the encirclement was complete.<sup>77</sup> The success of the operation depended on the rapid maneuver of mobile groups over difficult terrain to secure the objectives of the respective *fronts*.

The offensive, which was launched after midnight on August 9, 1945, represented one of the most rapid offensives ever conducted. Taking a page from the German operation in the Ardennes in 1940, the Soviets sent a mobile group of the Transbaikal *Front*, the 6th Guards Tank Army, through the Grand Khingan mountain range. The Japanese considered the range virtually impassable for any large armored formations, much as the French had viewed the Ardennes in 1940.<sup>78</sup> As a result, they provided little defense to the area surrounding the mountain range. This permitted the 6th Guards Tank Army to proceed almost immediately into its exploitation phase. The result was one of spectacular success. By the afternoon of August 10, the leading tank brigade had advanced nearly 250 kilometers in 36 hours!<sup>79</sup>

We may particularly appreciate the accomplishment when we consider the difficult terrain to be crossed and the logistical difficulties connected with operating in an isolated area. However, the toughest part had yet to be accomplished: the crossing of the Grand Khingan Mountains. The roads were built to support beasts of burden, not a tank army. Nevertheless, forward detachments of the 6th Guards took Lupeh and Lichuan on August 12.<sup>80</sup> The main body followed close behind and crossed the mountains on August 13, after traveling 450 kilometers in four days. The Japanese Kwantung Army was on the verge of being enveloped due to the 6th Guards' rapid advance.

By the end of the campaign on August 20, the 6th Guards Tank Army was on the Pacific coast at Dairen, 820 kilometers from its start point.<sup>81</sup> This represented a rate of advance of about 82 kilometers per day, especially amazing considering the difficulties presented by terrain and logistics. In comparison, we might note that the U.S. 24th Infantry Division (Mechanized), during its operations in Iraq in 1991, sustained a rate of advance of about 65 kilometers per day over better terrain.

In Manchuria the tempo of operations was never allowed to slacken. As PU-36 had set forth years earlier:

The task of long-range (DD) tank groups is to penetrate to the depth of the main enemy defense, disrupt his reserves and headquarters ... and cut the axis of withdrawal of his main force.<sup>82</sup>

Eight years later, on August 20, 1945, the Japanese Kwantung Army would be defeated largely due to the Soviets' ultimate grasp of and adherence to the principles whose father had been discredited and executed soon after their promulgation.

### **A Final Note of Credit**

We have attempted here to illuminate the principles of *gluboky boi* and to illustrate their impact on Soviet operations in the latter stages of the war. The particular role of tanks and mechanized formations was selected as it was clearly one of the most significant aspects of the doctrine. Unfortunately, the name Tukhachevsky is rarely mentioned in historical accounts of the war. We can imagine that the great Soviet tank commanders such as Zhukov, Rotmistrov, Rybalko and Katukov who bore the brunt of the fighting might have had something to say about his teachings had they not had to deal with Joseph Stalin, who ordered Tukhachevsky's arrest and execution. It is sufficient for us, as students of operational art, to note how his concepts and ideas resurfaced during the course of the war and contributed so much to the great victory.

## NOTES

1. Amnon Sella, "Red Army Doctrine and Training on the Eve of the Second World War," *Soviet Studies*, April 1973, p. 249.
2. Earl F. Ziemke, "The Soviet Theory of Deep Operations," *Parameters* 13.2 (1983), p. 26.
3. David M. Glantz, "The Nature of Soviet Operational Art," *Parameters* 15.1 (1985) p. 6.
4. John Milsom, *Russian Tanks 1900-1970: The Complete Illustrated History of Soviet Armored Theory and Design* (New York: Galahad, 1970), p. 39.
5. William F. Scott and Harriet Fast Scott, "The Historical Development of Soviet Forward Detachments," *Military Review*, November 1987, p.29.
6. Charles Messenger, *The Blitzkrieg Story* (New York: Scribners, 1976), p. 99.
7. Richard E. Simpkin, *Deep Battle: The Brainchild of Marshal Tukhachevsky* (London: Brassey's Defense, 1987), p. 180.
8. Milsom, p. 48.
9. Simpkin, p. 179.
10. Guards Major M. F. Vassilieff, "The Evolution of Soviet Armoured Principles," *Armor*, January - February 1956, p. 23.
11. Milsom, p. 50.
12. Captain Johnathan M. House, *Towards Combined Arms Warfare: A Survey of 20th Century Tactics, Doctrine, and Organization* (Fort Leavenworth, Kans., U.S. Army Command and General Staff College, 1984), p. 66.
13. Messenger, p. 97.
14. Major William J. McGranahan, "The Fall and Rise of Marshal Tukhachevsky," *Parameters* 8.4 (1978), p. 70.
15. Ibid.
16. Messenger, p. 11

17. Messenger.
18. Sella, p. 255.
19. Milsom, p. 54.
20. House, p. 69.
21. Sella, p. 257.
22. Sella.
23. House, p. 67.
24. Milsom, p. 55.
25. Ibid.
26. Ibid, p. 56.
27. Michael Parrish, "Formation and Leadership of the Mechanized Corps in 1941," *Military Affairs* 47.2 (1983), p. 63.
28. Bryan I. Fugate, *Operation Barbarossa: Strategy and Tactics on the Eastern Front, 1941* (Novato, Calif.: Presidio Press, 1984), p. 36.
29. Parrish, p. 64.
30. Milsom, p. 56.
31. Parrish, p. 65.
32. Milsom, p. 60.
33. Parrish, p. 64.
34. Robert G. Poirier and Major Albert Z. Conner, "Soviet Wartime Tank Formations," *Armor*, May-June, 1983, p. 21.
35. Milsom, p. 61.
36. Poirier, p. 21.
37. Ibid.

38. Glantz, p. 6.
39. Albert Seaton, *The Russo-German War 1941-45* (Novato, Calif.: Presidio Press, 1971), p. 260.
40. Earl F. Ziemke and Magna E. Bauer, *Moscow to Stalingrad: Decision to the East* (New York: Military Heritage Press, 1988), p. 275.
41. Seaton, p. 262.
42. Department of the Army, *Small Unit Actions During the German Campaign in Russia* (Washington, D.C.: Center of Military History, United States Army, 1953), p. 107.
43. Ibid, p. 107-108.
44. Milsom, p. 65.
45. Poirier, p. 22.
46. Ibid.
47. Ibid.
48. Ibid.
49. Ibid.
50. Seaton, p. 306.
51. Ziemke, *Moscow to Stalingrad*, p. 470.
52. Ibid.
53. Ibid, p. 472.
54. Poirier, p. 23.
55. Robert G. Poirier, *The Red Army Order of Battle in the Great Patriotic War* (Novato, Calif.: Presidio Press, 1985), p. 21.
56. Simpkin, p. 229.
57. Milsom, p. 65.
58. Ibid., p. 66.

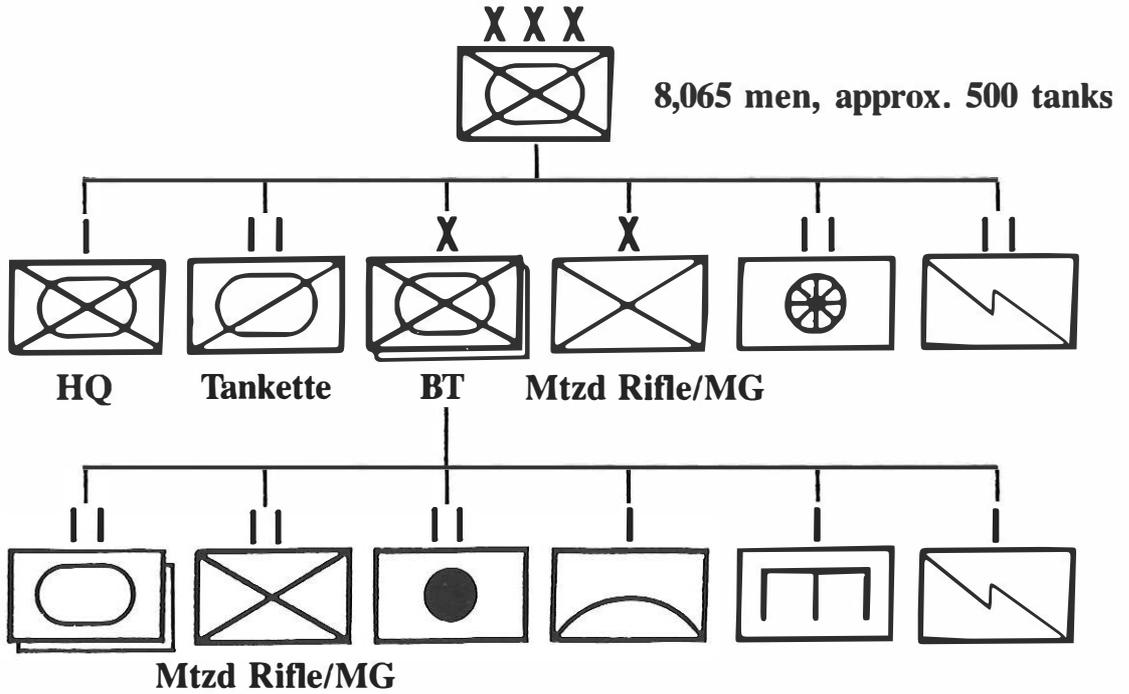
59. Ibid.
60. Poirier, "Soviet Wartime Tank Formations," p. 22.
61. Milsom, p. 68.
62. Ibid.
63. Earl F. Ziemke, *Stalingrad to Berlin: The German Defeat in the East* (New York: Military Heritage Press, 1985), p. 316.
64. Colonel T. N. Dupuy and Paul Martell, *Great Battles on the Eastern Front: The Soviet-German War 1941-45* (New York: Bobbs-Merrill Co., 1982), p. 151.
65. Ibid., p. 154.
66. Richard Armstrong, "Mobile Groups: Prologue to OMG," *Parameters* 26.2 (1986), p. 64.
67. Ibid.
68. Victor W. Madeja, *Russo-German War: Summer 1944 (Destruction of the Eastern Front)* (Allentown, Pa.: Valor Publishing, 1987), p. 39.
69. Armstrong, p. 67.
70. Seaton, p. 442.
71. Ibid., p. 435.
72. Paul Carell, *Scorched Earth: The Russian German War 1943-1944* (Boston: Little, Brown and Co., 1970), p. 491.
73. Marshal Sergei Sokolov, ed., *Battles Hitler Lost* (New York: Berkley Publishing Group, 1986), p. 130.
74. Dupuy, p. 274.
75. Ibid.
76. Poirier, *The Red Army Order of Battle in the Great Patriotic War*, p. 40.
77. Sokolov, p. 217.

78. Lieutenant Colonel David M. Glantz, *August Storm: Soviet Tactical and Operational Combat in Manchuria, 1945* (Fort Leavenworth, Kans.: U.S. Army Command and General Staff College, 1983), p. 5.
79. Dupuy, p. 240.
80. Ibid., p. 239.
81. Ibid., p. 247.
82. Simpkin, p. 229.

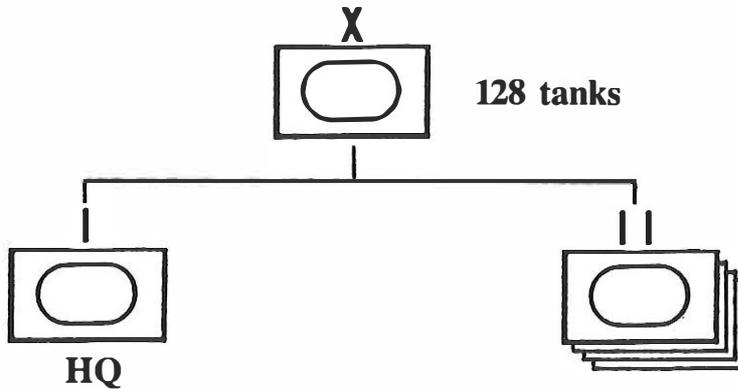
APPENDIX A

SOVIET PRE-PURGE TANK FORMATIONS

Moto-Mechanized Corps (1935)

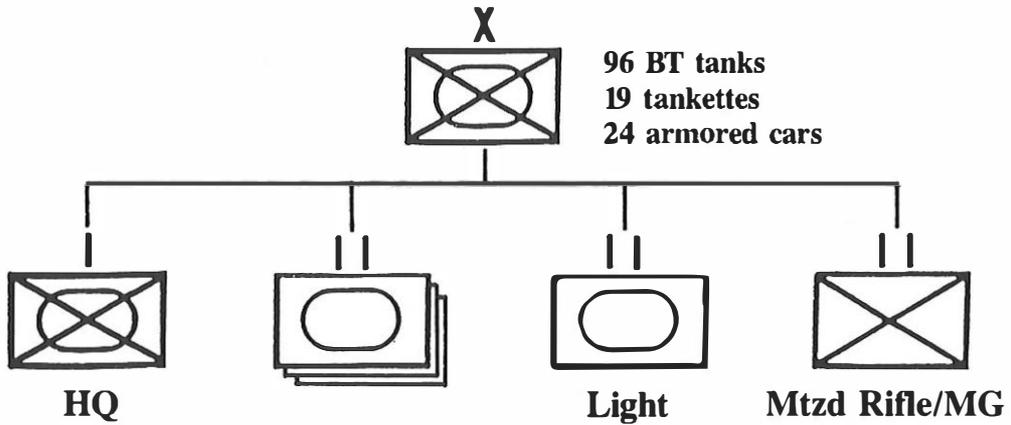


Tank Brigade (1936-40)

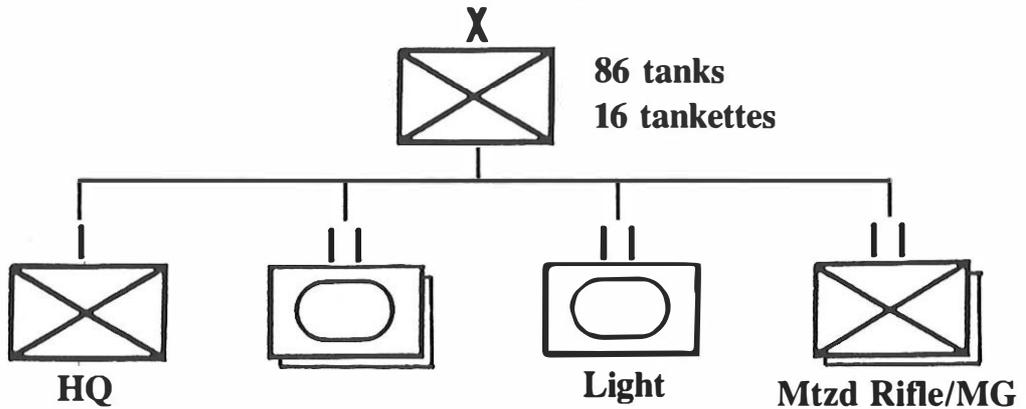


	mechanized		signal		armor		air defense		medical		chemical	...	platoon
	armored cavalry		transportation		artillery		armored artillery		rocket launcher		fuel	...	company
	infantry		cavalry		engineer		antitank		maintenance			...	battalion
												...	regiment
												...	brigade
												...	division
												...	corps
												...	army

### Mechanized Brigade (1936-40)



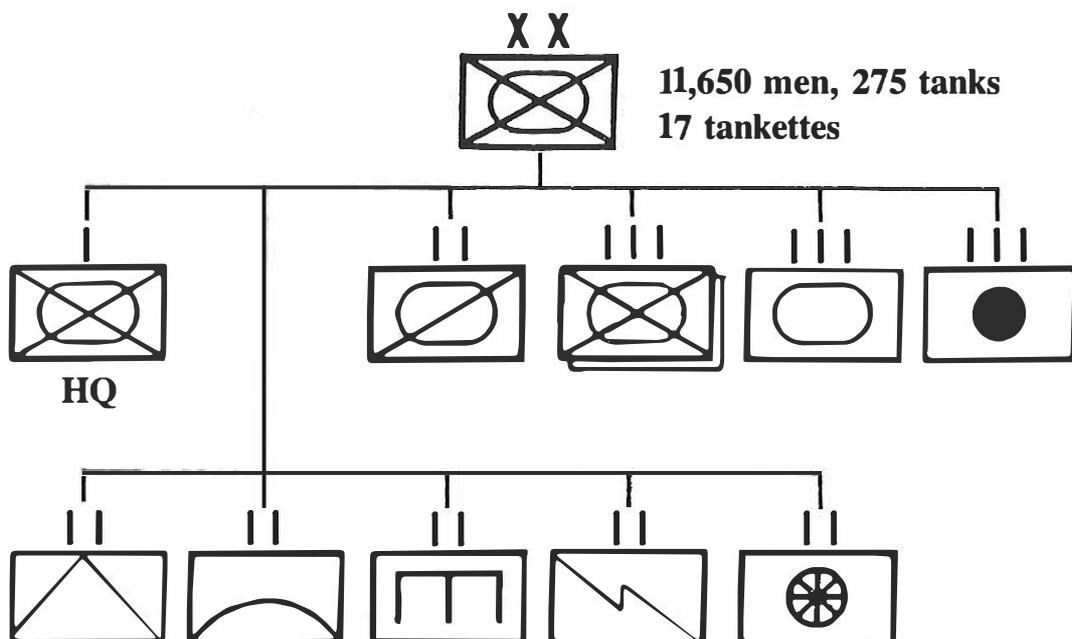
### Moto-Mechanized Brigade (1936-40)



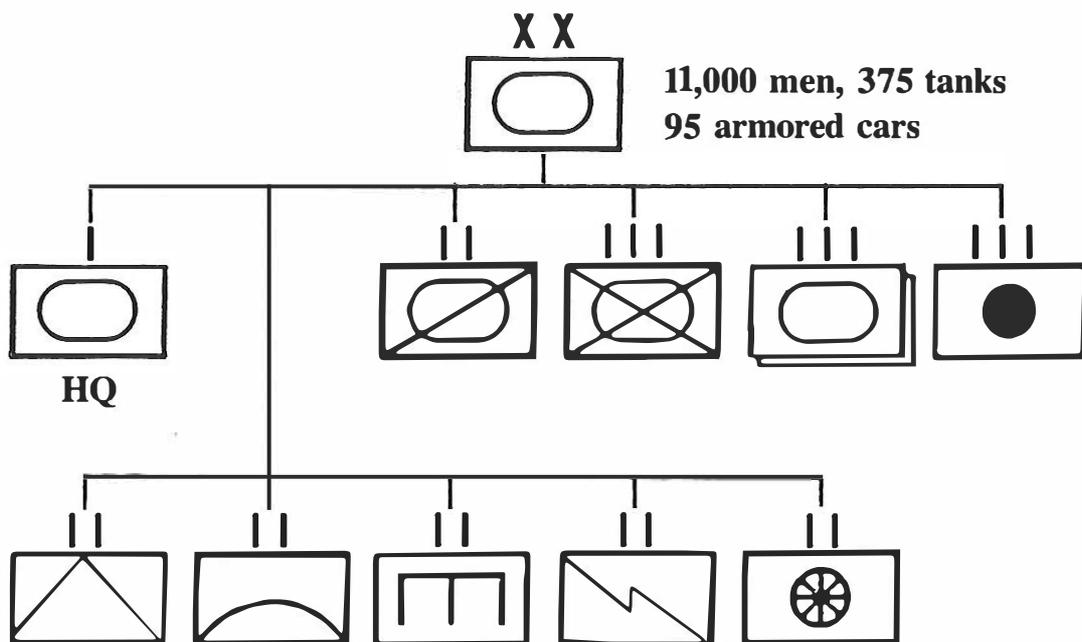
APPENDIX B

SOVIET PRE-WAR TANK FORMATIONS

Mechanized Division (1939-41)

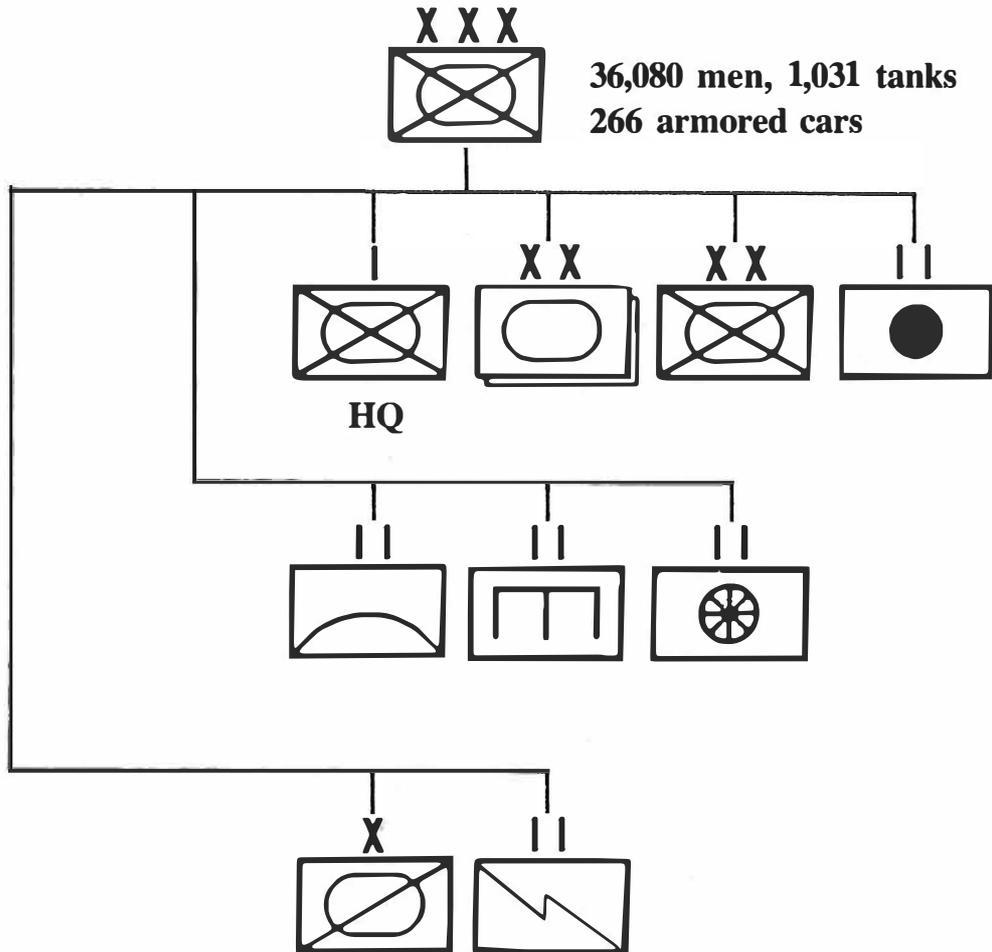


Tank Division (1939-41)



APPENDIX B (continued)

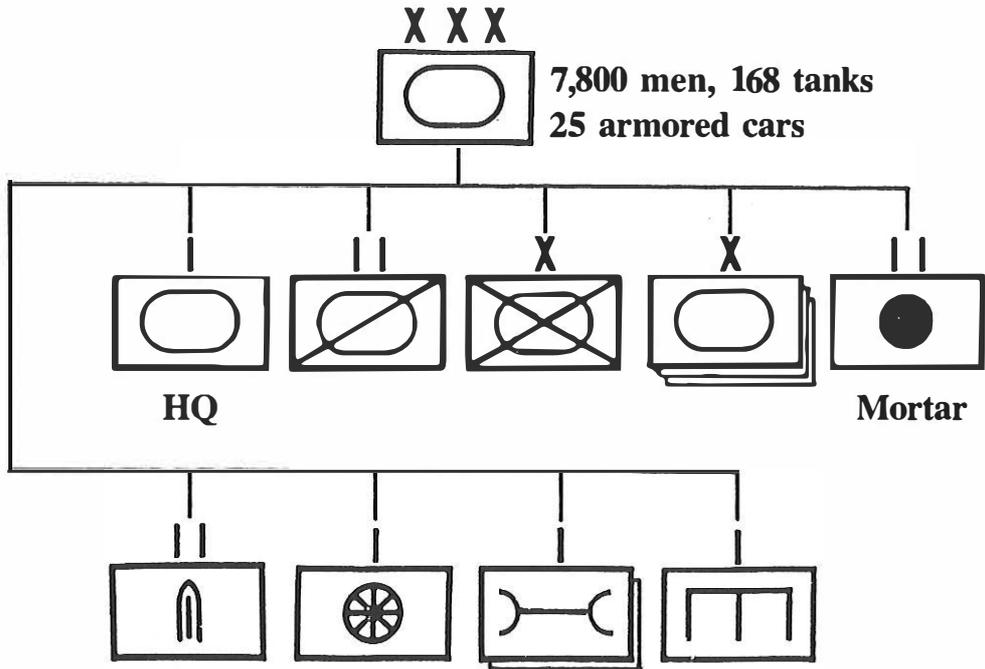
**Soviet Mechanized Corps (1940-41)**



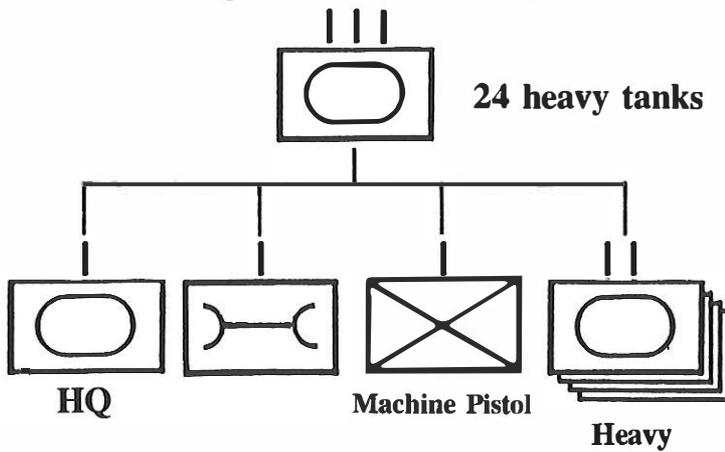


APPENDIX C (continued)

**Tank Corps (1942-44)**

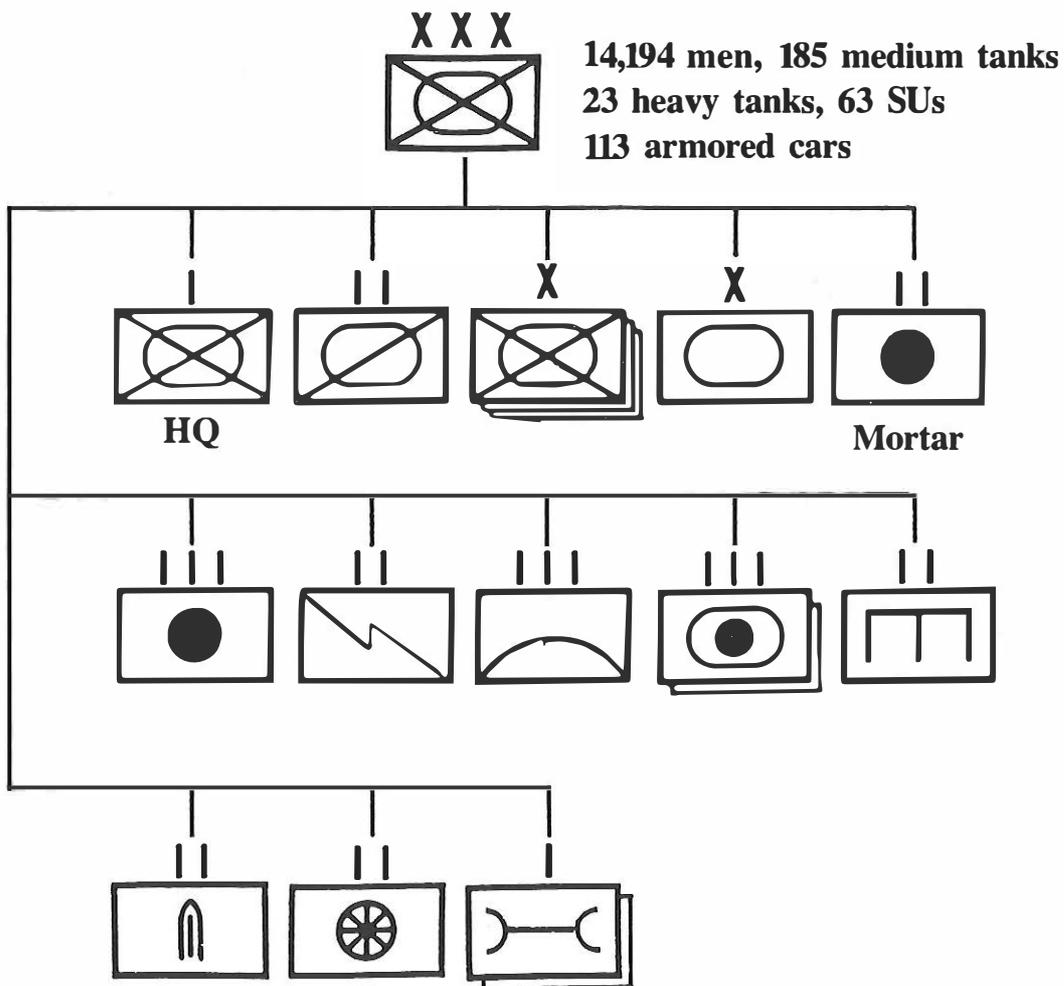


**Independent Tank Breakthrough  
Regiment (1942-45)**



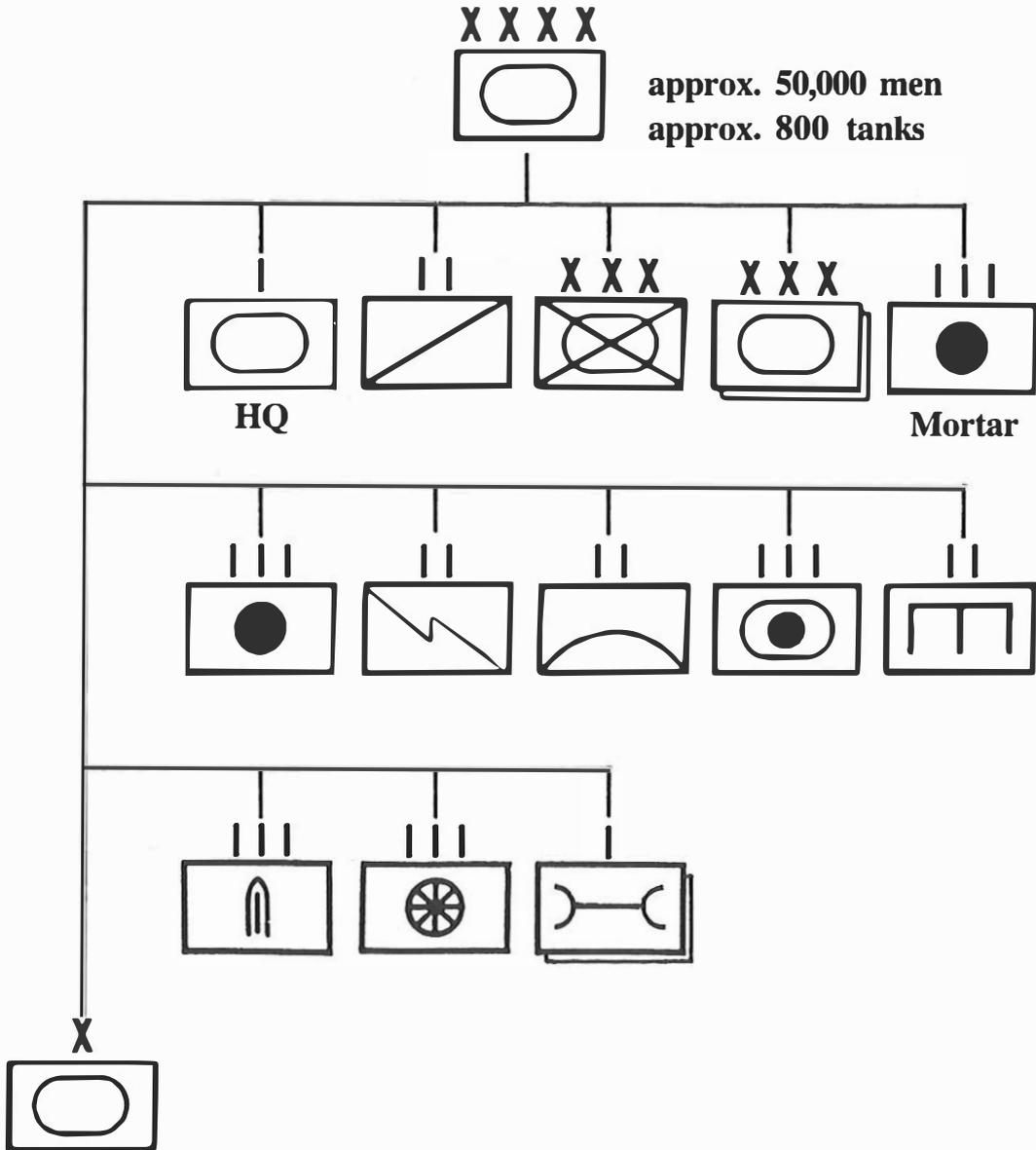
APPENDIX C (continued)

**Mechanized Corps (1942-45)**



APPENDIX C (continued)

**Tank Army (Unified Composition)  
(1943-45)**



APPENDIX C (continued)

**Tank Corps (1944-45)**

